Standard Treatment guidelines for Obstetrics

1. CONFIRMATION OF PREGNANCY

- Usually based on clinical grounds
- Further confirmed by examination
- If facilities available reliably done by urine test for pregnancy: 6 weeks after last menstrual period or 15 days after missing period.
- Collect a sample of morning first voided urine and send for pregnancy test (agglutination inhibition for detection of HCG in urine).

2. CARE IN NORMAL PREGNANCY - ANTENATAL, INTRA-PARTUM & POST-PARTUM

2.1 Antenatal care-

A comprehensive antenatal care program is a coordinated approach to medical care and psychosocial support that optimally begins before conception and extends throughout the ante partum period.

- Usually done by (female multipurpose worker by i.e. ANM)
- But in high risk cases and in those who so desire to be done by Rural Medical Assistant and medical officer:

AIMS & OBJECTIVES OF ANC:

- To screen high risk cases
- To predict, prevent, detect and manage medical and obstetrical complications at the earliest
- To educate the mother about physiology of pregnancy and labour
- To counsel about breastfeeding and contraception
- To ensure birth preparedness and emergency readiness
- To promote institutional delivery to reduce maternal and perinatal morbidity and mortality.

NUMBER & FREQUENCY OF ANTENATAL VISITS

Registration/1st visit - Should be as soon as the pregnancy is suspected, ideally before 12 wks.

S.No.	Trimester	Ideal ANC Visit
1	First trimester	➢ Every 4 weeks till 28 weeks
2	Second trimester	➢ Every 2 weeks between 28 and 36 weeks
3	Third trimester	➢ Weekly after 36 weeks
Minimum 4 visits : 1st visit – Within 12 weeks preferably as soon as pregnancy is suspected 2nd visit – Between 14 – 26 weeks, 3rd visit – Between 28 – 34 weeks, 4th visit – Between 36 weeks and term		

FIRST VISIT / 1ST TRIMESTER

1. Confirmation of pregnancy by urine pregnancy test to be done by 6 weeks after last menstrual period or 15 days after missing period

2. Detailed history -

2.1.Age, Parity, Menstrual history,

2.2.Past obstetric history

- Details of ANC received,
- Tetanus immunization.
- Any pregnancy complications in antepartum, intrapartum and postpartum period

2.3.Medical history

- Hypertension
- Diabetes
- Thyroid
- Tuberculosis
- Asthma
- Heart disease
- Epilepsy
- Haemoglobinopathies

2.4.Surgical history

2.5.Family history

- Hypertension
- Diabetes
- Tuberculosis
- Haemoglobinopathies,
- multiple gestation,
- congenital anomalies)

2.6.Personal history (addiction, drug abuse, drug allergy)

2.7.Physical examination

- Height, Weight, Body Mass Index(BMI),
- Thyroid swelling, Pulse, BP, RR, Pallor, Icterus, Pedal edema, Breast Examination
- Chest auscultation for respiratory and cardiac disease
- **Per abdomen -** Tone of abdominal wall, any scar, hernia, whether uterus palpable and corresponding to period of amenorrhoea, any other mass
- **Per vaginal examination**(PV Examination) to assess uterine size and any gynaecological pathology

3. **Routine investigations**

Hb	Blood Group	Rh Factor	Sickle Cell Disease test	HBsAg	Urine albumin Sugar
TSH	Blood Sugar	VDRL/RPR	HIV	Urine Microscopy	Malaria test in endemic areas

Testing for GDM is recommended Twice during ANC.

The first testing should be done during first antenatal contact as early as possible in pregnancy.

The second testing should be done during 24-28 weeks of pregnancy if the first test is negative.

Screening for hypothyroidism is recommended in high risk PW.

All pregnant women should be tested for syphilis in the first ANC visit itself which should be as early as possible by a POC test at the sub centre level or at any other facility where women visit for ANC, where laboratory facility for RPR are not available irrespective of her previous syphilitic status.

- Folic acid supplementation 400 mcg/day
- Discuss hygiene and minor ailments
- Health education advice and counseling

SUBSEQUENT VISITS

In each antenatal visit

- Enquiry about any new symptoms
- Check weight
- BP, Pallor, edema,
- Varicose veins
- Deep vein thrombosis (tender, swollen legs)
- P/A – Fundal height in weeks, symphysio-fundal height in centimeters, fetal parts, fetal heart sound from 18wks onwards.

In 3rd trimester

- Assess lie

- Presentation
- Position
- liquor
- Engagement in addition to above.
- Review previous investigations reports
- Repeat Hb at 32 and 36 wks

Urine routine & microscopy in each visit

USG at 18-20wks for estimation of gestational age, fetal biometry

Amniotic fluid index,

Exclusion of anomalies and for placental localization; may be done earlier and repeated later as per obstetric indications.

Repeat OGCT at 24-28 wks or anytime before delivery if previously normal; repeat again at 32-34 wks in high risk cases, if normal earlier

If high risk cases detected (enlisted below), refer to tertiary care centre and involve specialists

- Antepartum fetal assessment with weekly NST, BPP, modified BPP after 28 weeksin high risk cases & other advices as per the specific risk factors.

ROUTINE MEDICATIONS

1. **Tetanus toxoid (TT)**

A. **First pregnancy**: Two doses of 0.5 ml each IM, 4-6 weeks apart

B. Subsequent Pregnancies:

- Last pregnancy within 3 yrs – 1 dose of TT in current pregnancy
- Last pregnancy 3 yrs ago – 2 doses of TT in current pregnancy

2. **Iron and folic acid (IFA) supplementation**

- Tab ferrous sulphate + folic acid combination containing 100 mg elemental iron with 0.5mgof folic acid to be started from 14-16wks onwards , continued throughout pregnancy and thereafter, for six months postpartumbased on Haemoglobin level.

3. **Calcium supplementation** – To prevent gestational hypertension government of India suggests oral swallowable calcium tablet to be taken twice a day (total 1 g calcium per day) starting from 14 weeks of pregnancy up to six months post partum. The preferred formulation for calcium is Calcium carbonate. The rational for inclusion of vitamin d is to enhance the absorption of calcium. Formulation recommended for tablet is Calcium carbonate 500 mg and Vitamin D3 250IU

4. **Deworming** should be done with Albendazole 400mg once for all pregnant women .preferable during the second trimester but not in first trimester.

HIGH RISK PREGNANCIES

All high risk pregnancy cases should be referred to higher centre with referral letter. These include:-

- Short statured (<145cm)
- Age less than 18 years
- 4th child and above (grand multi)
- Elderly primigravida (age > 35 yrs)

Previous pregnancy complications:-

- Bad obstetric history (recurrent abortions, previous intra-uterine fetal death, perinatal death or early neonatal death)
- Intra uterine growth restriction (IUGR)
- Pregnancy induced hypertension (PIH)
- History of prolonged/obstructed labour
- Prior history of preterm labour or prelabour rupture of membranes
- Previous history of postpartum hemorrhage, retained placenta
- Previous history of gestational diabetes mellitus (GDM)
- Previous caesarean section/ instrumental delivery
- Previous history of congenital or chromosomal anomalies

Current pregnancy complications:-

- Multiple pregnancy
- Insufficient weight gain
- Malpresentation
- Rh iso-immunisation
- Ante partum hemorrhage
- IUGR
- PIH
- GDM
- Poly/oligohydramnios
- Unsatisfactory progress of labour
- Associated medical disorders - heart disease, overt diabetes mellitus, chronic hypertension, epilepsy, haemoglobinopathies

PATIENT EDUCATION

1. Advise against food taboos
2. Explain about black staining of stools due to oral iron therefore need not to worry
3. Iron and calcium supplements should be taken at different times of the day, intake vitamin C containing food items.
4. Avoid intercourse in threatened abortion and preterm labour
5. Encourage high fibre diet and plenty of fluids to avoid constipation
6. Avoid exercise if multiple pregnancy, heart disease, PIH, history of PTL, threatened abortion, APH
7. To wear non-constricting clothes
8. Maintain oral and dental hygiene
9. Educate about safe travel – avoid prolonged sitting in vehicle, air travel contraindicated for sickle cell disease, placenta previa, pre-eclampsia, severe anemia
10. Educate about DFMC (daily fetal movement count: Advise the patients to watch for minimum 10 to 12 fetal movements a day in the last two months and to report if they are lesser)
11. Live attenuated vaccines are contraindicated in pregnancy such as measles, mumps and rubella
12. Prepare the woman for delivery – when to go, what to bring, where to go in emergency.
13. Take rest at least for 2 hours in a day and sleep for 8 hours in night.

References:

1. Antepartum care - NICE clinical guideline no. 62, 2010
2. Prenatal care. In: Williams Obstetrics. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY (Eds), 23rd Edition, McGraw Hills Company Inc., 2010;pp. 189-214.
3. WHO - Integrated management of pregnancy and childbirth - Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice 2006
4. Guidelines for ante-natal care and skilled attendance at birth by ANMs & LHVs - Department of Family Welfare Ministry of Health & Family Welfare Government of India 2005

2.2 Intrapartum care

ALGORITHM OF INTRAPARTUM CARE
WOMAN WITH LABOUR PAIN AT TERM

Detailed history	General exam.	P/A	P/S,P/V	Risk factors*
Obstetric History	Pulse		Fundal Height	Cervix If Present
G P Ab LB	BP		Fetal -	Position
H/O -	Temperature		Lie	Dilatation
Instrumental Delivery	RR		Presentation	Effacement
Cesarean section	Pallor		Position	Consistency
Rupture uterus	Cyanosis		Movements	Membranes
3rd stage complications	Icterus		FHR	+ / -
PPH , Retained Placenta	Edema		Uterine contractions	Nature of Liquor
Inversion	Thyroid		FrequencyC/M/B/A	
3rddegree tear	Breast		Intensity	Station of presenting part
VVF repair	Auscultation		Duration	Degree of flexion of head
	Respiratory		Scar tenderness in	**Pelvic adequacy**
Current Pregnancy	CVS		previous CS	

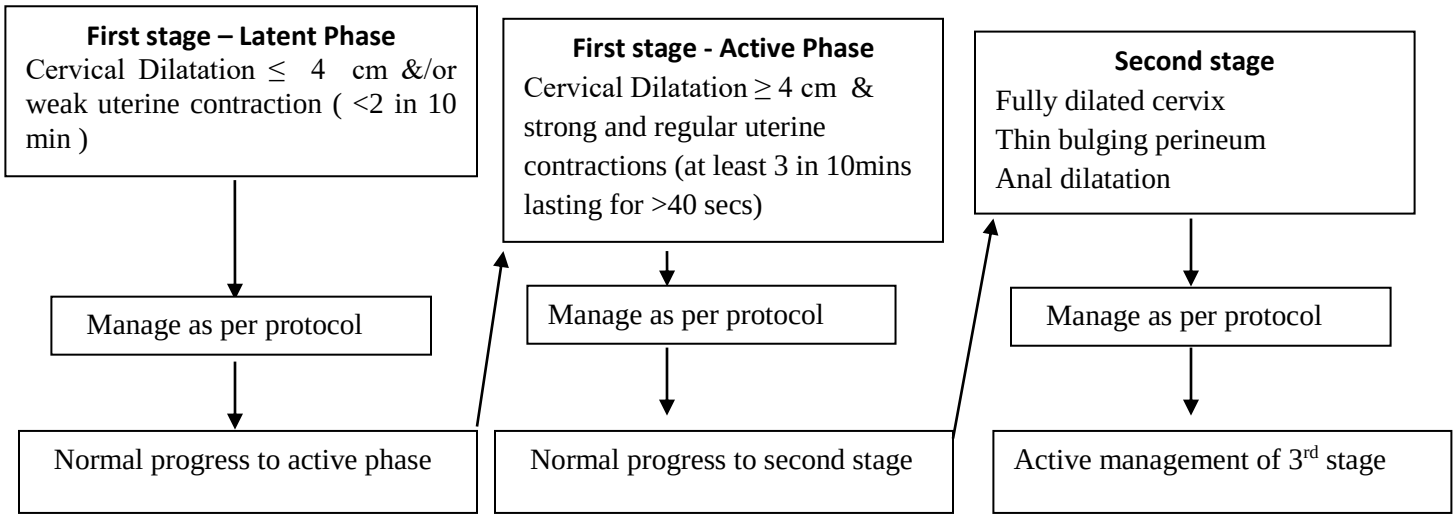
Age of patient	Singleton/ Multiple
Gestational age	Medical disorders
Obstetric complication	Tetanus Immunization status
Haemoglobin	HIV status

Key for abbreviations :

G- Gravida
P- Para
Ab- Abortion
LB- live birth
PPH- Post partum hemorrhage
VVF- Vesico-vaginal fistula
RR- Respiratory rate
FHR- Fetal heart rate
Nature of liquor-
C/M/B/A- clear/meconium stained/bloody/absent
CS – Caesarean section

***Risk factors:-**

1. Any antepartum complication as listed in ANC protocol
2. Intrapartum risk factors :-
   - Cephalo-pelvic disproportion/contracted pelvis
   - Previous Caesarean
   - Hypertonic uterine contractions
   - Fetal distress
   - Meconium stained liquor
   - Malpresentations
   - Cord presentation/prolapse
   - Inadequate progress of labour (shift to right of alert line in partograph)
   - Signs of maternal exhaustion

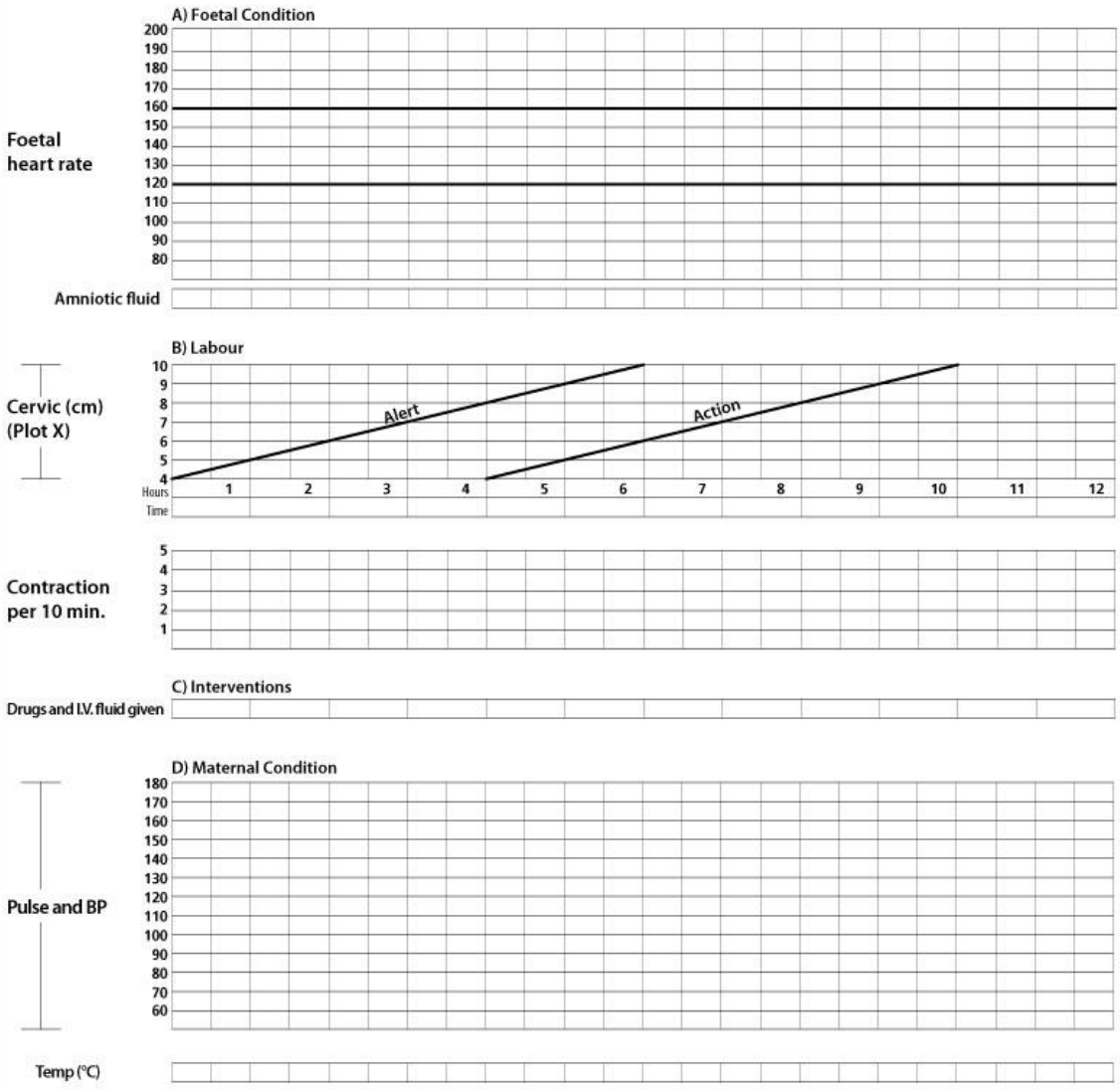

First stage – Latent Phase
Cervical Dilatation ≤ 4 cm &/or weak uterine contraction (<2 in 10 min)
Manage as per protocol
Normal progress to active phase
First stage - Active Phase
Cervical Dilatation ≥ 4 cm & strong and regular uterine contractions (at least 3 in 10mins lasting for >40 secs)
Manage as per protocol
Normal progress to second stage
Second stage
Fully dilated cervix
Thin bulging perineum
Anal dilatation
Manage as per protocol
Active management of 3rd stage

THE SIMPLIFIED PARTOGRAPH

Identification Data

Name: W/o: Age: Parity: Reg. No.:

Date & Time of Admission: Date & Time of ROM:



Initiate plotting on alert line | **Refer to FRU when ALERT LINE is crossed**

Ministry of Health & Family Welfare
Government of India

MANAGEMENT PROTOCOL FOR FIRST STAGE OF LABOR

Management protocol for latent phase of labour

- Preparation of woman:
  - Trimming of hair, no shaving
  - No routine enema
- Allow ambulation
- Allow Isotonic liquid, plain water or low residual diet
- Frequent bladder emptying
- FHR monitoring:
  - Every 60 mins for normal cases & every 15 min. for high risk cases
- Hourly monitoring for:
  - Pulse
  - Frequency , intensity & duration of uterine
  - contraction
- Four hourly monitoring
  - Temperature
  - Blood Pressure
- Frequency of PV: 4 hourly
- Pain Relief :
  - Labor companion
  - Breathing & relaxation techniques
  - Gentle back massage
  - Inj.Tramadol as per the decision of treating doctor
- Give supportive care throughout labor
- Assessment of progress of labor

Management protocol for active phase of labor

- **Start partograph monitoring**
- Preparation of woman
- Allow ambulation
- Allow Isotonic liquid, plain water or low residual diet
- Frequent bladder emptying
- FHR monitoring:
  - Every 30 mins for normal cases & every 15 min for high risk cases
- Half hourly monitoring for:
  - Frequency , intensity & duration of uterine contractions
  - Fetal heart rate
- Hourly monitoring : Pulse
- Four hourly monitoring
  - Temperature
  - Blood Pressure
  - Urine output
- Frequency of PV: four hourly
- Pain Relief :
  - Labour companion
  - Breathing & relaxation techniques
  - Gentle back massage
  - Inj.Tramadol as per decision of treating doctor
- Give supportive care throughout labour

Prolonged latent phase - More than 20 hrs in primi (Avg 8.6) and 14 hrs in multi (Avg 5.3)

Active phase disorders

Normally 5-7 hrs in primi and 2-4 hrs in multi

- **Protraction Disorder**-

Dilatation < 1.2 cms/hr in primi &< 1.5 cms/hr in multi &/or Descent < 1 cm/hr &< 2cm/hr respectively

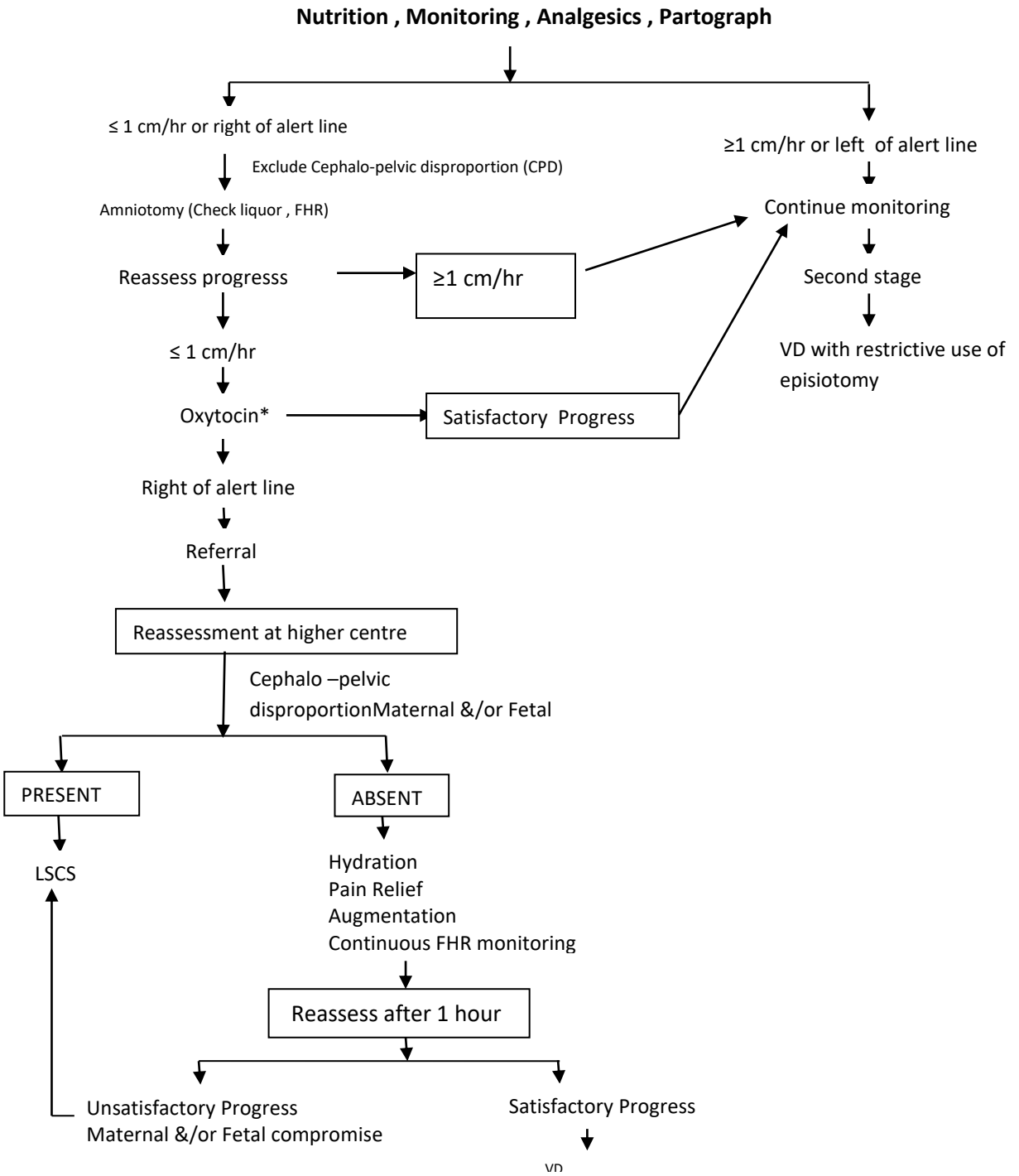
- **Arrest disorder**- No dilatation for > 2 hrs &/or no descent for > 1 hr in both primi & multi
- **Shift to right of alert line on partograph**

Maternal &/or Fetal compromise

Present → Referral

Absent → Augment with oxytocin*
(in referral centre) if no contraindication for vaginal delivery

Note :-During first state of labour Identification of birth Companion during and orientation of birth companion on its role

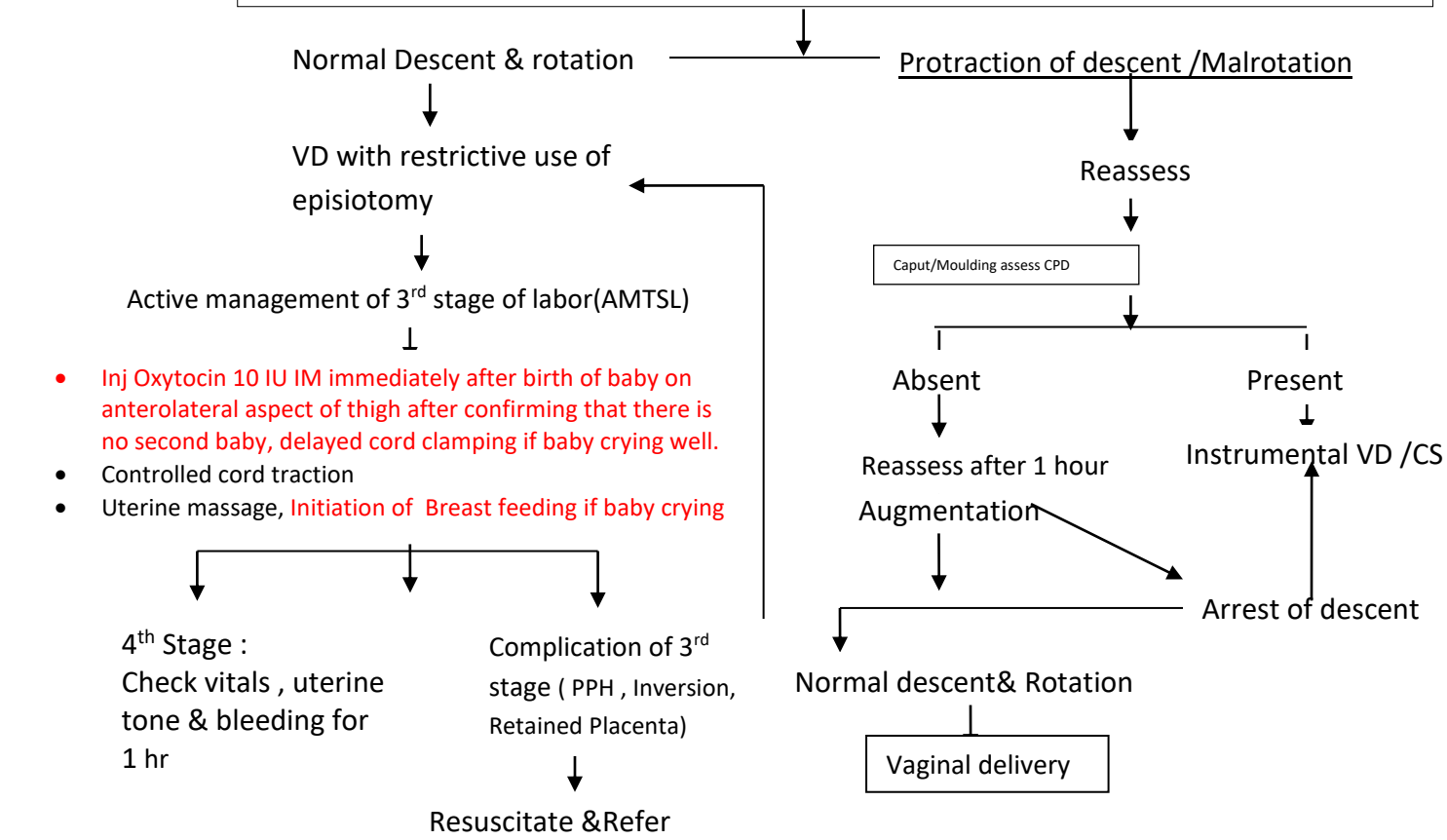


***Oxytocin regimen (high dose regimen to be followed)**

- **A**dd 5 Units oxytocin in 1000ml or 2.5 Units in 500ml RL/NS and start at 16 drops/min
- increase every 30 mins by 16drops/min (16,32,48,64 drops/min) till 3-5 uterine contractions per 10mins, each lasting > 40 secs . Once the desired contraction is achieved maintain the same drop rate
- Maximum drop rate is 64 drops/min
- Stop infusion if fetal heart rate <110/min or >160/min or if ≥ 5 contractions in 10 mins
- Oxytocin to be used only in referral centre or when adequate monitoring and c-section facilities are available

PATIENT IN 2ND STAGE OF LABOUR

- Clean perineum with antiseptic solution
- Allow isotonic liquid, plain water
- Empty bladder if full
- FHR monitoring: Every 5 mins
- Halfhourly monitoring for frequency, intensity & duration of uterine contraction
- Half hourly monitoring : Pulse
- Hourly monitoring of :- Temperature, Blood Pressure
- Frequency of PV: hourly
- Assumption of whichever position the woman likes
- Give supportive care throughout labour
- Assessment of progress of labor
  - Rate of descent- 1 cm/hr in primi and 2 cm/hr in multi
  - Rotation
  - Prolonged 2nd stage – > 1 hr in multi &> 2 hrs in primi



2.3 POST PARTUM CARE

Care of mother (and the newborn) after delivery is known as post natal or post-partum care.

Objectives

1. To provide care for the rapid restoration of the mother to optimum health
2. To check the adequacy of breast feeding
3. To provide family planning services
4. To provide basic health education to mother/family
5. To prevent puerperal complications

Frequency of postnatal checkups

- For first 48hrs- 4 hourly
- Subsequent checkups – 1st , 3rd , 7th and 42th day of delivery.

SERVICE PROVISION DURING CHECKUPS

	MOTHER	NEWBORN
ASK –	• Heavy Bleeding • Breast engorgement • Bowel & urinary problems	• Confirm passage of urine (within 48 hours) and stool (within 24 hours) • any feeding difficulties • For convulsions, diarrhoea and vomiting
OBSERVE &CHECK -	• Pallor, pulse, BP and temperature 4 hourly • Breast daily • Examine incision sites (episio, caesarian section wound, perineal tears) • Uterine involution • Urinary problems • Excessive bleeding (PPH) • Foul Smelling discharge	• Neonatal reflexes • Activity, • Color , Temperature, jaundice • Cord stump and skin for pustules • Breathing and chest in-drawing • Suckling
COUNSEL FOR -	• Initiation of breastfeeding within one hour • Correct positioning during breast feeding and nipple care • Exclusive breast feeding for 6 months • Nutritious diet and calcium rich foods • Maintain hygiene and use of sanitary napkins • Advice pelvic floor exercises • Contraception • Danger signs(Fever, heavy bleeding per vaginum, foul smelling lochia, painful leg swelling, chest pain, painful breast swelling)	• Keeping baby warm • Burping after each feed • Keep the cord stump clean and dry • Additional checkup for the low birth weight babies • Routine immunization • Danger signs
DO -	• Haemoglobin if needed • Give iron & calcium supplementation to mother for at least 6 months	• Initiate routine immunization • Injection Vitamin K 1mg/gm

At the end of 6 weeks –

Maternal checkup-

- Routine examination - weight, pallor, blood pressure, tone of the abdominal muscles and breast examination.
- Per abdomen assessment of involution of uterus
- Pelvic examination should be done only when indicated
- Laboratory investigation (eg. Haemoglobin) depending upon the clinical need may be advised

Infant checkup– Evaluate health of the baby

Advice–

- If the patient is in sound health she is allowed to do her usual duties.
- Postpartum exercises may be continued for another 4-6 weeks.
- To evaluate the progress of the baby periodically and to continue exclusive breast feeding for 6 months.
- Family planning counseling and guidance.

MANAGEMENT OF AILMENTS

- **Irregular vaginal bleeding –**
  - Heavy bleeding after 4-6 weeks following an uneventful period may be the 1st menses after delivery, especially in non-lactating women, and simple assurance is enough.
  - Persistence of bleeding dating back from child birth is likely due to retained bits of placenta or membranes and usually requires ultrasound examination.

- **Leucorrhoea** – First rule out puerperal sepsis. Profuse white discharge might be due to ill health, vaginitis, cervicitis or sub involution. Improvement of the general health and specific therapy cures the condition.

- **Backache** – It is mostly due to sacroiliac or lumbo-sacral strain. Backache situated over the sacrum is likely due to pelvic pathology, but if it is over the lumbar region, it might be due to an orthopaedic condition and is often relieved by physiotherapy.

- **Management of puerperial pyrexia-**
    - Look for breast engorgement, thrombophlebitis, urinary infection,deep vein thrombosis,perineum for wound infection.
    - Vulval hematoma,foul smelling lochia, puerperial sepsis, any other systemic infection
    - Send high vaginal swab for culture & sensitivity
    - Other lab workup as per the clinical suspicion & referral
- **Management of beast problems-**
    - **Breast engorgement** – examine & rule out mastitis (engorgement, localized redness & tenderness)& breast abcess (engorgement redness & fluctuation).
    - If present to be managed with antibiotics .
    - if simple breast engorgement then advice for breast support, express breast milk & feeding in proper positioning
    - **Crack nipple-** feeding in proper positioning, hind milk application
- **Slight degree of uterine descent with cystocele**
    - Stress incontinence and relaxed perineum are the common findings and can be cured by effective pelvic floor exercises.
    - if the prolapse is marked, appropriate surgery should be done after three months.
    - If any of the danger sign is present women should be referred to higher centre.

4. Normal Puerperium

Puerperium is the period following childbirth during which the body tissues, especially the pelvic organs, revert back approximately to the pre-pregnant state, both anatomically and physiologically.

Duration – Puerperium begins as soon as the placenta is expelled and lasts for approximately 6 weeks. It is divided into:

a) Immediate - within 24 hours
b) Early – upto 7 days
c) Remote - upto 6 weeks.

Uterus:

- Immediately following delivery, the uterus becomes firm and retract with alternate hardening and softening.
- At the end of 6 weeks, its measurement is almost similar to that of the non-pregnant state, following delivery.
- The fundus lies about 13.5 cm ($5^{I}/2^{II}$) above the symphysis pubis.
- During first 24 hours, the level remains constant, thereafter there is a steady decrease in height by 1.25 cm ($1/2^{II}$) in 24 hours, so that by the end of second week the uterus becomes a pelvic organ.
- The rate of involution thereafter slows down until by 6 weeks the uterus becomes almost normal in size.

- **Lochia** – vaginal discharge for the first 15 days during puerperium.
  Odour – Peculiar offensive fishy smell.
  Colour– Lochia rubra (Red) 1 – 4 days
  Lochia serosa (Yellowish or pink) – 5 – 9 days.
  Lochia Alba (Pale white) – 10 – 15 days

Management of Normal Puerperium

- **Rest and Ambulance** – Early ambulance after delivery is beneficial as this:
  1. Provides sense of wellbeing

2. Bladder complications & constipation are less.
3. Helps in uterine involution
4. Lessens puerperal venous thrombosis and embolism.

- **Diet** – should be balanced. Foods rich in calories, adequate protein, fat, plenty of fluids, minerals and vitamin are to be given.
- **Care of bladder** – Patient is encouraged to pass urine following delivery as soon as convenient.
- **Care of bowel**
    - Problem of constipation is less because of early ambulation and liberalizations of the dietary intake.
    - Mild laxative such as isopgol husk 2 teaspoons may be given at bed time if needed.
- **Sleep**
    - Should be protected against worries and undue fatigue.
    - Should have rest & sound sleep.
- **Care of vulva and episiotomy wound**
    - After delivery, vulva and buttocks must be cleaned and sterile pads applied.
    - Perenial wound should be cleaned with antiseptics after each act of micturation and defecation or at least twice a day.
- **Care of breasts**
    - It should be cleaned and kept dry after feeding is over.
- **Maternal**
    - Infant bonding (rooming-in) - it starts within first few moments after birth.
    - The baby should be kept on bed with the mother.
- **Asepsis and antiseptics**
    - Asepsis must be maintained specially during the first week of puerperium.
    - Use of local antiseptics, aseptic measures during perineal wound dressing,
    - Use of clean bed linen and clothing, clean surroundings and limiting the number of visitors could help in reducing nosocomial infections.

- **Immunization**
  - Administration of anti-D-immunoglobulin to non-immunized Rh-negative mother with Rh-positive baby.
  - Booster dose of tetanus toxoid should be given if it is not given during during pregnancy.

Management of ailments

- **After pain** – It is infrequent, spasmodic pain felt in lower abdomen after delivery for a variable period of 2 – 4 days.
- **Presence of clots as bits of after-** births lead to hypertonic contraction of uterus in an attempt to expel them out.
- Administration of analgesics and antispasmodics.
- **Pain at the perineum** – Rule out vulvo-vaginal haematoma, hot & cold sponging can give relief.
- **Correction of anaemia** – supplementary iron tablet therapy to be given daily for a minimum period of 6months.
- Hypertension to be treated until it comes to a normal limit.
- **Postpartum exercise** reduces risk of puerperal venous thrombosis, to prevent backache, to prevent genital prolapse and stress incontinence of urine.
- It should be taught to each and every woman after delivery.
- Physical activity should be resumed without delay.
- Sexual activity may be resumed (after 6 weeks) when the perineum is comfortable and bleeding has stopped.
- **Check up and advice on discharge** – A thorough check-up of the mother and the baby is mandatory prior to discharge of the patient from the hospital. Discharge certificate should have all the important information.

3.1 Abnormalities of the puerperium

Puerperium pyrexia – rise of temperature reaching 100.4^0F (38^0C) or more on two separate occasions at 24 hours apart within first 10 days following delivery excluding 1st 24 hours after delivery.

Causes of Puerperal Sepsis -

- Urinary tract infection
- Mastitis
- Infection of caesarean section wound
- Pulmonary infection
- Septic pelvic thrombophlebitis.

Puerperal Sepsis – Due to

i) Endometritis

ii) Endomyometritis

Predisposing factors

Ante partum factors	Intrapartum & postpartum factors
I. Malnutrition & anaemia	I. Repeated vaginal examination
II. Preterm Labour	II. Dehydration & ketoacidosis during labour.
III. Premature rupture of membranes	III. Traumatic operative delivery.
IV. Chronic debilitating illness	IV. Haemorrhage – ante partum or postpartum
V. Prolonged rupture of membranes > 18 hours	V. Retained bits of placental tissue or membranes
	VI. Placenta Previa
	VII. Caesarean delivery

Signs:-

Local infection	Uterine infection
1. Slight rise of temperature, generalized malaise or headache	1. Rise in temperature & pulse rate, chills and rigor may be present
2. Local wound becomes red & swollen.	2. Offensive and copious lochia discharge
3. Pus may form.	3. Uterus is subinvoluted, tender and soft

Investigations

History:-

- Antenatal, intranatal and postnatal events,
- any risk factor for infection like anaemia
- Prolonged rupture of membranes or prolonged labour.

Clinical Examination – General, physical & systemic examination.

- Temperature, pulse, BP, respiratory rate
- Breast – engorgement, breast abscess
- Abdominal & pelvic examination
- Legs to be examined for thrombosis / thrombophlebitis
- Episiotomy/abdominal wound for discharge, induration, erythema, dehiscence
- High vaginal, endocervical swab and urine for culture & sensitivity.
- Blood for total and differential white cell count.
- Hemoglobin estimates
- Blood for malarial parasite
- Blood culture if needed
- Pelvic ultrasound to detect any bits of placental tissue within uterus, pelvic abscess

General care - Isolation of Patient

- Adequate iv fluids, anaemia to be corrected

Antibiotics - It depends on culture & sensitivity report if report is pending.

- Inj Gentamycin (2mg 1kg iv loading dose followed by 1.5 mg/kg IV very eight hours)
- Inj Ampicillin (1gm iv every 6 hours)
  or
- Inj Clindamycin (900mg iv every 8 hours)
- Inj Cefotaxim 1 gm 8 hourly
- IV metronidazole 100 ml (500mg) 8 hourly
- If patient does not respond in 48 hours, should be referred to higher centre.
  Treatment is continued until infection is controlled for at least 7 – 10 days.

Surgical treatment:-

- Retained uterine product - surgical evacuation after antibiotic coverage of 24 hours.
- Pelvis abscess should be drained by colpotomy under ultrasound guidance.
- Septic pelvic thrombophlebitis is treated with IV heparin for 7 – 10 days.
- Wound dehiscence of episiotomy or abdominal wound following caesarean section managed by scrubbing wound twice daily, debridement of necrotic tissue and then closing wound with secondary sutures.

Breast Complications

- **Breast engorgement** – Initiate breast feeding early and continue breast feeding in correct position; express breast milk if required.
- **Cracked & retracted nipple** - Local cleanliness during pregnancy & in puerperium before & after each breast feeding. If it is severe, mother can use breast pump & infants is fed with expressed milk.
- **Mastitis and abscess**- They need antibiotics, analgesics and drainage of breast abscess.

4. Postpartum IUCD

Policy

- The CuT- 380A is approved for immediate postpartum insertion as a method of contraception.
- PPIUCD must be placed only after woman is counseled; counseling should be done in antenatal period and in early labour.
- IUCD must be inserted only by a service provider who has been trained to competency in immediate PPIUCD service provision according to national standards.
- PPIUCD insertion must be done in a health care facility that provides delivery services and has acceptable standards of infection prevention.
- Informed consent is mandatory.

Standards

- Woman must be counseled regarding advantages, limitations, effectiveness, side effects and problems related to IUCD.
- Provider must explain procedure for insertion and/or removal of immediate PPIUCD.
- Provider must insert the IUCD by following all recommended and infection prevention measures for successful insertions.
- Provider must maintain the record of PPIUCD insertions and services as per protocol.
- Woman must be followed up by a provider oriented to PPIUCD services.

Timing of IUCD insertion

- **Immediate Postpartum**
  - Post placental insertion within 10 minutes after expulsion of the placenta following a vaginal delivery on the same delivery table.
  - Intra-caesarean insertion that take place during a caesarean delivery after removal of placenta and before closure of the uterine incision.

- Within 48 hours after delivery
- Post-abortion - Insertion following an abortion if there is no infection, bleeding or any other contraindications.

The IUCD should not be inserted from 48 hours to 6 weeks following delivery because there is an increased risk of infection and expulsion

Effectiveness

- CuT – 380A is highly effective (>99% effective); there are 0.6 to 0.8 pregnancies per 100 women in first year of use.
- CuT – 380A is effective for 10 years of continuous use. It can, however, be used for whatever time period the woman wants up to 10 years.

Advantages of PPIUCD for women:

- Convenient, saves time and additional visit.
- Safe because it is certain that she is not pregnant at the time of insertion.
- Has no risk of uterine perforation because of thick wall of the uterus.
- Reduced perception of initial side effects (bleeding and cramping)
- Reduced chance of heavy bleeding especially among lactational amenorrhea method users, since they are experiencing amenorrhea.
- No effect on amount or quality of breast milk.
- The woman has an effective method for contraception before discharge from hospital.

Limitations:-

- Increased risk of spontaneous expulsion.
- Proper skill and correct technique of insertion are associated with lower expulsion rates.

Post insertion care for immediate PPIUCD:

- The client should be advised to report any increase in vaginal bleeding or uterine cramping.
- Vaginal hemorrhage related to uterine atony should be managed as per standard procedure (Immediate PPIUCD does not increase the risk of uterine atony).

- If severe uterine cramping occurs & persists after PPIUCD insertion, a speculum or bimanual examination should be done to check for partial or complete expulsion.
- If the woman complaints of fever, a full clinical evaluation to be done and manage infection accordingly.

Post insertion instructions to the woman:

- There may be vaginal bleeding or spotting or cramping for initial few days / week in postpartum period, can give pain relievers as needed.
- Spontaneous expulsion can happen in some cases.
- At six weeks postpartum, the IUCD strings can be felt by some women. The string can be cut short here.
- Return for removal of the IUCD at any time she wants pregnancy and she will have almost immediate return of fertility.

Give a card to the client with following information:

- Type of IUCD inserted
- Date of IUCD inserted
- Month and year when IUCD will need to be removed or replaced.
- Date of postpartum follow up visit
- Where to go or call if she has problems about IUCD.

Management of problems:-

Problems at the time of insertion

1) Displacement of IUCD - it can be visualized in cervix or upper vagina after placement.
   - Remove IUCD with sterile forceps and reinsert the same IUCD if not contaminated with all aseptic precautions.
   - If IUCD has been contaminated, discard if and use a new IUCD.
2) Uterine perforation
   - No case of uterine perforation reported in any study.

Signs and symptoms of perforation :-

- Sudden loss of resistance to inserting instruments during insertions.
- Unexplained pain.
- Uterine depth greater than estimated

Management:-

- If suspected, stop procedure and gently remove instrument and IUCD.
- Keep client at rest, start IV drip and observe vital signs and abdominal tenderness, guarding and rigidity.
- It there is severe abdominal pain, any change in vital signs or peritoneal signs, refer for emergency surgical intervention.
- Prophylactic antibiotics can be given.

3) IUCD string problem

- Partner can feel strings
- Longer strings, shorter strings
- Missing strings

Management:-

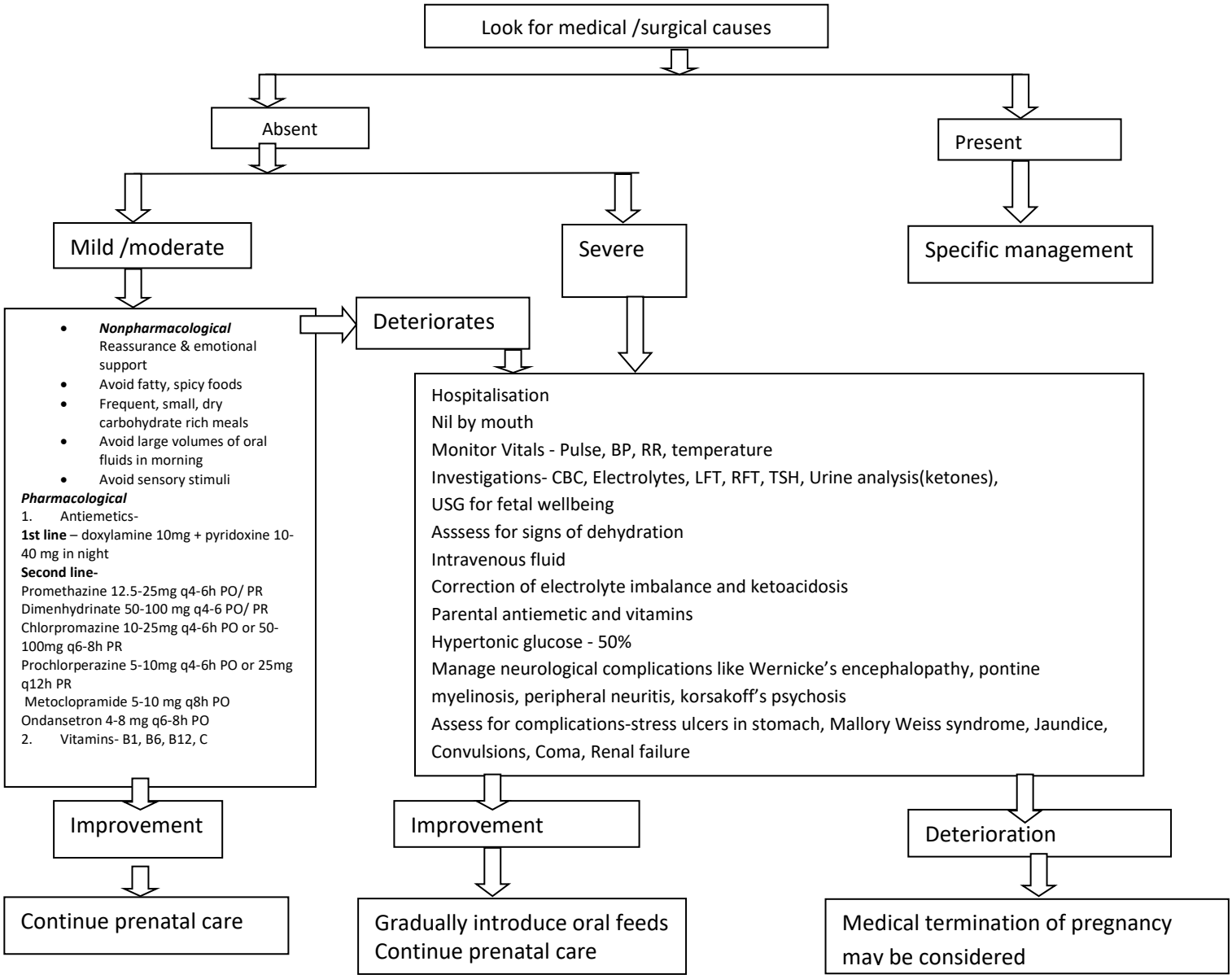
- Reassure the woman and her partner that strings are flexible & not harmful.
- If it is bothersome, it can be cut short if they are long.
- If string is too short and bothers the partner, a new IUCD can be inserted.
- Partial or complete IUCD expulsion- Remove and can reinsert new IUCD

REFERENCES

Postpartum IUCD Insertion Reference Manual, Nov. 2010, Family Planning Division, MoHFW, GOI

5. Vomiting and Hyperemesis Gravidarum

Severe type of vomiting of pregnancy which has got deleterious effects on the health of mother and/ or incapacitates day to day activities.



***Parenteral antiemetics**

- Inj. Dimenhydrinate 50mg in 50ml NS over 20mins every 4-6 hrs IV along with Inj.
- Ranitidine 50-100mg IV/IM 6th hrly when patient is nil oral

If not controlled, add any one of the following :

- Inj. Metoclopromide 5-10mg every 8hr IV
- Inj. Promethazine chloride 12.5-25 mg every 4-6 hrs IV

- Inj. Prochlorperazine 5-10 mg every 6-8 hrs IV
- Inj. Chlorpromazine 25-50mg every 4-6 hrs IV

If still not controlled, add

- Inj. Ondansetron 4-8 mg over 15mins 12h IV or 1mg/hr continuously over 24 hrs

Vitamins

- Tab Thiamine 25-50mg TDS if orally tolerated or 100mg diluted in 100ml NS as IV infusion for 3 daysContinue thiamine in MVI (multivitamin infusion) daily

Patient education

- Adjust timing of medication in relation to the time of vomiting.
- This is a benign disorder and gets relieved by 14-16 wks of gestation.

6. ANAEMIA IN PREGNANCY

Haemoglobin concentration of <11 g/dl and haematocrit of <33%.

Severity of anaemia (*NIPI*):-

- Mild – 9-less than11gm%
- Moderate - 7-8.9 gm%
- Severe - <7gm%

Clinical features

- Mild to moderate anaemia - weakness, exhaustion, lassitude, anorexia, glossitis and stomatitis.
- Severe anaemia - palpitation, dyspnoea, oedema and cardiac failure.

Investigations

- Haemoglobin, haematocrit and total RBC counts
- Peripheral smear and haematological indices for type of anaemia,
- Sickling test
- Stool for ova and cyst
- Urine analysis
- Specific investigations to know the cause of anaemia – iron studies, haemoglobin electrophoresis, bone marrow examination

PREVENTION OF ANEMIA

- Government of India recommends minimum of 100 mg of elemental iron and 500 mcg folic acid for 180 days starting from 2nd trimester in all antenatal women.
- Deworming to be done after first trimester with tab. Mebendazole 100 mg 2 times a day for 3 days or tab. Albendazole 400 mg single dose.
- Advice regarding iron rich **diet and vitamin C containing food items.**
- Always watch for anemia after every fever in ante natal period. In malaria there is a possibility of drastic drop in Hb.

General Guidelines

- Treat until Haemoglobin is normal. Haemoglobin is expected to rise by at least 0.3 to 1g per week unless diagnosis is incorrect
- Associated vitamin deficiencies should be identified and treated accordingly
- Iron and folic acid supplementation should be continued during lactation.
- Other causes of anaemia should be treated according to the diagnosis.
- Avoid antacids, Calcium and Magnesium compounds**together with iron**as these inhibit the absorption of iron.

Non-drug treatment

- Diet rich in protein and iron to be recommended

Drug treatment

- **Prophylaxis**
- Tab. Ferrous Sulphate (100 mg elemental iron) once daily
- Tab. Folic acid 0.5 mg daily

Treatment of Folic Acid deficiency

- Tab. Folic acid 5 mg daily

Treatment of Iron deficiency

- Tab. Ferrous Sulphate (100 mg)**twice** daily until cure and **folic acid daily after first trimester** then for 6 more Months
- After first three months of pregnancy, repeat Hemoglobin. If <11 gm%
- Tab. Ferrous Sulphate (100 mg elemental iron) once daily till lactation is complete.
- Tab. Folic Acid 0.5 mg 1 tablet once daily till lactation is complete if patient is non-compliant to oral therapy.

If there is gastritis then reduce doses & give it after meals

REFER TO A CHC-

- Hb less than 7 gm
- Cases not responding to treatment
- Sickle cell disease and other Haemoglobinopathies

Severe anaemia

- Hospitalization
- Monitor vitals and evaluate for signs of cardiac failure
- Packed cell transfusion
- Assessment for fetal well being

Indications for referral to higher centre

- Severe anaemia <7 gm/dl.
- Signs & symptoms of cardiac failure.
- No improvement or worsening with iron therapy.
- Hemolysis or evidence of bone marrow suppression.
- Haemoglobinopathies
- **Associated with congestive cardiac failure**
- **Haemolysis or evidence of bone marrow suppression**
- **Pancytopenia**

Indications for blood transfusion

- Severe anaemia <7 gm/dl beyond 36 wks
- Anemia with signs & symptoms of cardiac failure or anoxia
- Anemia refractory to oral and parenteral iron therapy
- Acute blood loss
- Associated infection

Principle of iron sucrose therapy administration at facility :

1. Before starting the iron sucrose therapy it is MUST to do Hemoglobin estimation and Sickling test of the patient and ask for history of repeated blood transfusions, thalassemia. Also examine for complications like cardiac failure.
2. Iron Sucrose parentaral therapy should be given second trimester onwards only. Discontinue oral iron therapy during Parentaral Iron sucrose therapy.
3. It can be administered at the level of District hospital, CH, CHCs and PHCs with medical officer in place for observation.
4. It should be given to patients with iron deficiency anaemia but not with Sickle cell disease, thalassemia and other bleeding disorders.

Iron Sucrose dose calculation

The iron sucrose dose calculation is done by formula

Iron sucrose requirement = Body wt in kg × (11gm – HB level of pregnant woman in gms / dl) × 2.4 + 500 mg (for replenishment of stores)

Ex. If the weight of mother is 40 kg and her HB is 7 gm/dl then iron sucrose requirement is calculated as

40X (11.7) X2.4 + 500 = 884 mg

After Round off 900mg is the total requirement of Iron sucrose for the mother which will be administered in divided doses.

Procedure for administration

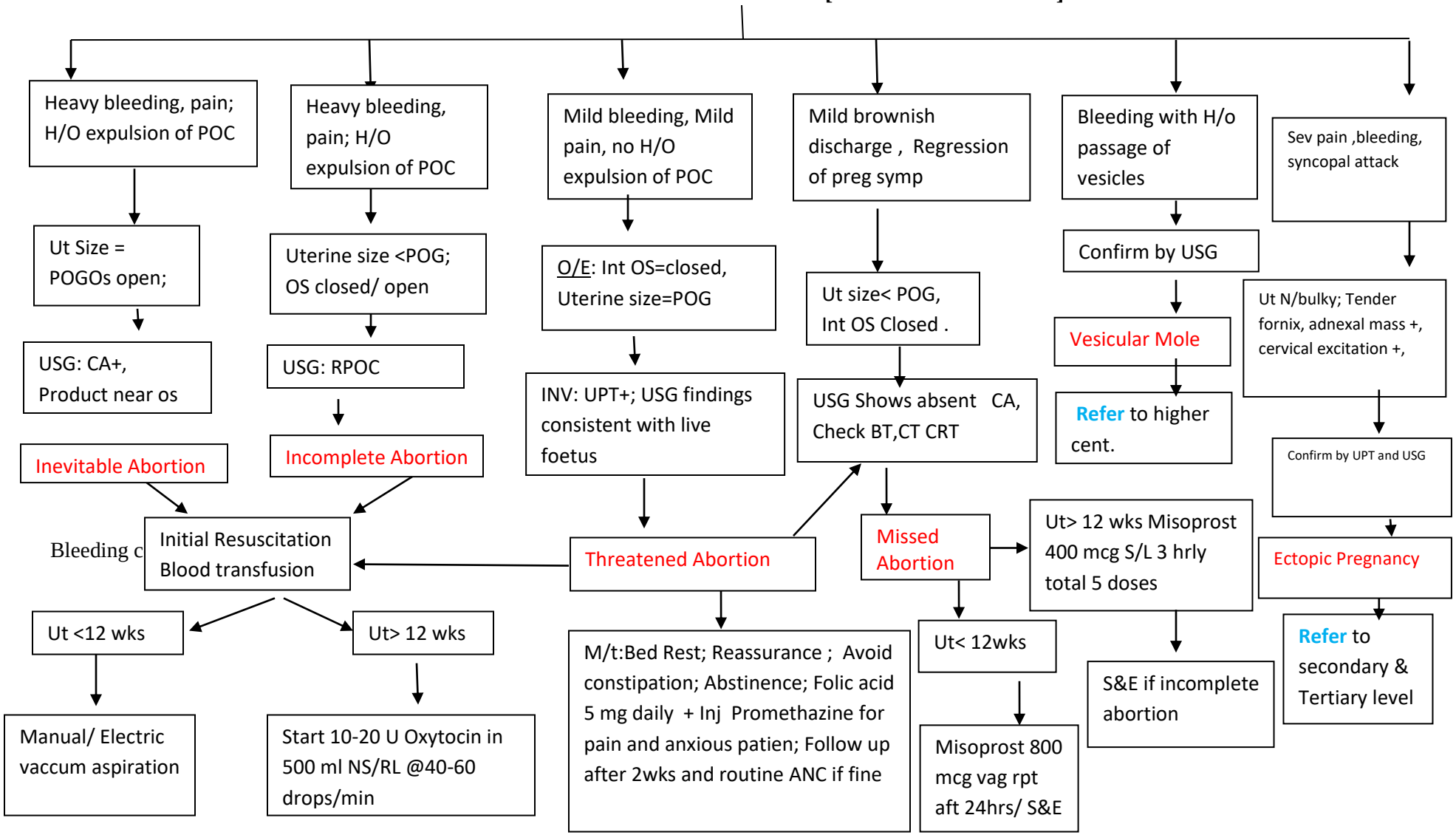
- Given as IV infusion
- 100 to 200mg in 100 ml of Normal saline over 15-20 minuts.
- Not to be given very slow or very fast.
- In one day maximum 200mg can be administered.
- Second dose to be administered after 48 hrs of first dose.
- In a week maximum 600mg can be administered.

Safety of Iron sucrose

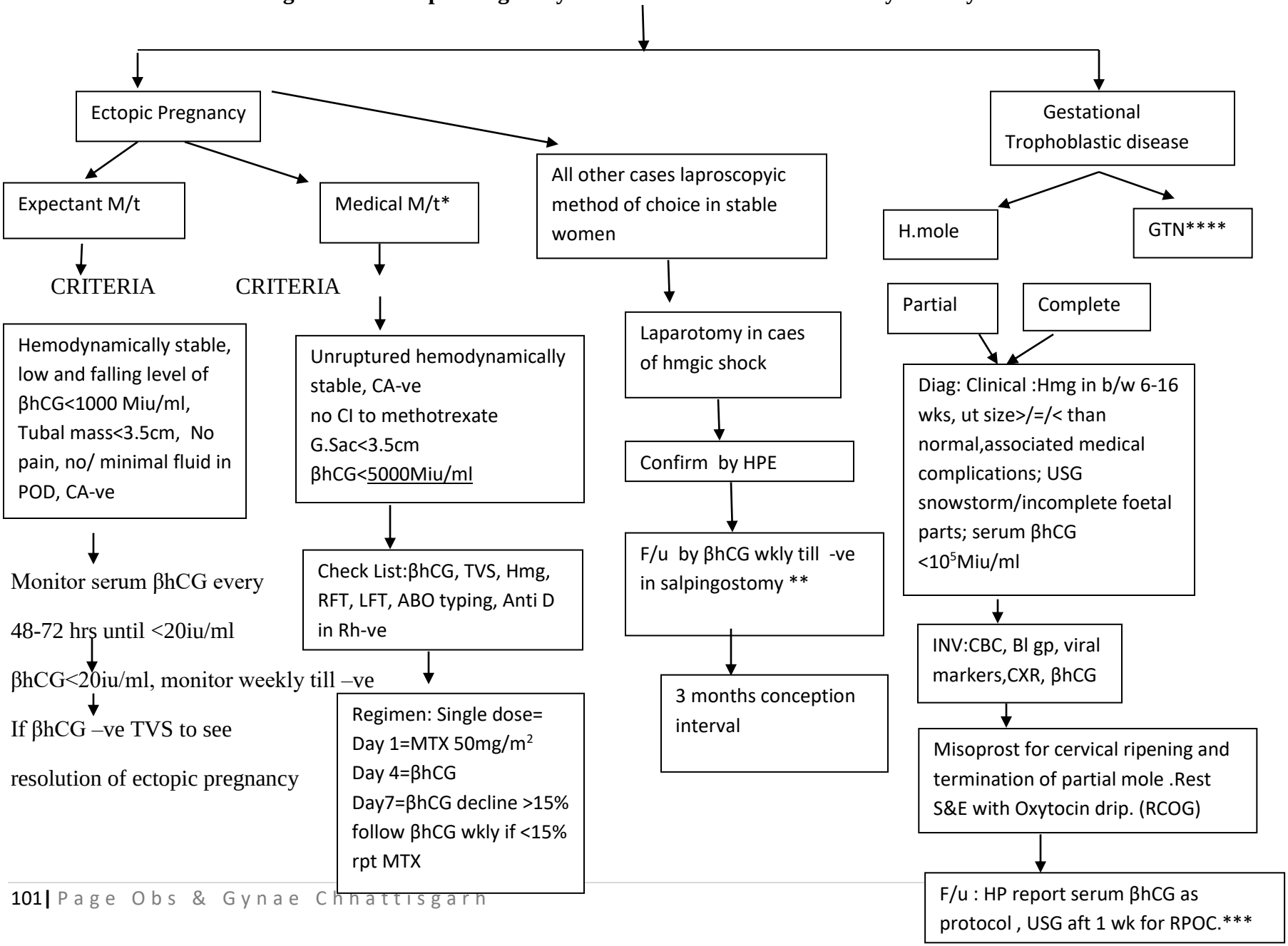
- No test dose is required.

- Infusion should be completed in 20 mins to avoid release of free radicals.
- Check expiry date before administration on ampoule.
- Check for Normal saline; if any leakage, change of colour, visible particles; if seen to be discarded. Check for expiry date.
- Check the iron sucrose ampoule if it contains 50 mg/100 mg of Iron and accordingly calculate the ampoules to be added in normal saline.
- Standard emergency tray should be made available at the bedside for handling and reaction.
- Pulse/BP to be recorded before, during and after the infusion.
- If any reaction is suspected stop the infusion and treat the reaction.
- Rarely mild reactions like rash, myalgia, etc.

7. VAGINAL BLEEDING BEFORE 20 WKS [M/t AT PHC LEVEL]



Management of Ectopic Pregnancy and Vesicular Mole at Secondary/tertiary level



REFERENCE: WILLIAMS OBSTETRICS 23rd edition; Novak's gynaecology 15th edition.

*__Absolute Contraindication to Methotrexate__:

- Hemodynamic ally unstable,
- Ruptured ectopic pregnancy ,
- Unable to comply with medical management follow up,
- Breastfeeding,
- Immunodeficiency, Alcoholism,
- alcoholic liver disease or chronic liver disease,
- Preexisting blood dyscrasias, Sensitive to Methotrexate,
- Active pulmonary disease,
- Peptic ulcer disease,
- Hepatic, renal, or hematologic disorder .

Relative contraindication:

- Gestational sac larger than 3.5cm and with embryonic cardiac motion.(Adapted from ACOG Practice bulletin)

**__Criteria for salpingostomy__:

- Small G.sac< 2cm and located in the distal third of fallopian tube.
- Persistent or increasing βhCG med/ surg M/t.

*** **Follow up protocol** :

- Serum hCG at 24 hours following evacuation serves as the initial level.
- USG done after one week of evacuation to ensure the completeness of the procedure.
- The patient is initially followed up till three consecutive weekly serum hCG assays become negative, subsequent monthly follow up with Hcg estimation is done for six months and then once in two months for an additional six months.
- Average by 8 weeks the Hcg become negative. Barrier contraception is advised till Hcg assays is negative followed by low dose OCPills.

Indications for chemotherapy

- Histological evidence of choriocarcinoma
- Evidence of metastases in brain, liver, or gastrointestinal tract, or radiological opacities >2 cm on chest radiography
- Pulmonary, vulval, or vaginal metastases unless human chorionic gonadotrophin concentrations are falling
- Heavy vaginal bleeding or evidence of gastrointestinal or intraperitoneal haemorrhage
- Rising human chorionic gonadotrophin concentrations in two consecutive samples or plateaued concentrations in three consecutive samples after evacuation
- Serum human chorionic gonadotrophin greater than 20000 IU/l more than four weeks after evacuation, because of the risk of uterine perforation
- Raised human chorionic gonadotrophin concentrations six months after evacuation, even if still falling

**** **Low risk GTN:**

- Non metastatic gestational trophoblastic neoplasia,
- Low risk metastatic neoplasia (metastases to lungs only),
- Duration less than 4 months from the index pregnancy
- Hcg levels less than 40,000 IU/L, Risk score 6 or less, FIGO stage I,II and III

High risk GTN: FIGO stage I, II, III with risk score of 7 or more. FIGO stage IV.

Treatment of GTN:

- Low risk cases are treated with single agent chemotherapy and high risk cases are treated with multiagent chemotherapy.

Single agent chemotherapy:

- Methotrexate(1mg/kg) on days-0,2,4 and 6 followed by Leucovorin(0.1 mg/kg) on days-1,3,5 and 7.
- Actinomycin-D(9-12 mic.gm/kg), given i.v daily for 5 days, is an alternative to methotrexate in patients with hepatic dysfunction.

Multiagent therapy (EMA-CO regimen):

Table 3 | Chemotherapy regimen for high risk patients with gestational trophoblastic disease[27]

Drugs	Dose
Regimen 1	
Day 1:	
Etoposide	100 mg/m^2 by intravenous infusion over 30 min
Dactinomycin	0.5 mg intravenous bolus
Methotrexate	300 mg/m^2 by intravenous infusion over 12 h
Day 2:	
Etoposide	100 mg/m^2 by intravenous infusion over 30 min
Dactinomycin	0.5 mg intravenous bolus
Folinic acid rescue (starting 24 h after beginning the methotrexate infusion)	15 mg intramuscularly or orally every 12 h for 4 doses
Regimen 2	
Day 8:	
Vincristine	1 mg/m^2 intravenous bolus (maximum 2 mg)
Cyclophosphamide	600 mg/m^2 intravenous infusion over 30 min
The two regimens alternate each week.	

FIGO PROGNOSTIC SCORING

Table 1 | World Health Organization and International Federation of Gynecology and Obstetrics risk scoring system for gestational trophoblastic tumours and treatment protocols

	Risk score			
Risk factor	**0**	**1**	**2**	**4**
Age (years)	<40	≥40	—	—
Antecedent pregnancy	Mole	Abortion	Term	—
Interval (end of antecedent pregnancy to chemotherapy in months)	<4	4-6	7-13	>13
Human chorionic gonadotrophin (IU/l)	<10^3	10^3 to 10^4	10^4 to 10^5	>10^5
Number of metastases	0	1-4	5-8	>8
Site of metastases	Lung	Spleen, kidney	Gastrointestinal tract	Brain, liver
Largest tumour mass	—	3-5 cm	>5 cm	—
Previous chemotherapy	—	—	Single drug	≥2 drugs
The total score is obtained by adding the individual scores for each prognostic factor. Low risk 0-6; high risk ≥7.				

7. Use of Antenatal Corticosteroid in Preterm Labour

Preterm newborns are classified on the basis of completed gestation period as :

Extremely Preterm – Less than 28 weeks

Very Preterm – 28 to <32 weeks

Late and Moderate Preterm's– 32 to <37 weeks

Government of India recommends the following for the administration of Antenatal Corticosteroid in preterm labour :

Single course of injection of Dexamethasone to be administered to women with preterm labour (between 24 and 34 weeks of gestation) at all levels of health facilities in the public as well as the private sector.

Dexamethasone sodium phosphate and Betamethasone acetate + phosphate are the only two efficacious and safe corticosteroids to be used during antenatal period. Both these drugs are identical in biologic activity and readily cross the placenta.

Dexamethasone : It is listed in the WHO essential medicines list, is inexpensive and widely available in facilities for multiple indications.

Betamethasone : In India, the salt Betamethasone acetate + phosphate, which requires only two doses at 12 hourly interval, is not available. The available salt in India is Betamethasone phosphate which is short acting and requires more frequent administration as compared to the former. Hence, the dosage schedule of Betamethasone phosphate is similar to that of the Dexamethasone and has no added advantage over Dexamethasone. Further, Betamethasone is more costly and less stable than Dexamethasone at high temperatures. However, in individual cases where Inj. Dexamethasone is not available the service provider may use Inj. Betamethasone phosphate to give the advantage of corticosteroids to the newborn.

- Dexamethasone is thus a more appropriate option and recommended.

Dose and route of administration of injection Dexamethasone

Dose	6 mg each
No. of Injections	4
Interval between injection	12 hours
Route of administration	Deep Intramuscular
Site of administration	Preferably antero lateral aspect of thigh
Complete course	Four doses (equivalent to 24 mg total)

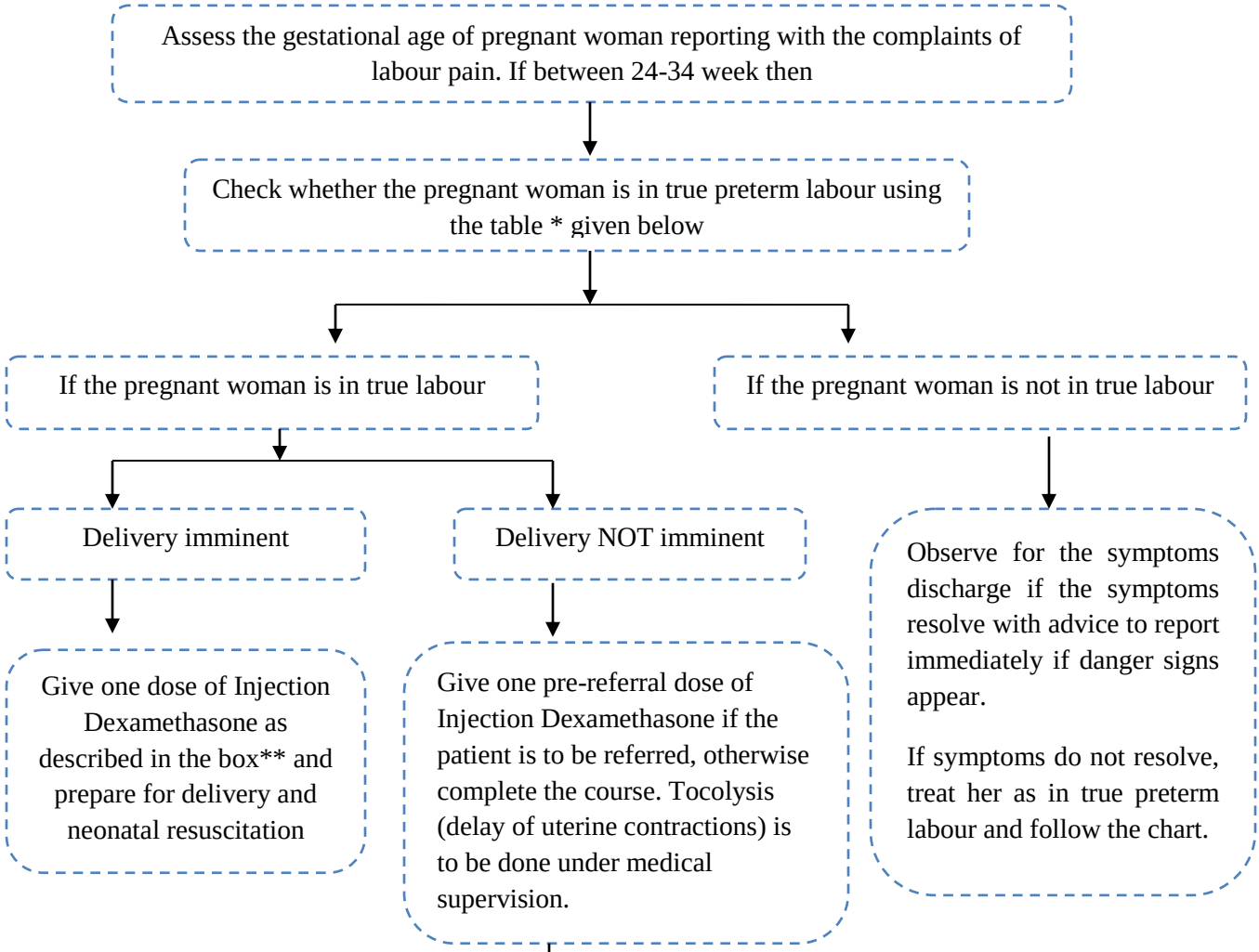
Logistics	2ml disposable syrings and 22/23 gauge needles
Storage	No need to refrigerate

The 6 mg dose would require 1.5 ml of the preparation provided each ml has 4 mg of Dexamethasone.

Indication and contraindication for using corticosteroid in antenatal period.

Indications	**Contraindications**
1. True preterm labour 2. Following conditions that lead to imminent delivery : ▪ Antepartum haemorrhage ▪ Preterm premature rupture of membrane ▪ Severe pre-eclampsia	Frank chorioamnionitis is an absolute contraindication for using antenatal corticosteroids. Following signs and symptoms in the mother suggests Frank amniontis : 1. History of fever and lower abdominal pain 2. On examination : Foul smelling vaginal discharge, tachychardia and uterine tenderness 3. Fetal tachycardia

Flow Chart for Antenatal corticosteroid administration (24-34 week of gestational age)



Before referral	Referral refused or not possible
1. Check vitals, BP 2. Do Hb, Blood Sugar, Urine Examination (Ex) 3. Give ANCS first dose – Refer to higher facility 4. Arrange transport 5. Referral slip	1. Check vitals, BP 2. Do Hb, Blood Sugar, Urine Ex. 3. Give ANCS first dose, then 3 additional doses 12 hourly 4. Arrange for delivery, resuscitation and care of preterm baby

**Dexamethasone protocol	
Dose / injection	6 mg
Route	Intramuscular
Interval	12 hours
No. of Injections	4

8. ABORTION

THREATENED ABORTION

Where process of abortion has started but has not progressed to a state fromwhich recovery is impossible.

Diagnosis

- Uterine size corresponds to the period of amenorrhoea.
- External os is closed.

Investigations

In PHC

- Haemoglobin for anaemia.
- Blood group & Rh typing for Rhesus incompatibility
- Urine routine & microscopic.
- Urine pregnancy test.
- VDRL for syphilis

In CHC

- Ultrasonography – for viability of foetus.
- Normal findings - well formed gestational sac with central echoesfrom foetus.
- Blighted ovum- loss of definite gestational sac absent foetal echoes &absent foetal heart.

Treatment for threatened abortion

- Bed rest.
- Micronized Progesterone 100 mg BD.

Advice -

- To report if bleeding or pain increases.
- Re-examination after 1 month for evaluation of foetal growth.

for Blighted ovum

Treatment At CHC

- The uterus must be evacuated.
- The products of conception should be sent for histopathologicalexamination.
- For Prevention of Infection
- Inj. Ampicillin (1 gm) IV immediately, followed by oral (500 mg)6 hourlyAnd
- Inj. Gentamicin (3-5 mg/kg), IV as a bolus, followed by (1.5 mg/kg)8 hourlyAnd
- Tab. Metronidazole (400 mg) 8 hourly or (500 mg) per rectum8 hourly if oral administration is unsuitable.
- This may be continued for ten days.

8.1 INEVITABLE ABORTION

Where the changes have progressed to a state, from where, continuation ofpregnancy is impossible.

Diagnosis

Features of threatened abortion, with the following manifestations.

- Increased vaginal bleeding.
- Aggravation of pain in lower abdomen.
- Os is dilated & products of conception are felt.

Investigation

Same as threatened abortion.

Treatment

General

- To take care of general condition.
- Maintain strict asepsis.

Active management-at CHC

- Before 12 weeks-
- Dilatation & curettage, evacuation of the uterus with blunt curette.
- After 12 weeks-

- Induction By syntocinon drip
- Rarely by Hysterotomy

8.2 INCOMPLETE ABORTION

When the entire products of conception are not expelled, instead a part of it isleft inside the uterine cavity is called incomplete abortion.

Diagnosis

History of expulsion of a fleshy mass per vaginum followed by

- Continuous abdominal pain
- Persistent bleeding
- On examination os may be open

Treatment

- Dilatation & evacuation

8.3 MISSED ABORTION

When foetus is dead & retained inside the uterus for more than 4 weeks.

Diagnosis

Features of threatened abortion followed by

- Brownish vaginal discharge
- Cessation of uterine growth
- Non-audibility of foetal heart sound

Management – In CHC

Maintain strict asepsis

- Below 12 weeks
    - Dilatation & evacuation
- After 12 weeks Induction
    - By syntocinon drip
    - Rarely by Hysterotomy

8.4 SEPTIC ABORTION

An abortion associated with clinical evidence of infection of the uterus & itscontents is called septic abortion.

Commonly associated with, illegal induced abortion.

Diagnosis

- Pyrexia- Temperature 100'.4" F for 24 or more
- Purulent vaginal discharge
- Pain in lower abdomen
- Per-vaginal examination- shows patulous os & boggy feel of uterus &purulent discharge

Investigations

In PHC

- Haemoglobin for anaemia
- Total & differential leukocyte count
- Blood group & Rh typing
- Urine- routine & microscopy

In CHC

- Blood urea
- Serum creatinine
- Coagulation profile
- Ultrasound if needed

Treatment

Refer to CHC

If there would be a significant time loss to CHC then, before referring to CHC

start

- Inj. Ampicillin 1 gm
- Inj. Gentamicin 80 mg
- IV Metrogyl 100 ml

Check for ruptured uterus or other complications as septic abortion is usually seen

in illegally done and unsafe abortions.

Treatment in CHC

Drug Treatment

- Inj. Ceftazidime or Inj. Cefotaxime or Inj. Cefoperazone1 gm 12 hourlyAnd
- Inj. Gentamicin 80 mg IM 8 hourlyAnd
- Inj. Metronidazole 100 ml IV 8 hourly

Surgical

- If needed Evacuation of uterus.
- Management of complications like perforation etc. as needed.

8.5 HABITUAL ABORTION

It usually as a sequence of 3 or more consecutive spontaneous abortions

Investigations for patients with past history of abortions.

In CHC

To rule out the cause

- Blood haemoglobin for anaemia
- Blood group & Rh testing for incompatibility
- VDRL for syphilis.
- Urine- Routine and microscopic examination
- Test for cervical incompetence

Hysterosalpingiogram to rule out congenital malformations of uterus

- Also one needs referral in repeated abortion or mid trimester abortion to a

Tertiary care center to rule out the following :

- Uterine congenital abnormalities
- Severe cervical incompetence
- Congenital anomalies of the foetus
- Immunological problems
- Diabetes mellitus
- Parental genetic defects and SLE

Treatment

As per specific diagnosis of underlying diseases, in consultation with a gynaecologist.

The aim is to reduce chances of abortion in current pregnancy

General advice in next pregnancy

- Rest
- Reassurance
- Improve general health
- Avoid travelling and intercourse

Drug treatment in pregnancy

- Tablet Micronised Progesterone 100 mg BD.
- Tab. Aspirin soluble (150 mg) daily. This may be used when pregnancyhas stabilize

Surgical treatment in CHC

- Consider cervical circlage in pregnancy
- Remove sutures at term or at the onset of labour
- Advice delivery in CHC

MEDICAL TERMINATION OF PREGNANCY

Separate guidelines have been issued

9. ECTOPIC PREGNANCY

Implantation of fertilized ovum outside the uterine cavity, commonly the fallopiantube

Symptoms and Signs

Enraptured ectopic pregnancy Ruptured ectopic pregnancy

- Symptoms of early pregnancy
- Acute Abdominal and pelvic painthere may be spotting
- Collapse and Weakness, Pallor
- Abdominal and pelvic pain Abdominal distension
- Fast, weak pulse (110 per min. or more)
- Hypotension
- Rebound tenderness

If rupture is diagnosed or even suspected patient has to be rushed to nearest centre where surgery with blood transfusion can be done.

In PHC

- Start IV line with dextrose & normal saline;

Investigations - in CHC

- Ultrasonography;
- Colpocentesis;

Surgical Management

In CHC

- Arrange blood;
- Laparotomy & surgical management;

10. TROPHOBLASTIC NEOPLASIA (Hydatidiform Mole)

- It is an abnormal condition of the ovum where there is partly degeneration andpartly hyper plastic changes in the young chorionic villi.
- These result in the formationclusters of small cysts of varying sizes. Because of its superficial resemblance tohydatid cyst, it is named as hydatidiform mole .
- It is best regarded as a benign ofneoplasia of the chorion with malignant potential.

Diagnosis

- Height of uterus more than the period of gestation.
- Foetal heart sound not audible.
- Vaginal bleeding with expulsion of grape like vesicles per vaginum isdiagnostic of vesicular moles

Patient should be referred to district hospital or tertiary care centre.

Investigations

- HCG value
- Estimation of uterine size
- Ultrasonography

A large for date uterine size with no evidence of foetus on ultrasoundwith raised HCG value is confirmatory.and

- X-ray Chest

Treatment

- Evacuation of the uterus is to be done as soon the diagnosis is establishedin CHC/District Hospital

For expulsion of mole

where facilities for blood transfusion is available

- D & C
- Inj. Oxytocin (20 MU/ minute) IV adjusted as required:

  Dilute 20-40 IU/ L of dextrose 5%. This gives a Solution containing 20-40 MU/ ml.

  Give @ 30 drops/mt

Surgical Management

- Hysterectomy

Indications

- Profuse bleeding with cervix not dilated;
- Age more than 35 years;
- Completed family life;
- Profuse bleeding;
- Sepsis or Perforating mole.

Prophylactic chemotherapy

- Methotrexate - 5 mg thrice daily for 5 days

Follow up

- After evacuation of mole repeat USG after 48 hrs and 15 days

Contraception

- Advice contraception by **Barrier method**: for at least one year.
- A repeat pregnancy soon after is both dangerous & should be avoided.

11. PROTOCOL TO MANAGE GDM

DEFINITION OF GDM:

- Gestational diabetes mellitus is defined as carbohydrate intolerance with recognition or first onset during pregnancy irrespective of the treatment with diet or insulin(DIPSI,ADA)
- Some of these patients may have Type-II DM unrecognized before pregnancy, some may be preclinical type which become apparent due to increased insulin resistance in pregnancy
- Some may have co incidental onset during pregnancy

GDM SCREENING, WHY?

- Most common medical disorders of pregnancy
- Affects two generations

WHY UNIVERSAL SCREENING?

- Outcomes of HAPO study
- IADPSG, ADA(Supported by RCOG)
- DIPSI: Universal screening for GDM detects more cases and improves maternal and neonatal prognosis
- Indian women have 11 fold increased risk of developing glucose intolerance during pregnancy compared to caucasian women(DIPSI)
- No bias of screening, only for high risk groups

WHEN TO SCREEN?

- AS PER DIPSI:
    - FIRST TRIMESTER: In first visit
    - SECOND TRIMESTER: 24-28 weeks
    - THIRD TRIMESTER: 32-34 weeks

  Usual recommendation for screening between 24-28 weeks.
- As per IADPSG/ADA/ACOG:
  Usual time for screening is 24-28 weeks

- ADA recommends: To screen those women having risk factors to develop type-II DM, in the first trimester. The interpretation is same as in nonpregnant adults after performing a 75gm OGTT. Diagnosed cases will be managed as overt DM.

HIGH RISK CATEGORIES FOR SCREENING IN FIRST TRIMESTER

- BMI>25
- First degree relative with DM
- High risk race/ethnicity(African,American,Latino,Asian American, Native American,Pacific Islander)
- Previous pregnancy with GDM or baby weight>9lb
- Women with PCOS
- BP>140/90mmhg
- HbA1c>5.7%
- HDL cholesterol<35MG/DL and/or a TGs>250 mg/dl
- Previous H/O unexplained still birth or recurrent abortion

DIAGNOSIS AS PER DIPSI

- OGTT with 75 gram of glucose irrespective of food intake and estimating 2hr plasma glucose
- INTERPRETATION: If 2 hr PG ≥140 mg/dl it is diagnosed as GDM
- If 2 hr PG ≥ 120-<140 mg/dl, it is called Decreased Gestational Glucose Tolerance(DGGT)

TREATMENT

- Diabetic diet: Medical nutrition therapy(MNT)
- Moderate exercise is recommended by ADA
- Insulin when required

MEDICAL NUTRITION THERAPY (MNT):

- Fat and protein proportion has to be increased and carbohydrate proportion has to be decreased. The total calorie distribution should be
    - Carbohydrate: 35-45%

- Protein: 20-25%(10 gram extra intake of protein)
- Fat: 35-40%

- Total meals should be divided into three major meals and three minor meals
- Usual breakfast can be split into two equal halves at 2 hours interval(DIPSI)

CALORIE ESTIMATION:

- Two weights should be recorded:
  - -Ideal body weight: Height in cm-100
  - -Prepregnancy body weight (If not available, can be accessed from first trimester body weight)
- Calorie estimation is done for following 4 categories:
  A) Average women has their pre-pregnancy body weight is within (80-120)% of their ideal body weight**Calorie requirement= Pre-pregnancy body wt × 30 kcal**
  B) Women with pre-pregnancy body weight < 80% of ideal body weight

  Calorie requirement= Pre-pregnancy body wt. × 35 kcal
  C) Women with pre-pregnancy body wt more than 120% of ideal body wt

  Calorie requirement: Pre-pregnancy body wt × 25 kcal
  D) Women with pre-pregnancy body wt more than 150% of ideal body wt

  Calorie Requirement= Pre-pregnancy body wt × 15 kcal
- An extra of 250-400 kcal(Avg.300kcal) can be taken in second and third trimesters

MONITORING GLYCEMIC CONTROL (DIPSI):

- Follow up is done by estimating FBS and 2 Hr PPBS
- First follow up after two weeks
- Subsequent follow up –
  - Till 28 weeks: once in a month estimation
  - 28 Weeks – 32Weeks: Every 2 weekly
  - After 32 weeks: every weekly till delivery
- In high risk pregnancies frequency of monitoring may be intensified by Self monitoring of blood glucose(SMBG)

INDICATION OF INSULIN THERAPY

Hospitalization to all patients requiring insulin

- If after 2weeks of diabetic diet FBS>90 mg/dl and 2 hr PPBS is >120 mg/dl insulin has to be started
- Ideally start insulin from smaller doses. The initial dose of NPH insulin could be as low as 4 units and the dose of insulin can be adjusted by follow up(DIPSI)
- Insulin dose contains: 2/3rd Intermediate acting and 1/3rd regular insulin
- Perform sugar profile (FBS,2hr post breakfast, pre lunch, 2hr post lunch, pre dinner, 2hr post dinner)
- If FBS, Prelunch & Pre dinner sugar values are high, increase Intermediate acting insulin. If PPBS values are high increase dose of regular insulin
- 2/3rd of the total insulin given before breakfast and other 1/3rd before dinner
- Patient is discharged after target blood sugar is achieved
- Follow up with FBS and PPBS every weekly
- Self monitoring of blood glucose is justified

OVERT DM (IADPSG-2010)

- Overt diabetes is diagnosed if any one of the following findings are recorded
    - RBS/2hr PPBS>200 mg/dl
    - FBS> 126 mg/dl
    - HbA1C > 6.5%
- If Overt DM is suspected, then routine anomaly scan along with fetal ECHO at 24-26 weeks of gestation should be performed. Also insulin has to be started directly with MNT
- Insulin is always the first line drug to be managed in consultation with endocrinologist
- Only two oral hypoglycemic are recommended in exceptional conditions are: glibenclamide & metformin.

ANTEPARTUM FETAL MONITORING:

- Routine anomaly scan at 9-11 weeks and then at 18-22 weeks of gestation.
- Routine obstetric scan once in every month thereafter specially to detect macrosomia and polyhydramnios)

TIME FOR DELIVERY:

For GDM controlled with diet/insulin or both:

- NICE Guidelines: Terminate after 38 completed weeks of gestation(DIPSI)
- WHO Guidelines: Wait for spontaneous onset of labour or induce at 41 completed weeks of gestation

For GDM not controlled with diet and insulin:

- Terminate at 37 completed weeks of gestation or earlier depending upon the severity
- Intrapartum monitoring:(continuous CTG)in all cases.

LABOUR INDUCTION

- Induction can be done if cervix is favorable, macrosomia is excluded and no additional complication necessitating LSCS
- Bed time insulin should be given
- Withheld morning dose of insulin

INTRAPARTUM

- Start Normal saline drip
- Monitor glucose every hourly(bed side)
- If blood glucose exceeds 100 mg/dl, start regular intravenous infusion at 1.25 U/hr
- Target blood glucose is around 100 mg/dl
- If glucose level< 70 mg/dl, start 5%D infusion

CONDUCT OF LABOUR

Preparedness for shoulder dystocia

Presence of neonatologist

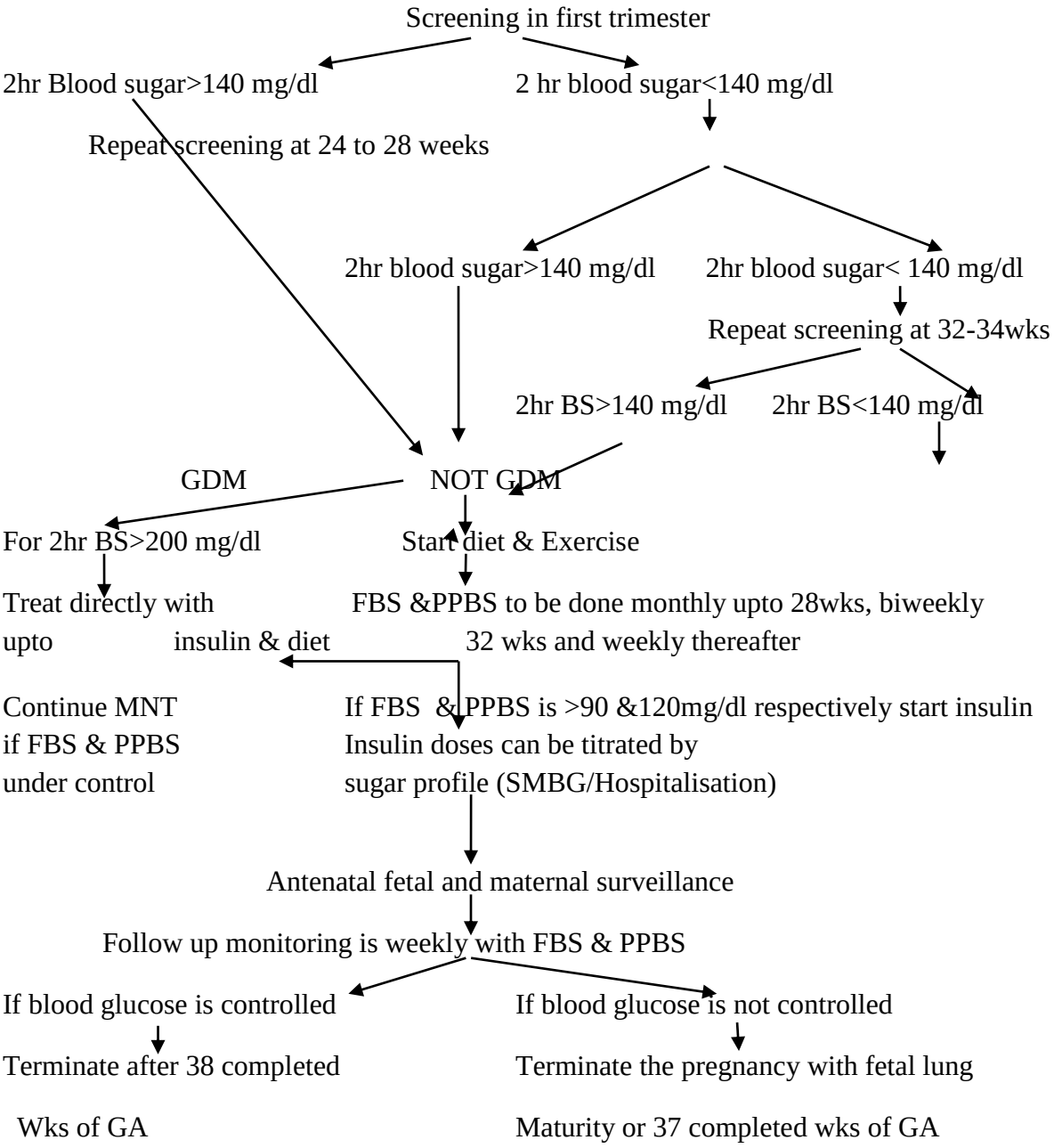
- Early cord clamping(DIPSI)
- Early breast feeding and observation for 24 hours
- Avoid hypothermia
- Physical examination to exclude congenital anomalies

FOLLOW UP

- GTT to be done after 6-12 weeks of delivery by 75 gm glucose and interpretation as per non diabetic individual(ADA)

ALGORITHM FOR GDM MANAGEMENT:

UNIVERSAL SCREENING FOR GDM BY DIPSI GUIDELINE (2hr post 75 gram glucose)



12. MANAGEMENT PROTOCOL OF POST-TERM PREGNANCY

Prolonged/Post-term pregnancy :

- Pregnancy continuing beyond two weeks of expected date of delivery i.e. 42 completed weeks (294 days) or more from the first day of last menstrual period.

Postdated pregnancy :

- Pregnancy continuing beyond the estimated due date of 40 wk.

Postmaturity :

- A specific syndrome of placental insufficiency & resultant intrauterine growth retardation associated with prolonged gestation.

Diagnosis of Prolonged pregnancy

1. **History – Correct menstrual history**
2. **Examination**
   - **Obstetric examination**
     - Fundal height
     - Abdominal girth – static or diminished
     - Fetal head- hard , fixed or engaged
     - Amount of liquor – diminished
     - Palpation- feeling of full of fetus
   - **Internal examination**
     - Feeling of hard skull bones of fetus through cervix or fornices
3. **Investigations**
   - USG –
     - Estimation of gestational age,
     - Amniotic fluid volume,
     - Placental grading,
     - Fetal biometry,
     - Estimated fetal weight and congenital anomalies.

13. Management- recommendations RCOG Greentop Guidelines 2004

- Women with post-term gestations who have unfavorable cervices can either undergo labor induction or be managed expectantly.
- Prostaglandin can be used in post-term pregnancies to promote cervical ripening and induce labor.
- Delivery should be effected if there is evidence of fetal compromise or oligohydramnios.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Despite a lack of evidence that monitoring improves perinatal outcome, it is reasonable to initiate antenatal surveillance of post-term pregnancies between 41 weeks (287 days; EDD plus seven days) and 42 weeks (294 days; EDD plus 14 days) of gestation because of evidence that perinatal morbidity and mortality increase as gestational age advances.
- Many practitioners use twice-weekly testing with some evaluation of amniotic fluid volume beginning at 41 weeks of gestation. A nonstress test and amniotic fluid volume assessment (a modified BPP) should be adequate.
- Many authorities recommend prompt delivery in a post-term patient with a favorable cervix and no other complications.

MANAGEMANT PROTOCOL OF POST-DATED AND POST-TERM PREGNACY

All cases to be managed at a higher centre

FETAL MATURITY ENSURED (LMP/USG/BOTH)

Daily fetal movement count
Fetal surveillance (twice weekly) –

- Nonstress test(NST)
- Amniotic fluid volume (AFI)
- Biophysical profile(BPP)
- Doppler velocimetry study

Postdated pregnancy
≥40wks to 40+6wks
&
Prolonged/Post-term pregnancy
≥42wks

Postdated pregnancy
≥41wks to 41+6wks

Uncomplicated [1]

- Normal amount of amniotic fluid
- Normal size of baby
- Normal BPP,MBPP and reactive NST

Complicated
Medical or obstetrical complication of pregnancy
Oligohydramnios
Estimated fetal weight >4500 gm
Suspected fetal compromise

uncomplicated

Discuss risks & benefits
Rule out contraindications for Induction of labor

Cesarean section (CS)

Discuss risks & benefits
Rule out contraindications for IOL
Stripping of membrane / Induction of labor[3] (IOL) as per the cervical findings

Cervix unfavourable

Cervix favorable

Expectant management till 41 wks

Offer cervical ripening followed by induction of labour

Stripping of membranes

Artificial rupture of membrane (ARM)

Abnormal fetal heart rate monitoring
Progress unsatisfactory
Failed induction

Daily fetal movement count
Fetal surveillance (twice weekly)
NST,AFI,BPP
Doppler velocimetry studv

Liquor - clear

Liquor – meconium stained & fetal distress

Augmentation of labor with oxytocin drip

Abnormal fetal heart rate monitoring

Cesarean section (CS)

Expected vaginal delivery
Anticipate and be prepared for prolonged labour, shoulder dystocia,neonatal complications

Cesarean section (CS)

14. PRETERM LABOUR

PRETERM LABOUR

- Preterm labour is where labour start after completion of 28 wks and before 37 weeks.
- There patients are best managed at CHC level.
- However one may have to initiate treatment at PHC while referral arrangements are being made.

Assessment and management of women who are high risk for preterm delivery

Screen women for high risk for PTD –scoring system may be used

- Teenage pregnancy
- Smoking
- Cervical incompetence/ other malformations of uterus
- History of previous preterm births
- Multiple pregnancy
- Presence of genital infections (GBS, Bacterial vaginosis, Chlamydia etc.)
- polyhydromnios
- uterine contraction more than 4/hr
- cervical length on TVS ≤ 25mm
- fetal fibrinonectin (fFN) in cervicovaginal discharge (between 24-34 weeks)
- other indicators for preterm delivery are IL-6, IL-8, TNF-α

Preconceptional-

- Correct correctable causes if any

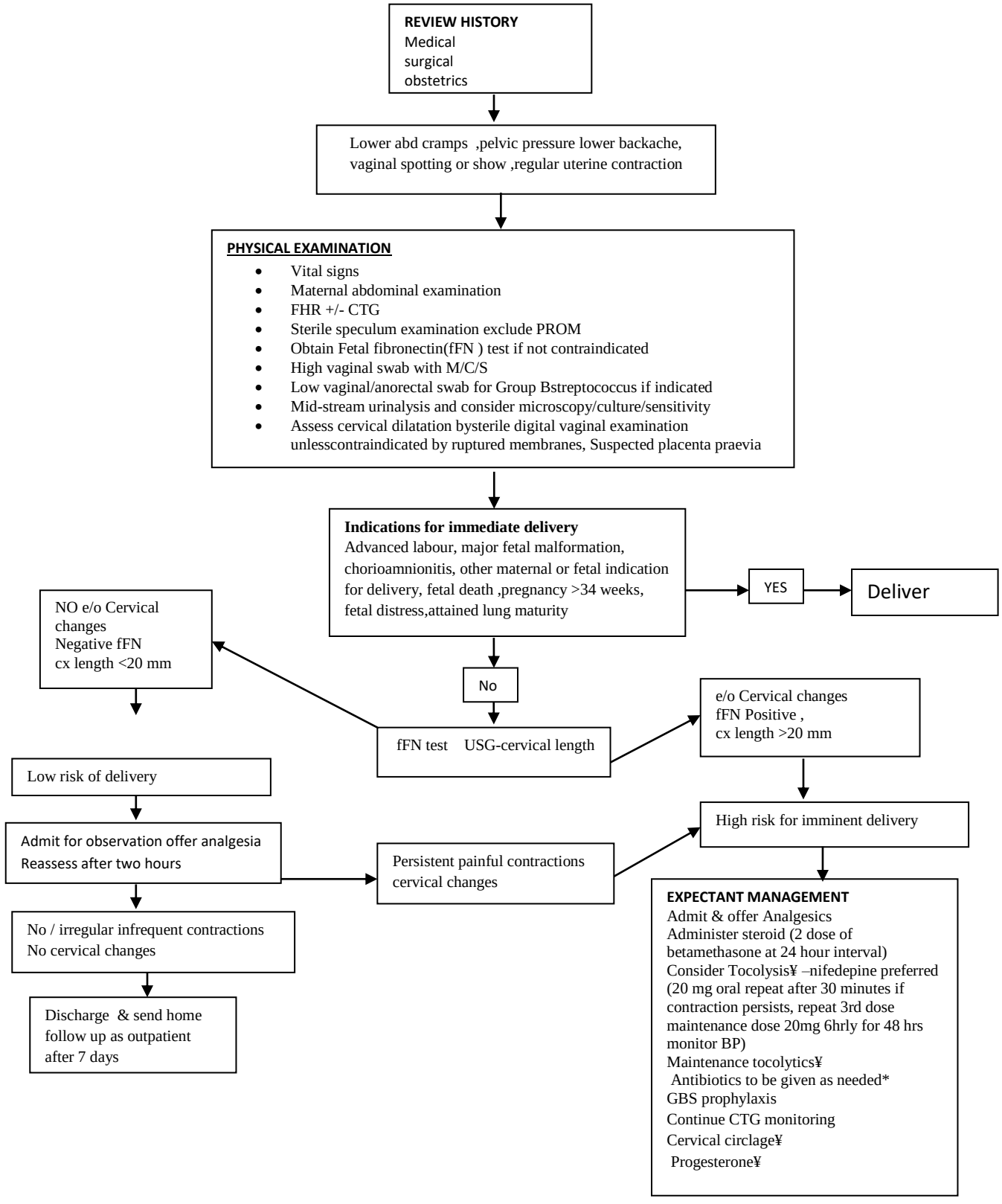
Antepartum management-

- Embryo reduction in multiple pregnancy
- Treatment of infections if present
- Home uterine monitoring
- Coital abstinence
- Avoid smoking
- Avoid strenuous activities
- Antepartum fetal surveillance as per high risk pregnancy protocol

- Serial ultrasound examination for cervical length, funneling of cervix, bulging of membrane in endocervical canal
- Prophylactic Cervical encirclage only if documented cervical incompetence
- Educate about warning symptoms & signs for preterm labour-menstrual like cramps,low dull backache, pressure (feels like baby is pushing down), increase in vaginal discharge, leaking, uterine contraction < 10 minutes apart even if painless.
- Fetal Fibrinonectin test-done between 24 -34 wks.It is not informative if done with ruptured membranes, bleeding,cervical circlage in situ and gestation<24 wks or > 34 wks.(normal value > 50 ng/mL)
- Corticosteroids for lung maturation at 28 weeks.
- Prophylactic tocolytics and antibiotics are not recommended
- Progesterone – only in case of with H/O previous spontaneous PTL (multiple pregnancy,

- infections excluded)

ASSESSMENT & MANAGEMENT OF ESTABLISHED PTL



Management to arrest premature labour

- absolute bed rest

Drug treatment

- Tocolytic Agents
- This is indicated when - the duration of pregnancy is 28-32 weeks.
  - membranes are intact and labour is notadvanced.
  - Cervix dilation is not >3 cm.
  - Inj. Isoxsuprine (Beta adrenergic stimulants) is used in the acute suppressionof labour.

Dose

- Isoxsuprine HCl 40 mg in 500 cc of Dextrose. @30 drops./mt
- Watch for fall of B.P. and tachycardia.
- The maternal pulse should not exceedmore than 100/minute.
- Maintainence therapy- Isoxsuprine orally 10 mg 6 hourly
- Corticosteroid therapy given to the mother to enhance foetal lungmaturation
- GA 30-32 weeks - give injection Dexamethasone 12 mg 12 hourly4 doses

Wait for 48 hours, and then deliver the patient

Management during labour

- Birth should be gentle and slow
- Liberal Episiotomy
- In case of delay or expected traumatic delivery it is better to perform caesareansection.

Monitoring during tocolysis–

- Pulse, BP and cessation of the uterine contractions.
- If pulse rate > 120/min and BP < 90/50 mmHg, stop tocolysis.
- Monitoring in magnesium sulphate therapy is as outlined in eclampsia.

Monitor for onset of chorioamnionitis (fever, maternal or fetal tachycardia, uterine tenderness, foul smelling liquor, leucocytosis).

Intrapartum care in PTD-

- In cases of ineffective tocolysis or with contraindications for tocolysis, labour is allowed to progress and mode of delivery is decided as per obstetric indications
- If vertex presentation and no additional risk factors aim for vaginal birth
- The mode of delivery for non-vertex presentations should be individualized.
- Continuous electronic fetal monitoring should be established.
- Offer group B streptococcal (GBS) antibiotic prophylaxis to all women in established pre-term labour, only if they have had GBS found on HVS or MSU in that pregnancy or have had a previously affected baby.
- Avoid using the ventouse at less than 36 weeks.
- Ensure the neonatal team is present for delivery.
- Early cord clamping should be done to prevent hypervolemia, polycythemia and neonatal jaundice.
- If any sign of hypoxia, caesarean section is better but foetus should have a fairly good chance of survival depending on neonatal care facility

GBS prophylaxis

- Recommended - Penicillin G, 5 million units IV initial dose, then 2.5 million units IV every 4hrs till delivery
- Alternative - Ampicillin 2gm IV initial dose, then 1gm IV every 8hrs till delivery
- If penicillin allergic – Cefazoilin 2gm IV initial dose, then 1gm IV every 8hrs till delivery
- If at high risk for anaphylaxis - Clindamycin 900mg IV every 8 hrs till delivery OR erythromycin 500mg IV every 6hrs until delivery OR Vancomycin 1gm IV every 12 hrs till delievry

Rupture of fetal membranes before the onset of labour is called PROM;if this occurs before 37 completed weeks, it is known as PPROM.

Management

- No digital examination should be done in PROM as risk of introducing infection and stimulating release of prostaglandins.
- If diagnosis of PROM cannot be confirmed visually,
    - then pH testing or Nitrazine test, ferning or Nile blue test,
    - Amnisure test [rapid slide test that uses immunochromatographic method to detect placental microglobulin] can be used.
- **USG should be done in all cases to see**
    - for liquor volume,
    - gestational age, weight,
    - to rule out major congenital malformation & cervical length
- **Antibiotic prophylaxis** –
    - Ampicillin 2 gm IV 6 hrly + Erythromycin 250mg IV 8 hrly --- for 48 hrs , followed by Amoxicillin 250mg PO 8hrly +Erythromycin 333mg PO 8hrly –for 5 days .
    - If allergic to this than Cefazolin 1gm IV 8hrly +Erythromycin 250mg IV 8hrly for 48 hrs followed by Cephalexin 500mg PO +Eythromycin 333mg PO 8hrly for 5 days may be used.
    - Another alternative is Vancomycin 1gm IV 12hrly + Erythromycin 250mgIV for 48 hrs followed by clindamycin 300mg PO 8hrly+Erythromycin 333mg PO 8hrly for 5 days.
    - PrenatalCo-amoxiclavincreasedtherisk ofneonatalnecrotizingenterocolitisandthisantibioticisbest avoided**.**

Corticosteroids- Refer chapter 7 Use of Antenatal Corticosteroid in Preterm labour

- **Tocolysis** –
    - Randomized studies showed that, for premature labour associated with premature rupture of the membranes after 28 weeks of gestation, there were no significant differences between treatment groups in intrauterine time after the onset of regular contractions.

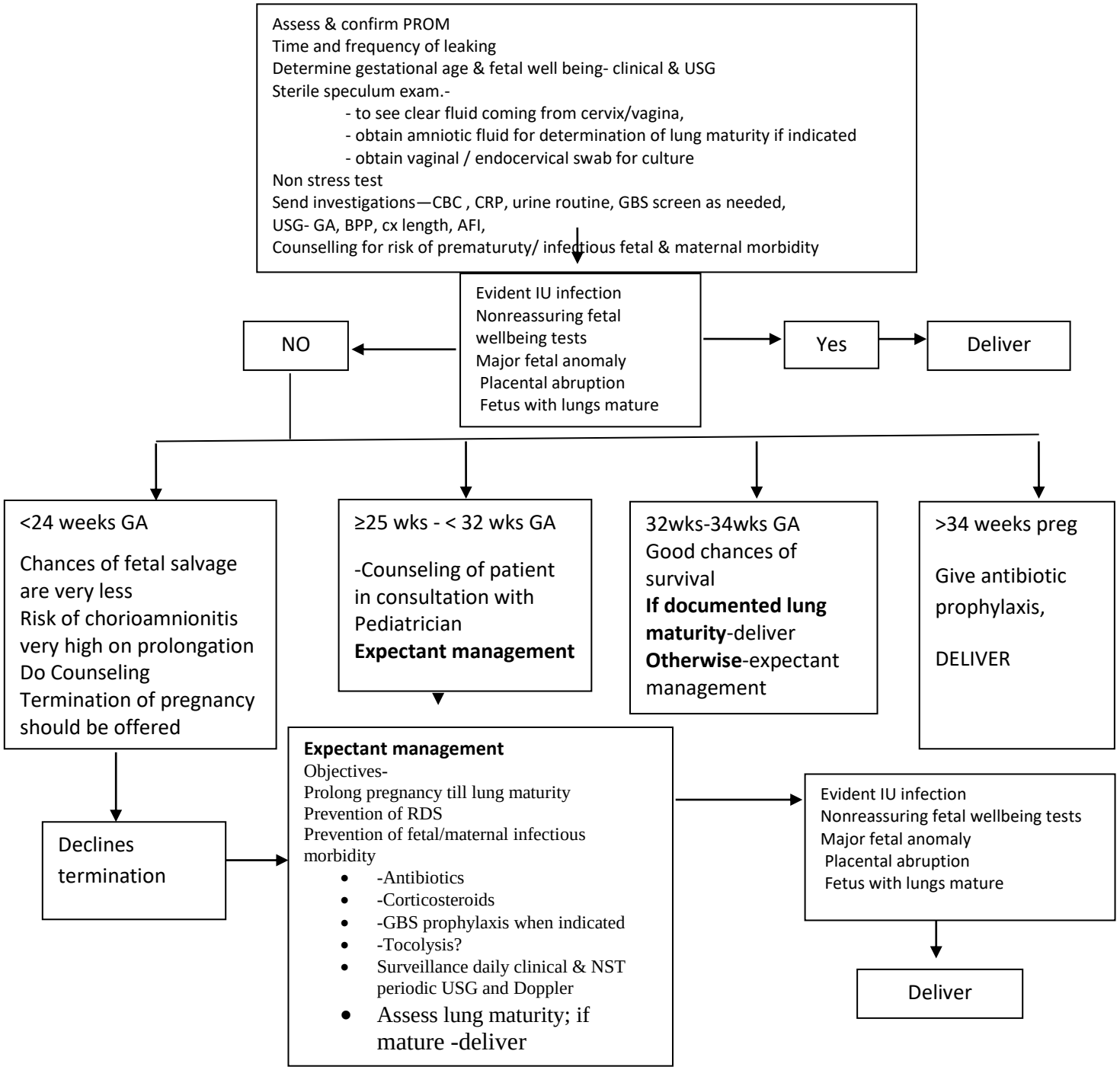
- Additionally, with PPROM in the presence of uterine contractions, it is possible tocolytics may delay delivery from an infectedenvironment, so is not routinely recommended.
- Prophylactic tocolysis may be indicated to inhibit the contraction if GA between 25 to <32 to prolong labour till 24 hours after the last dose of steroid for the effect of steroids to ensue or in case transport to equipped centre is required.

- **Amnioinfusion**, fibrin glue, progesterone are not found to be of much use in PROM so are not recommended.
- **The criteria for the diagnosis ofclinical chorioamnionitis**
  - Include maternal pyrexia, tachycardia, leucocytosis,
  - Uterine tenderness, offensive vaginal discharge and fetal tachycardia
  - During observation, the woman should be regularly examined for such signs of intrauterine infection and an abnormal parameter

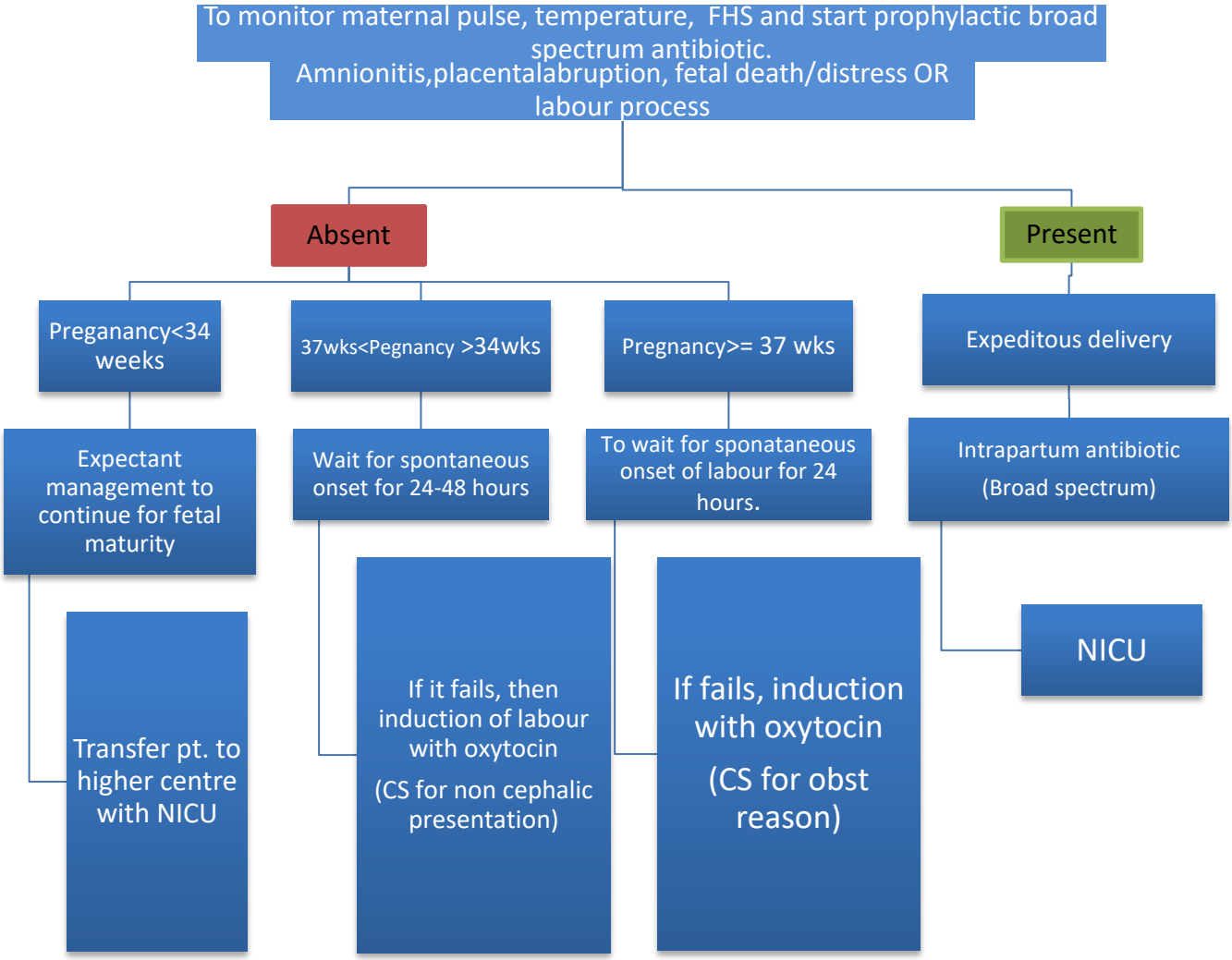
➢ There is variation in the literature regarding the accuracy of the laboratory tests of leucocytosis and raised C-reactive protein in the prediction of chorioamnionitis.
  - Although weekly culture of swabs from the vagina is often performed, the data evaluating this practice do not show conclusively that it is beneficial.
  - It would be considered reasonable to keep the woman in hospital for at least 48 hours before a decision is made to allow her to go home.
  - This method of management should be individualised and restricted to certain women. Women should be instructed to take regular temperature recordings at home every 4–8 hours

- **Care of premature babies after birth**
  - Keep the Baby warm
  - Do not give bath
  - Maintain asepsis
  - Maintain nutrition
  - If the baby's general condition is good and weight is more than 1500 gms thenthe baby can be treated at PHC.
  - If less than 1500 gms refer to CHC/nearest neonatal unit.

Premature rupture of membranes Algorithm



MANAGEMEMENT SCHEME OF PROM
Maternal health assessmentFetal; Gestational Age, Weight, Pulmonary Maturity



15. HYPERTENSIVE DISORDERS OF PREGNANCY

Diagnostic features

Hypertension-

- Absolute rise of B.P equal to or more than 140/90 mm Hgon at least two occasions4hours apart
- Or a single reading of B.P. of 160/110 mm Hg or more.(Diastolic blood pressure is taken at the point of disappearance of sounds (Korotkoff-V) with Mercury sphygmomanometer at the level of the heart with woman in sitting posture.
- Ensure appropriate cuff size.

Proteinuria-

- Presence of urinary protein in amounts exceeding 0.3 g in a 24 hour urine collection or more than 1gm/litre(Significant proteinuria) to be done after ≥ 1+ in random urine sample as diagnosed byDipstick

or

- Boiling the clean catch midstream urine in a clean test tube followed by adding a drop of 2% acetic acid and check for persistent precipitates to quantify protein

(Trace= 0.1gm/L, 1+ = 0.3gm/L, 2+ = 1gm/L, 3+ = 3gm/L, 4+ = 10gm/L)

Oedema-

- Excludedfrom the diagnostic criteria unless pathological.
- However presence of pitting oedema over the ankles after 12 hours of rest &/or rapid gain in weight of more than 0.5 Kg/week or more than 2 Kg/month may be early features.

Classification of hypertensive disorders of pregnancy

- **Chronic hypertension**- hypertension before20 weeks gestation
- **Gestational hypertension**-development of newhypertensionafter 20 weeks gestation without proteinuria
- **Preeclampsia-eclampsia-** gestational hypertension**plus** proteinuria
- **Preeclampsia superimposed on chronic hypertension**

Classification of pre-eclampsia

Feature	Mild pre-eclampsia	Severe pre-eclampsia
BP	>140/90 mmHg but <160/110 mmHg	>160/110 mmHg
Proteinuria	2+	≥3+
Oedema	May or may not be present)	Present in the face and hands (non dependent oedema)
Headache	Absent	Present
Visual disturbances	Absent	Present
Upper abdominal pain Nausea/vomiting	Absent	Present
HELLP syndrome (haemolysis,elevated liver enzymes, low platelet count)	Absent	May be present
Fetal complications	Absent	Present

Note: It is not necessary that all these signs are present in all cases.

Management of Hypertensionin Pregnancy

Gestation less than 37 weeks

Gestation more than 37 weeks- cosiderdelivery

Test for proteinuria: Significant (2+ on dipstick)

No proteinuria

proteinuria

-BP >140/90 on preconception or diagnosed before 20 weeks

Chronic Hypertension

-Change ACE inhibitor/ARB to safe drugs for fetus(see table)
Advise salt restriction+ diuretic
(Follow up every week)

Detected after 20 weeks- Gestational Hypertension

Advise to avoid table salt

Otherwise no salt restriction

(Follow up every week)

Preeclampsia/Preeclampsia superimposed on chronic hypertension

>140/90 but <160/110 mmHg

Mild Preeclampsia
(Follow up twice a week)

>160/110 mmHg&/or other features

Severe Preeclampsia

Manage as Severe Preeclampsia

Allow the woman to stay at home
and advise her to rest in left lateral position as much as possible.
At each visit:
* Check the BP, urine for protein, Weight & generalized body oedema
* Exclude& counsel about symptoms of severe pre-eclampsia
* Monitor foetal growth, ask the woman about foetal movements,check FHR
* Calcium supplementation (1 gm /day), ensure 100gm protein in diet/day

previous history of pre-eclampsia or gestational hypertension,pre-existing vascular disease or pre-existing kidney disease may be offered aspirin 75mg/day from 12weeks

All observations remain stable

Continue follow up

Book the woman for delivery at the PHC/hospital at term
(donot allow to cross EDD)

Refer to CHC if - BP > 150/100 mmHg, GA <30 wks, fetal affection(IUGR-, oligohydramnios)

Admit at CHC / tertiary centre- Investigate & Monitor

Get Complete Blood Count , LFT with LDH, Kidney function test , Electrolytes, uric acid/creatinine, , Fundus examination , Foetal assessment: clinical & USG/Doppler

(All investigations twice/wk, USG Doppler every wk)

Start antihypertensive (target BP ≤150/80-100)(see box)

BP measurement 4 times a day, Daily- test for proteinuria , assessment for features of pre-eclampsia & fetal well being

Significant proteinuria
MildPreeclampsia-
Refer and admit at CHC/ TC if
<32 wks preg, unreliable,
Platelets < 2 lac,
elevated UA S/D Ratio, fetal affection
consider delivery at 37 weeks

Gestation more than 37 weeks

proteinuria >3+&/or BP worsens >160/110/ other signs & symptoms of severe Preeclampsia-**Manage as severe Preeclampsia**

Severe Preeclampsia

- Start antihypertensive (see table below)
- Prophylctic anticonvulsant (Loading dose of MgSo4- see Eclampsia)

Refer toCHC/ higher centre once stable

BUT

- If a woman with a hypertensive disorder of pregnancy presents in the early first stage of labour
- refer her to an FRU. However, if she is in the late first stage or second stage of labourconduct the delivery and start medical treatment
- stabilize & only then refer the woman for further management if needed along with a trained staff

Diagnosis-

- Systolic BP ≥160 &/or Diastolic BP ≥110 mmHg
- Proteinuria > 0.5gm/24hrs/ ≥ 3+ on two occasions 4 hrs apart
- severe headache, visual disturbances, epigastric or rt hypochondriac Pain,
- oliguria (UOP <500 ml/24 hrs)
- Biochemical- thrombocytopenia(<1 lac/mm3, hyperbilirubinemia, elevated liver enz., elevated creatinine
- pulmonary Oedema,
- Fetal complications

Management at CHC/ higher centre

If any of the above criteria are abnormal or deteriorate, then decide depending on gestational age (GA)

- GA < 36 weeks - manage the patient at a tertiary hospital (with intensive neonatal care facility)
- GA > 36 weeks – may be managed at CHC

Admit(monitoring by chart)- constant observation

- **Bed rest**

Antihypertensive-see table below

- Prophylctic anticonvulsant (MgSo4)
- Asses maternal condition- R/S, CVS,CNS, hourly urine out put, Input/ output record
- CBC, platelet, LFT, RFT, Electrolytes, coagulation profile, fundus exam
- Foetal assessment: DFMC, daily NST, USG (Doppler+ NST + CTG –preferred)

Decide Whether delivery indicated

GA > 34 WKS, <24 weeks

- BP uncontrolled persistently
- ≥ 160/100mm H (Despite max dose of 2 drugs), visual symptoms, severe headache, epigastric pain, vomiting
- UOP < 400ML IN 24Hrs
- LDH> 600 IU/L
- Platelet < 50000/cmm
- S/S of fetal compromise
- UA/MCA Doppler <1
- Non reassuring FHR
- Complications- abruption,HELLP Syndrome, pulmonary oedema, ARF, increasing AST, ALT(>twice above N) Creatinine (>1mg/dl)

Delivery within 24 hrs

- Vaginal birth preferred
- Continuous EFM
- Strict BP control (<160/110)
- Monitor BP &other vitals every 15 min till stable then ½ hourly
- Fluid restriction (80ml/hr)/ 30ml+previous hr output+ additional vol for other fluid loss e.g vomiting or diarrhoea
- Indwelling urinary catheter

Give diuretic after delivery

Indications for c- section-

- Uncontrolled HT

- unfavourable cx
- Marked oliguria
- fetal compromise
- Suspicion of abruption
- Failed induction
- Other obstetric indications

Patient stable

EXPECTANT MANAGEMENT

INPATIENT MONITORING:

- Cont. Antihypertensive
- Stop prophylactic anticonvulsant after 24 hrs

Give steroid for lung maturation

(Defer delivery for 48-72 hrs)

- Review clinical features daily
- Measure BP 4 hourly OP 4 hourly, I/O charting
- Daily urine analysis
- Test CBC, platelet, LFT, RFT electrolytes, Coagulation profile(Coagulation test to be done only if Platelet count <1 Lac &/or LDH is > 600 U)

Inv-3 times a week

- Consider VTE prophylaxis

CONVULSIONS-

- MANAGE AS ECLAMPSIA

POST- PARTUM

- Measure BP at least 4 times a day,closely monitor for 48 hrs, must measure BP up to 3-5th day

1) Continue antihypertensive treatment if BP>150/100 mmHg, Stop methyldopa within 2 days of birth.

- Can use labetalol, nifedipine, enalapril, captopril, atenolol, metoprolol. Do not use ARBs, amlodipine, ACE inhibitors other than enalapril and captopril Reduce antihypertensive if BP <130/80 mmHg, Postnatal breastfeeding mothers – avoid diuretics
- Consider Postpartum thromboprophylaxis
- Measure platelet count, transaminases and serum creatinine 48–72 hours after birth

Severe pre-eclampsia PLUS any two of the following: Imminent eclampsia

• Headache (increasing frequency, unrelieved by regular analgesics)

• Clouding of vision

• Pain in the upper abdomen (epigastric pain or pain in the right upper quadrant)

• Oliguria (passing less than 400 ml urine in 24 hours)

• Hyperreflexia (exaggerated knee jerk)

• Pulmonary oedema

(All cases of severe pre-eclampsia should be managed actively. Symptoms and signs of "impending eclampsia" may be unreliable.)

Antihypertensive drugs (Aim for DBP 90-100 mm Hg)

Drugs	Dose	Side effects	Contraindications and precautions
Labetalol	Orally – 100 mg tid may be increased up to 2400 mg daily. Hypertensive crisis- Initial dose of 20 mg IV bolus over 2 minute period, followed by 40 mg after10 min then 80 mg after further 10 min or until desired effect (maximum up to 220 mg) I/V infusion – add 100 mg (40 ml) in 80ml N/S, (1mg/ml)start @ 20 mg/hr (5-6 drops/min), double every 20 min until desired effect	Tremors, headache, asthma, congestive cardiac failure. Efficacy and safety with short term use appear equal to methyl dopa.	Hepatic disorders. Asthma, congestive cardiac failure.
Methyl Dopa	Orally – 250 mg bid – may be increased to 1 g qid depending upon the response.	Maternal – Postural hypo-tension, haemolytic anaemia, sodium retention, excessive sedation. False positive Coombs' test	Hepatic disorders, psychic patients, CCF Postpartum depression risk
Nifedipine	Orally 5-10 mg tid maximum dose 60-120 mg/day. Hypertensive crisis- 10 mg orally (not sublingually) , can be repeated after 30-60 min. Maximum dose 20 mg 4hrly	Flushing, hypotension, headache, tachycardia, inhibition of labour.	Simultaneous use of magnesium sulphate could be hazardous due to synergistic effect.

16. Eclampsia

Pregnancy with Convulsion; BP ≥140/90 mmHg; Proteinuria

1. Keep her in quiet room in bed With padded rails on sides

2. Position her on left side, Oropharyngeal airway to be kept patent.

3. Ensure preparedness to manage Maternal and foetal complications

Oxygen by mask at 6-8 1/min, Start IV fluids-RL/NS at 60 ml/hr, Catheterize with indwelling catheter

Anti Hypertensive

- If Diastolic BP≥ 100 mmHg
- Strict BP monitoring
- Oral Nifedepine 10 mg stat, repeat after 30 minutes if needed (if pt unconscious through ryles tube) OR
- Inj Labetalol 20 mg IV bolus, repeat 40 mg after 10 minutes again repeat 80 mg every 10 minutes if needed (maximum 220 mg) with cardiac monitoring

Anti Convulsants

- Magnesium Sulfate is drug of choice
- Loading dose :
  - 50% of 4 gm diluted to 20% (8 ml drug with 12 ml NS) to be given slowly IV in 5 minutes
  - 5 gm IM (50%) each buttock with 1 ml of 2% Xylocaine (Total 10 gm)
  - If recurrent fits after 30 minutes of loading dose – repeat 2 gm 20% (4 ml drug with 6 ml NS) slow IV in 5 minutes
- Maintenance dose :
  - 5 gm IM (50%) alternate buttocks after monitoring every 4 hourly
- Monitor :
  - Presence of patellar jerks
  - Resp. rate (RR) ≥ 16/min
  - Urine output ≥ 30 ml/hr in last 4 hours
- Continue till 24 hours after last fit/delivery which ever is later
- If Patellar jerk absent or urine output < 30 ml/hr withhold Magsulf and monitor hourly – restart maintenance dose if criteria fulfilled
- If RR < 16/min, withhold Magsulf, give antidote – Calcium Gluconate 1 gm IV 10 ml of 10% solution in 10 minutes

- Deliver the baby irrespective of gestational age
- Admission – delivery interval should not be more than 12 hours

Favourable Cervix

- Induction with ARM and Oxytocin
- 2nd stage to be cut short by Forceps/ Ventouse

Unfavourable Cervix

- Ripening with Dinoprostone gel/intracervical indwelling catheter and after 6 hours

LSCS : * If fits not controlled/status eclampticus * Foetal distress * Deteriorating maternal condition * Failed Induction *Any other obstetric indication

17. Pregnancy with Heart Disease

Incidence is **<1%,**Commonest lesion is rheumatic (RHD)-Mitral stenosis-80% Followed by Congenital heart disease (CHD) e.g.PDA,ASD,VSD,CA,TOF,PS

Diagnosis-Symptoms-

- Breathlessness
- nocturnal cough
- syncope
- cheast pain

Signs-

- Murmur-Pansystolic
- late systolic
- loud ejection systolic
- diastolic associated with a thrill
- ***As soon as the diagnosis is made Refer* to tertiary unit with multidisciplinary care**

If the woman comes in cardiac failure-

- Start O2, propped up position,
- I/V Frusemide 40-80 mg
- Shift once stable, preferably with a trained person

At tertiary hospital

History & clinical evaluation

NEW YORK HEART ASSOCIATION FUNCTIONAL CLASSIFICATION (NYHA) OFCARDIAC DISEASE

- CLASS I
    - No functional limitation of activity.
    - No symptoms of cardiac decompensation with activity.
- CLASS II
    - Mild amount of functional limitation.

- Patients are asymptomatic at rest.
- Ordinary physical activity results in symptoms.

- CLASS III
  - Limitation of most physical activity.
  - Asymptomatic at rest
  - Minimal physical activity results in symptoms.
- CLASS IV
  - Severe limitation of physical activity results in symptoms.
  - Patients may be symptomatic at rest/heart failure

Indications of MTP

- Absolute- Primary Pulmonary Hypertension,Eisenmenger's Syndrome, Pulmonary Veno-occlusive ds
- Relative- H/O heart failure in previous pregnancy or Gr 3 or 4 NYHA in present pregnancy.
- (Do before 12 wks, by MVA, D/E)

17.1 Antenatal care

- **Frequent antenatal visits**
  - Ask for shorness of breath
  - Orthopnea
  - Wheezing
  - Palpitation& wt gain & check for basal rales
  - Hepatomegaly & dependent edema.

- **Detect and treat the risk factors**
  - e.g. infections (urinary, dental, respiratory tract)
  - Anaemia,
  - Excessive weight gain
  - HTN
  - Arrythmias
  - Hypothyroidism
  - Reassign NYHA grade at every visit.

- Limiting activity with rest 10 hrs in night & 2 hrs in day as minimum, avoid extra salt intake
- **Inj Penidura LA 12 every 3 wks during pregnancy to prevent recurrence of rheumatic fever**
- In congenital HD, do 11-13 wks & 18-22 wks fetal anomaly scan, fetal echocardiography @ 22 wks
- InCongenital heart ds with pulmonary HT, Artificial valve replacement& atrial fibrillation-
    - **Anticoagulant T/t – Heparin 5000 iu twice a day upto 12 wks (keep PT at 1.25-2.5 above normal 6 hr before next inj)**
    - **Thereafter Tab Warferin 3mg/day upto 36 wks, to be replaced by Heparin.**

Admission

Elective

Grade I- At 38 wk

Grade II- At 28 wks

Grade III- & IV- ASAP, Keep in hospital

Anytime–if deterioration of functional status, any pregnancy complication appears, onset of cough, crepitus or tachyarrythmias

Cesarean section is indicated only for the following conditions:

- Aortic dissection
- Marfan syndrome with dilated aortic root > 4cm
- Coarctation of aorta

Anaesthesia- Avoid Epidural/ spinal in AS, right to left cardiac shunts, MIEpidural/ spinal- ideal in MS, Primary pulmonary HT, PPCM

Antibiotic prophylaxis for endocarditis

- Not routine in uncomplicated delivery
- Should be given in operative delivery, pt with mechanical valve structural heart disease,& past h/o IE

Regime

- During labour and 48 hrs after it- Inj. Ampicilline 2 gms and G/M 1.5mg/kg body wt 30 min before procedure followed by Inj Ampicilline 1 gm i/v 6 hrly

OR

- Woman allergic to penicillin, Inj. Vancomycin 1 gm I/V over 1-2 hrs plus Inj. G/M as above (complete the infusion 30 min prior to procedure)

Management during labour

1st Stage

Position- Lateral recumbent

O2

Fluids- 75ml/hr

(in Aortic Stenosis -125ml/hr)

- Intensive monitoring- if pulse>110, Digitalis
- Pulse oxymetry

Heparin to be stopped at the onset of labour(6hrs before delivery)

2 nd Stage

Cut short with Forceps or vacuum extraction (preferable)

3rd Stage-

- Avoid ergometrine,If bleeding- give oxytocin but not as bolus.
- Patients with MS having fixed CO should be placed in sitting position immediately following delivery/ tourniquets may be used in lower limbs. Consider frusemide for prevention of pulmonary edema.

Postpartum Care-

- Close monitoring for 24 hrs, contd O2, hourly P/BP/RR
- Restart heparin 6-hrs after vaginal & 24 hrs after caesarean delivery. Oral anticoagulant can be started 7 days postpartum, is not a contraindication for lactation
- Frusemide if volume overload

- Patients at intermediate or high risk may require monitoring for at least 72 hours postpartum.
- Lactation should be encouraged unless patient is in failure.
- For contraception -POP/Barrier methods

Ref- High risk Pregnancy & delivery. Fernando Arias Third ed 2008

AHA n ADA-2008

RCOG 2006

European society of cardiology-2011

DIAGNOSIS: Made on clinical grounds

- Symptoms: Sudden abdominal pain with bleeding P/V
- Suspect specially if known case of PIH/ abdominal trauma
- General examination: Pallor, tachycardia, hypotension disproportionate to visible blood loss
- P/A-Uterus may be tense and tender
  -Fetal distress/death
- P/S : dark coloured blood may be present
- USG: -To rule out placenta praevia
  -May reveal retroplacental clots
- P/V-may be done only after placenta praevia is ruled out by USG

Classical features of abdominal pain and tense and tender uterus may be absent in posterior placenta - **Silent abruption**

ASSESSMENT OF SEVERITY:GRADING OF ABRUPTIO PLACENTAE-GRADE:

- **0**-Retrospective diagnosis on seeing retroplacental clots after delivery of baby, blood loss usually < 150 ml
- **1**-Bleeding P/V with or without tense/tender uterus; maternal and fetal condition stable, blood loss usually < 150 ml- **500 ml**
- **2**-Mild to moderate bleeding P/V with maternal tachycardia, postural hypotension, signs of fetal distress present
- **3**-Severe haemorrhage, uterus is tetanic, fetus is usually dead, features of shock present

- Maternal complications , DIC or renal failure may be present
- With coagulopathy/ without coagulopathy

18. PLACENTAL ABRUPTION

Placental abruption is premature separation of a normally situated placenta before birth of the fetus.

DIAGNOSIS: Made on clinical grounds

- Symptoms: Sudden abdominal pain with bleeding P/V
- Suspect specially if known case of PIH/ abdominal trauma
- General examination: Pallor, tachycardia, hypotension disproportionate to visible blood loss
- P/A-Uterus may be tense and tender
  -Fetal distress/death
- P/S : dark coloured blood may be present
- USG: -To rule out placenta praevia
  -May reveal retroplacental clots
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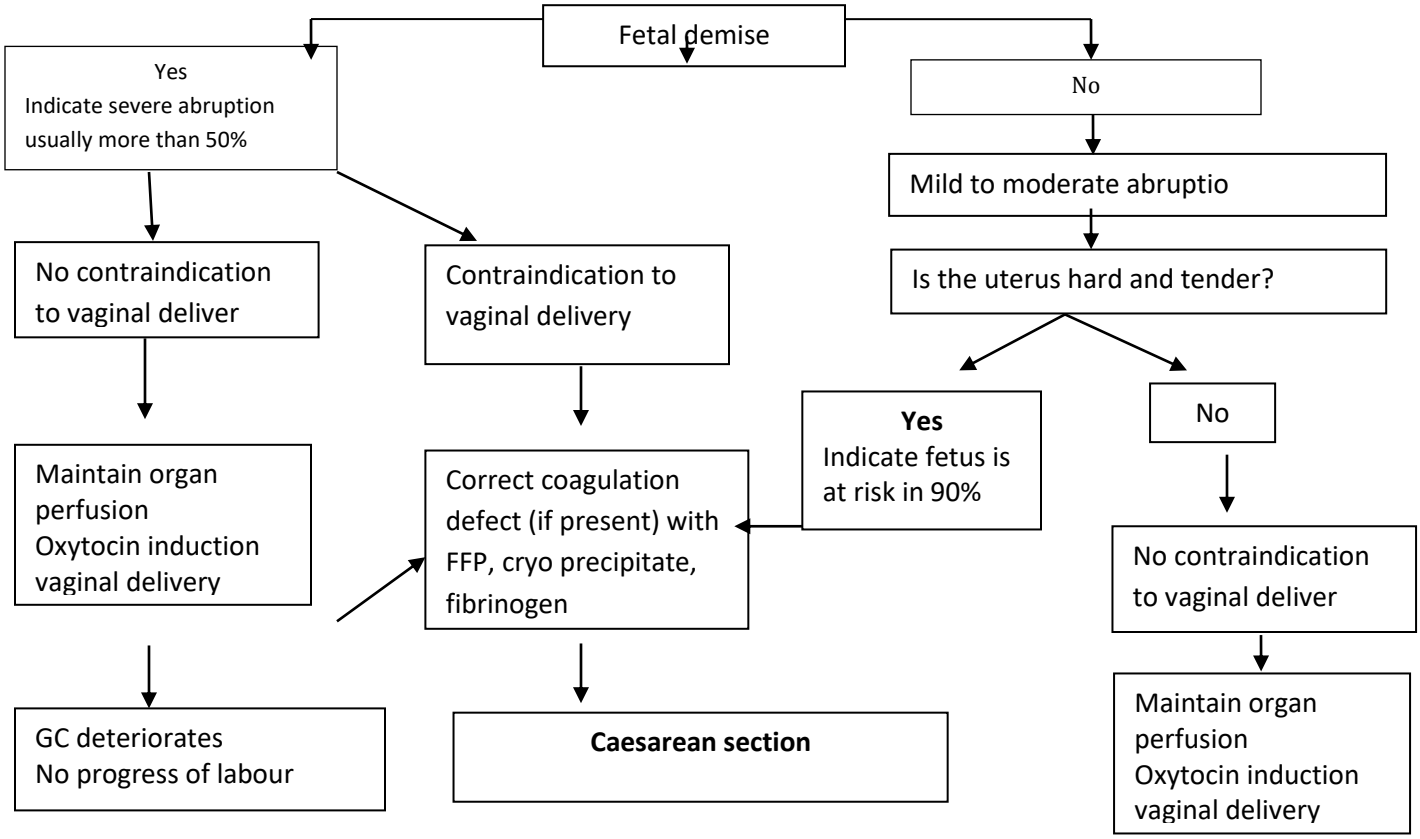
- **3**-Severe haemorrhage, uterus is tetanic , fetus is usually dead, features of shock present
  - Maternal complications , DIC or renal failure may be present
  - With coagulopathy/ without coagulopathy

Quick assessment of general condition of mother and fetus

- Resuscitation and I/V fluids
- Blood sample drawn for grouping and cross matching/ Haemoglobin/Platelet count/coagulation profile/renal function test/serum electrolytes; bedside clot observation and retraction test/ FDP/D-dimer
- Arrange adequate blood and blood products ;Transfuse as needed
- Indwelling catheter and hourly urine output
- Correct hypovolemia
- Treat DIC
- If renal failure, do initial management of renal failure

TERMINATION OF PREGNANCY IS THE DEFINITIVE MANAGEMENT IRRESPECTIVE OF SEVERITY OF ABRUPTION



Key points in management-

- Immediate transfusion of packed cell regardless of initial vital signs and initial haemoglobin
- Give enough blood and crystalloids to maintain a hematocrit at least 30% & urine out put at least 30ml/hr
- Always obtain DIC profile; if present, will require administration of fresh frozen plasma or cryoprecipitate especially if caesarean section or episiotomy is required
- There is no place of heparin in obstetric haemorrhage
- Surgical procedures should be avoided if at all possible in presence of existing or impending DIC. If required, coagulation parameter to be corrected to acceptable level.
- Presence of long, hard cervix is not an indication for caesarean section. In most patients, the cervix will efface and dilate rapidly after oxytocin induction or vaginal prostaglandin administration.
- There is definite role of activated factor VII in postpartum haemorrhage after abruption, so its use should be considered.

CONSERVATIVE MANAGEMENT: There is no role of conservative management in abruption, except in special circumstances to prolong the pregnancy if gestational age is less than 34 weeks provided:-

- Maternal and fetal condition is stable
- Abruption is Grade 1 or 0.
- No active bleeding

19. PLACENTA PRAEVIA

It is the implantation of placenta wholly or partly in the lower segment of uterus.

DIAGNOSIS:

- Symptoms- Painless bleeding P/V
- General examination- Pallor and shock may be presen; it is proportionate to the amount of blood loss

  P/A- Soft, non-tender uterus -Fetal parts palpable

  -Abnormal presentations - Presenting part high floating

  -Fetal heart sound is usually present unless there has been heavy bleeding and patient is exsanguinated

  Vulval inspection- To see if bleeding is still present/ Usually fresh bright red blood seen/ Assess amount of blood loss
- **USG**-To confirm the diagnosis
- **No P/V examination** is done

ANTENATAL MANAGEMENT OF PLACENTA PRAEVIA:

- Placental location should be confirmed at 20 weeks and again at 32 weeks
- Prevention and treatment of anaemia
- Counsel regarding risk of preterm delivery & haemorrhage
- Warning bleeding should be seriously investigated and managed
- In known case of placenta praevia with previous Caesarean Section, adherent placenta has to be ruled out.

WOMEN PRESENTING WITH H/O BLEEDING PERVAGINUM

- Admit
- Quick assessment of general condition of mother and fetus
- Blood sample drawn for grouping and cross matching/ Haemoglobin/Platelet ccount/coagulation profile/renal function test/serum electrolytes; bedside clot observation and retraction test
- Arrange adequate blood and blood products; Transfuse as needed

- In hemodynamically unstable patients - Initial resuscitation and stabilization with crystalloids & colloids & followed by blood &blood products, Indwelling catheter & monitor hourly urine output
- Rule out vasa previa & placental separation, other local causes of bleeding
- USG to asses GA, biophysiacal profile, presentation, estimated fetal weight, exclude associated abruption, congenital anomalies
- Decision about delivery or expectant management

EXPECTANT LINE OF MANAGEMENT (MACAFEE'S REGIMEN)

AIM: To prevent or reduce premature births

CRITERIA -General maternal condition is stable

- no active bleeding P/V
- GA<37 weeks
- Patient is not in labour
- No fetal distress
- No major fetal congenital malformations

WHAT TO DO?

- Hospitalise
- Iron /blood transfusion to improve Hb
- Monitor mother for vitals & bleeding p/v
- Monitor fetus by daily NST
- Steroids to enhance fetal lung maturity
- Ready availability of blood in adequate quantity

Criteria for termination of expectant m/m-

- Becomes hemodynamically unstable
- GA >37 WK
- Bleeding continues
- Patient goes in labour
- FHS absent or non reactive NST

ACTIVE LINE OF MANAGEMENT (TERMINATION OF PREGNANCY)

- **Criteria for termination**
- Hemodynamically unstable
- GA >37 WK
- Bleeding continues
- Patient in Labour
- FHS absent or non reactive NST
- Gross fetal anamolies

VAGINAL DELIVERY:

- May be attempted in a term (>37 weeks) stable patient, with
    - type1 or type 2(anterior) placenta praevia.
    - distance of lower edge of placenta 20 mm away from internal os with engaged vertex presentation

CAESAREAN DELIVERY:

- Anytime in gestation-Severe bleeding/recurrent bouts of bleeding
- GA>37 weeks with:

  - Type 2 posterior, type 3 and type 4 placenta praevia

  - Placental edge within 20mm from internal os

  -Placenta praevia of any type with abnormal presentation
- GA>34 weeks
    - placenta praevia of any type with complicating factors.
    - Fetal distress

Criteria for outpatient m/m

- Seventy two hour of inpatient observation without vaginal bleeding
- Stable serial hemotocrit ≥ 35%
- Reactive NST at time of discharge
- 24 hrs transport facility available
- Compliance with bed rest at home
- Weekly clinical follow up until delivery including serial HB & USG

PRECAUTIONSDURINGLSCS

- Any woman giving consent for caesarean section should understand the risks associated with caesarean section in general and the specific risks of placenta praevia in terms of massive obstetric haemorrhage, the need for blood transfusion and the chance of hysterectomy.
- Transverse incision on Lower Uterine Segment(LUS) is always preferred.If LUS is not well formed or is very vascular or any difficulty occurs with transverse incision, the incision may be converted to an inverted Tor J shaped incision
- If anterior placenta previa, two approaches are possible:
    - Separating through the membranes above or below the placenta
    - Cutting through the placenta to be avoided specially in associated acreta
- Placental bed bleeding can be controlled by:
    - Haemostatic sutures(cervico-isthmic sutures)
    - Stepwise devascularisation
    - Internal iliac artery ligation
    - Uterine artery embolisation
    - Peripartum Hysterectomy rarely needed

Morbidly adherent placenta:

- Placenta praevia in previous Caesarean can be especially dangerous when there is morbid adhesion or invasion of bladder. Prior diagnosis with
- USG/ MRI is always recommended. These should be managed only in centres with facilities to tackle such problems.

Severity of shock	ACS class	Signs and Symptoms	Blood loss(ml)	%blood volum	Notes
None	Class I	None	Up to 750	10-15	
Mild	Class II	Tachycardia (<100bpm); Mild hypotension, Normal or Increased pulse pressure(peripheral vasoconstriction)	750 - 1500	15-25	Volume replacement with crystalloids and/or colloid
Moderate	Class III	Tachycardia(100-120bpm); Hypotension(systolic blood pressure 80-100mmHg); Decreased pulse pressure, anxiety, confusion, oliguria	1500-2000	25-40	Transfusion Probable
Severe		Tachycardia (>120140bpm), Hypotension (systolic blood pressure <80mmHg); Decreased pulse pressure, confusion, Lethargy; Anuria	>2000	>40	Transfusion probable, massive transfusion possible

RCOG 2011

Points to be pondered-

- Routine ultrasound scanning at 20 weeks of gestation should include placental localisation.
- Transvaginal scans improve the accuracy of placental localisation and are safe, so the suspected diagnosis of placenta praevia at 20 weeks of gestation by abdominal scan should be confirmed by transvaginal scan, then a repeat scan at 36 wks to look for placental migration.
- In cases with previous uterine scar with anterior placenta praevia one must exclude placenta accreta. Antenatal sonographic imaging can be complemented by magnetic

resonance imaging in equivocal cases to distinguish those women at special risk of placenta accreta.

- Prophylactic terbutaline to prevent bleeding has not been found to benefit women with placenta praevia so not recommended.
- Prolonged inpatient care can be associated with an increased risk of thromboembolism; therefore, mobility should be encouraged together with the use of thromboembolic deterrent stockings and adequate hydration.
- Prophylactic anticoagulation in women at high risk of bleeding can be hazardous and the decision to use it should be taken on an individual basis considering the risk factors for thromboembolism. Limiting anticoagulant thromboprophylaxis to those at high risk of thromboembolism seems reasonable
- The mode of delivery should be based on clinical judgement supplemented by sonographic information. A woman with a placental edge less than 2 cm from the internal os in the third trimester is likely to need delivery by caesarean section, especially if the placenta is thick, but the evidence for this is poor and further research in this area is needed.
- As the lower uterine segment continues to develop beyond 36 weeks of gestation, there is a place for TVS if the fetal head is engaged prior to an otherwise planned caesarean section.
- Elective delivery by caesarean section in asymptomatic women is not recommended before 38 weeks of gestation for placenta praevia, or before 36–37 weeks of gestation for suspected placenta accreta.
- There is no evidence to support the use of autologous blood transfusion for placenta praevia.
- Interventional radiology can be life saving for the treatment of massive postpartum haemorrhage, and therefore having this facility available locally is desirable. If a woman is suspected of having placenta accreta and she refuses donor blood, it is recommended that she be transferred to a unit with an interventional radiology service.
- The place of prophylactic catheter placement for balloon occlusion or in readiness for embolisation if bleeding ensues requires further evaluation.

20. Cesarean delivery

Delivery of a fetus through surgical incisions made through the abdominal and the uterine wall. Caesarean section rates are between 20 and 38 percent in India. The leading indications for cesarean delivery are previous cesarean delivery, breech presentation, dystocia and fetal distress. These indications are responsible for 85% of all cesarean deliveries.

Indications for caesarean section

The indications have expanded to consider the patient's wishes and preferences now a days

C.S. on demand-

- For women who ask for a CS in the absence of any clinical indication, physical or mental, the guideline says they should be asked why they are requesting the operation, and be provided with full information about the risks and benefits.
- They should also be offered the opportunity to discuss the procedure with other members of the obstetric team. If, after this, they still want to have a CS, they should be allowed to have one.
- However the pt should also be counselled that In fact, an unindicated Caesarean may do more harm than good. In a low-risk, uncomplicated pregnancy, it has an eightfold higher mortality than vaginal delivery (14), 8 to 12 times higher morbidity (15), and a higher incidence of complications in subsequent pregnancies.

Decision:

After history & examination (Obstetric +general medical including Vital signs and NST, if available

Decision – delivery Interval:

Any facility providing obstetric care should have the capability of performing a cesarean delivery within 30 minutes of the decision.

Pre-operative preparation:

- Consent
- Anesthesia consultation
- Nothing per mouth (except non-particulate citrate antacid®)

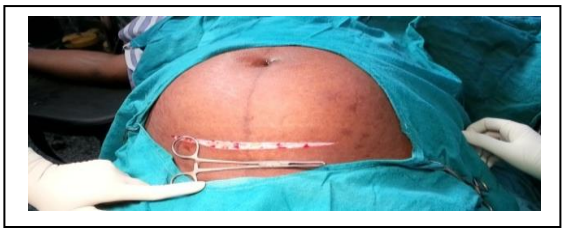
- Intravenous: Lactated ringers at 125 cc/hr; if regional anaesthetic, then bolus of IV fluids per Anaesthesia
- Antacid 30 cc per mouth 1 hour pre-op, or on call to OR
- Antibiotic e.g. Cefazolin, one gram intravenous to be given 15 to 60 minutes prior to skin incision
- Place patient in left lateral decubitus position
- Insert bladder catheter
- Clip lower abdominal hair (if needed) in OT
- Sequential compression devices on lower extremities
- Laboratory evaluation - haemoglobin, Rhesus group and antibody screen, testing for syphilis and HIV, and blood compatibility testing in high-risk cases

Technique :

- spinal analgesia- is a cost-effective choice
- Skin prepration with available antiseptic- preferably povidine –Iodine solution

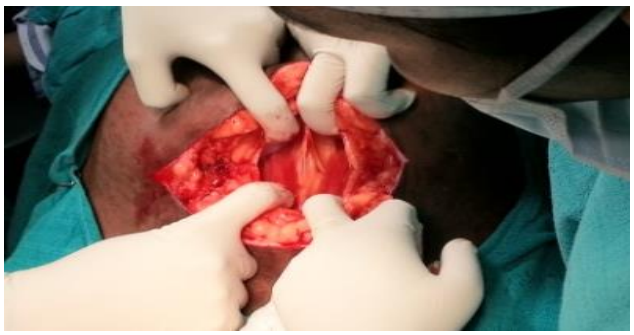
Incision-Joel-Cohen (Misgav Ladach modification) –

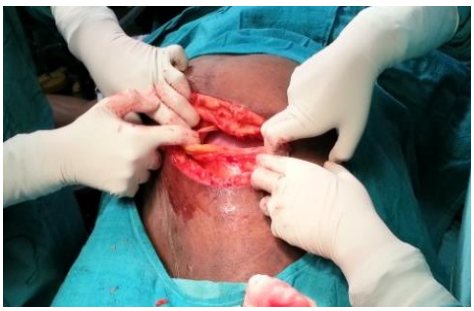
- Superficial transverse cut in the cutis, about 3 cm below an imaginary line
- connecting the two ant superior iliac spines.



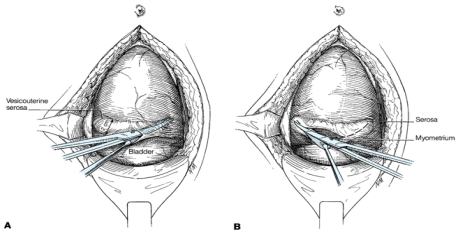
Size of incision should be about 15 cm

- **Rectus fascia** incised transversely for about 3 cm in midline
- It is then stretched caudally and cranially using the index fingers to make room for the next step
- The surgeon and assistant each insert fingers under the muscles and stretch the muscles, blood vessels, and the fat tissue by manual bilateral traction.
- Perietal Peritoneum should be opened near umbilicus, avoid injury to bladder. **Open transversely, sharp or blunt.**

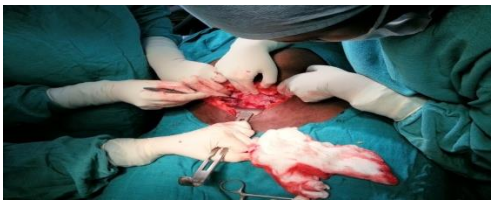




- ***Note: Sometimes other type of incision may be required e. g. midline vertical -*** extends from the pubic symphysis to within two centimetres of the umbilicus. The fascia is elevated and sharply dissected from the pubis to the umbilicus. This midline-vertical abdominal wall incision can be performed rapidly, and provides excellent exposure of the pelvis and sidewalls.

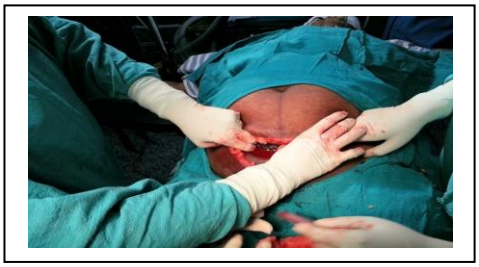


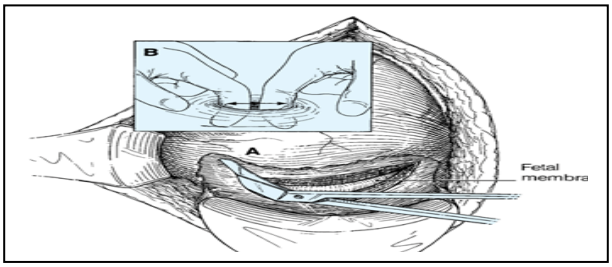
- **Vesico-uterine peritoneum** is elevated and opened transversely one centi-meter above the bladder reflection onto the lower uterine segment for 10 to 12 centimetres.



- **Uterine incision-** The most common is a low-transverse or Kerr incision. A less common surgical approach is the "classical" or vertical uterine incision(Indications for classical incision are-Structural abnormality that makes lower segment approach difficult, fibroids in the lower segment, ant PP & abnormally vascular lower segment,previous difficult V.V.F. repair, pregnancy with cancer cervix,very preterm fetus in breech presentation).

  The lower uterine segment is delicately opened transversely with a scalpel, with ashort (3cm) cut reaching up to but not through the membranes,one to two cm from the upper margin of the bladder taking care to avoid injury to the fetus.

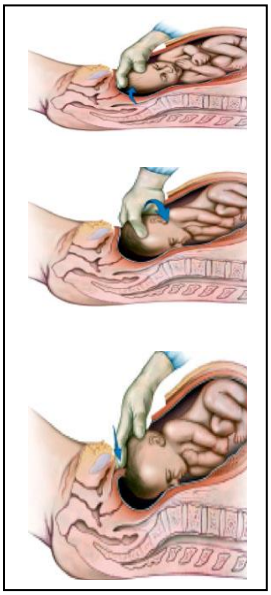




The incision is completed by the 2 index fingers /along the incision mark.

Note:Blunt expansion of the uterine incision in a curvilinear fashion slightly cephaladResults in less unintended extension and blood loss than expansion in a transverse direction when there is a well formed lower uterine segment

BUT

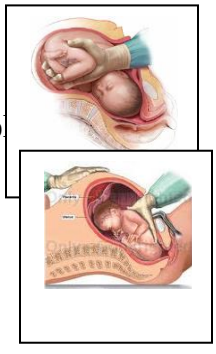


Sharp extension may be necessary in c/o preterm breech or whenever LUS not well developed The short (3cm) middle incision may be enlarged by a scissors

- **Safe delivery of the fetus**

  Head-
- Elevate. Apply traction on the fetal head out of the pelvis with the hand
- Rotate. So the occiput faces the incision.
- Reduce. Push the lower edge of the uterine incision down until it is posterior to the fetal head.
- Bring head up to incision by flexing fetal head, without flexing wrist
- (to avoid uterine incision extensions)
- With the other hand, gently press on the abdomen over the top of the uterus to help deliver the head.

Note: In elective cesarean section, **floating head** is more difficult to deliver than an engaged head-Use short forceps in floating head or a vacuum device.



- In **deeply impacted fetal head**- pull out the baby by breech after catching ho the footling (if fetal back is post or transverse) or by Modified Patwardhan's method(if the back is anterior)
- In **breech** presentation/ transverse lie- keep the fetal back anterior while delivering out of the uterine incision by breech/ footling

- The **placenta** should be removed using controlled cord traction and **not** manual removal as this reduces the blood loss & risk of endometritis.

Do not exteriorize the uterus

- **Uterine suturing-**Except within a research context, the uterine incision should be sutured with two layers (specially where the obst. Goals are yet to be achieved,
- LUS not formed and is thick, single layer suturing may not be done)
  double-layer closure reduces risk of rupture during VBAC
- ***Do not close the peritoneum***
- ***Rectus closure***with available suture preferably polygalctin 910(Vicryl*)*
- Routine closure of the **subcutaneous tissue** space should not be used, unless the woman has **more than 2 cm subcutaneous fat**. Do not keep drain in s/c area.
- **Skin closure-** as per available material, subcuticular/ mattress/ staples
- **Keep the dressing on the wound for the first day after surgery**
  to protect against infection while re-epithelialization occurs. Thereafter, a dressing is not necessary.
- **Post op care**- as after any major abdominal surgery but early feeding & ambulation

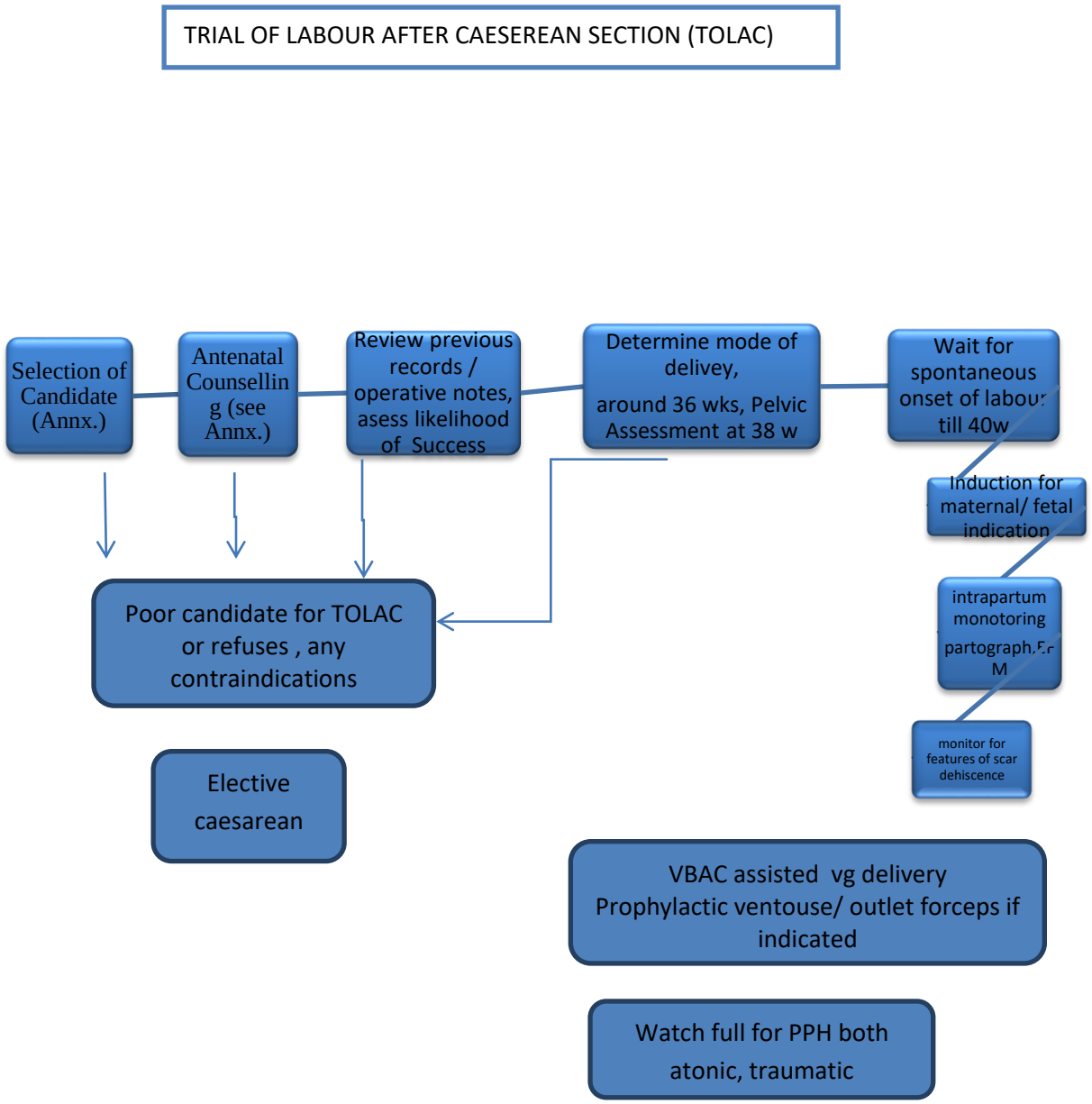
References :

WHO 2012
Indian Journal of medical Ethics Nov 2012
National Institute for Health and Clinical Excellence November 2011
American College of Obstetricians and Gynecologists (ACOG) Guidelines - March 2012
(Cochrane Pregnancy and Childbirth Group's Trials Register on 12 January 2011)
CAESAR study collaborative group. Caesarean section surgical techniques (CAESAR).BJOG. 2010)

Selection of candidates	1. Previous 1 LSCS (previous 2 LSCS after careful consideration) 2. Clinically adequate pelvis 3. No other uterine scar / previous rupture 4. Physician immediately available throughout active labor, capable of monitoring labor, performing an emergency cesarean delivery 5. Availability of anesthesia & personnel for emergency cesarean delivery

Contraindications to TOLAC (Trail of labour after Caeserean)	1. Previous classical or inverted "T"uterine scar 2. Previous hysterotomy or myomectomy to enter the uterine cavity 3. Previous uterine rupture 4. Presence of a contraindication to labour, such as placenta previa or malpresentation 5. The patient declines TOLAC and requests ERCS (elective repeat Caeserean section) 6. Previous >2 LSCS
Antenatal Counselling	Inform the chances of successful TOLAC (60-80%) Inform about risks vs. benefits of VBAC compared to ERCD 0.5% of risk of uterine scar rupture – most dreaded complication 24-28% of chance of emergency caesarean delivery Higher risk of blood transfusion (1%) &endometritis (2%) 2–3/10,000 additional risk of birth-related perinatal death when compared with ERCS Increased risk of surgical complications with each caesarean delivery due to adhesions, placenta previa Accreta Assess likelihood of successful TOLAC Assess patient's attitude towards the rare but serious adverse outcomes Assess for any complicating obstetric factors Assess for Personal preference & motivation to achieve vaginal birth or ERCD ***Document plan of labour starting prior to scheduled date***
Intrapartum Management	**Prerequisites:** To be conducted in an equipped setting with the facility for emergency caesarean delivery 24x7 & neonatal resuscitation An Obstetrician, Anaesthesiologist & paediatrician should be immediately available Take detailed informed written consent IV access, adequate blood cross matched **For Induction** Mechanical induction preferred- intracervical Foleys Catheter PGE 2 may be used to induce labour ***Misoprostol to be avoided*** **During Labour** ***Monitor labour with partogram, monitor for scar tenderness*** Cautious use of oxytocin Low dose oxytocin preferred (1mIU/min) ***Continuous EFM (electronic fetal monitoring)*** Epidural analgesia not contraindicated Prophylactic ventouse/ outlet forceps if indicated with liberal episiotomy **Decision to discontinue TOLAC** Scar tenderness Arrest of labour Suspected impending uterine rupture ***On CTG*:** Non reassuring foetal heart tracing, Persistent variable foetal heart deceleration

21. Vaginal Birth After LSCS



22. Postpartum Haemorrage(PPH)

Salient features- Do AMTSL in all labours for PPH prevention

- **Prompt resuscitative measures and cause directed management** depending upon degree of blood loss is the mainstay of the treatment.
- Make use of the ***Golden Hour***(1st hour after beginning of severe PPH) to ensure the best chance of survival.
- **Early decision** for operative corrective measures should be taken by a senior obstetrician before irreversible shock or dilutional coagulopathy (80% blood replaced by fluids while awaiting blood/ blood fractions)sets in.
- **Untreated** severe PPH patient may **collapse within two hours.**
- Loss of more than 40% of total blood volume is 'life threatening'.

Identify PPH

Primary PPH(Within 24 hrs of delivery) - Clinical Signs

Bleeding p/v - ≥500ml / >2cups (Vaginal delivery) ≥1000ml (C section) ≥1500ml (Obstetric Hysterectomy)

OR

Any amount of postpartum bleeding adversely affecting the general condition of the woman.

Rapid Assessment and beginning of action

General condition –

Assess airway,

Breathing, circulation

and

Vital parameters

(If unconscious

Start Basic Life Support immediately)

Probable cause of PPH

1. **Tone(70%)** **Place hand on uterine fundus** and feel for the state of contraction (if soft, start massage)
2. **Trauma(19%)** If uterus is well contracted
3. **Tissue-(10%)** retained productsts
4. **Thrombin(1%)** Coagulation abnormalities

Dgree of PPH

MINOR PPH (blood loss 500-1000ml, no clinical shock)

MAJOR PPH-blood loss more than 1000ml and continuing to bleed

Severe PPH- >2000ml

OR

Clinical shock

Quick Assessment- Clinical estimation of extent of blood loss
for woman weighting 50-55 kg having normal circulatory volume of 5000-5500 ml

Clinical Signs **Amount of blood loss (Volume loss)**	**Class 1 PPH** **500-1000 ml** **(<15 %)**	**Class 2 PPH** **1000-1500 ml** **(15-30 %)**	**Class 3 PPH** **1500-2000 ml** **(30-40 %)**	**Class 4 PPH** **>2000 ml** **(>40 %)**
Pulse (beats/minute)	Normal / <100 (mild tachycardia)	>100	>120	>140
Systolic Blood pressure (mm Hg)	Normal	Normal	60-80	<60
Tissue perfusion Indicators	Postural Hypotension	Peripheral vasoconstriction (cold clammy)	Pallor, restlessness,	Collapse, Air hunger
Urinary output (ml/ hour)	Normal	20-30	5-15 (Oliguria)	Anuria
Capillary refill	Normal	May be delayed	delayed	Delayed

↓

MINOR PPH **(blood loss 500–1000 ml, no clinical shock)**

Arrest of hemorrhage achieved

↓

Keep under close observation

Basic Emergency Obstetric Care (EmOC)

Reassure the woman

Replace fluid (1.5-2.5 litres@40drops/min)

Arrest bleeding

If atonic- by massage and oxytocin (10 unit i/m and I/V 20 units in 1 L of N/S @ 40 drops/min**,** inj Methargin

If not atonic (Uterus well contracted)- Explore

Empty bladder

Send blood for-CBC, group and cross match(if available)

Give antibiotics Record events

Alert CHC, transportation, family members for a possible referral

↓

BUT IF

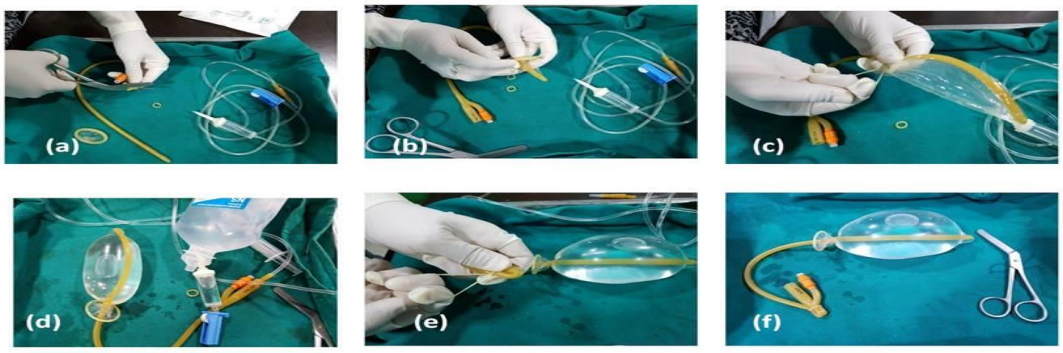
Continuing to bleed OR Clinical signs of shock ORTachycardia associated with a smaller estimated loss)

If at PHC- refer the woman with I/V fuid having oxytocin on drip, O2 flowUse anti shock garment (life saving) Send with a trained person

Inatonicuterus(notrespondingtoutertonicagents) insert EasyCGballoon (seeFigure below) preparedby-(a) cuttingtworingsofImmwidthfromthedrainageportofFoley'scatheter.(b)rollingthecondomoveraFoley'scatheterplacingofcathetertipintotheblindtipofcondom. (c)Tiethecondomtothecatheterbyencirclingtwiceoveritwithfirstring. Immerseinbetadinesolutionfor3minutes. Insertinuterinecavityholdingbetweentwofingers.(d)inflatewithsalinebyconnectingFoley'scathetertoi/vsetandfilling by gravity(till bleeding stops/ maximum 500 mL).(e,f) Another ring is used to occlude the distal end of balloon catheter. Vagina is packed with gauze.

Shift the women with I/V fluids & O2 on flow.

Making of Easy (CG) Balloon



CHC & Tertiary centre (Comprehensive EMOC)

Full protocol of measures to achieve resuscitation and haemostasis

Call an experienced obstetrician &Anesthetist

Major/ Severe PPH- M*anagement*

Do all simultaneously-

(call help and assign tasks)

M A N A G E M E E

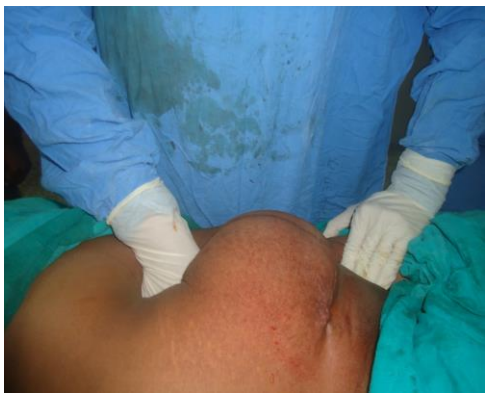
RESUSCITATE (Assign to support staff)

- Basic Life support if required

Start 2 I/V lines with 14-18 G cannula . **Draw 20 ml blood** for investigations **(**bedside coagulation test CBC, Grouping and cross match, Clotting Screen, LFT, RFT,basic biochemistry**)**

- **Oxygen** by mask @ 8-10 liters / minute or Endotracheal tube if required
- **Start transfusing rapidly with Lactated Ringer's solution**
- **Arrange for 2-4 units of blood/ If component available, arrange in the ratio of 1:1:1 in major severe cases.Alert for possible need of more units.**
- Infuse 1 litre in 15-20 minutes & follow infusion Protocol (pulse slows down to <100/minute or Systolic BP rises > 100 mmHg **,** then only reduce the infusion rate- to 3ml(45 drops)/ minute and replenish the volume lost. Give Total 2 litres of crystalloids and 1 litre of colloid while awaiting blood,If fully crossmatched blood is unavailable by the time that 3.5 litres fluid have been given, infuse Group O RhD-negative blood if possible. Blood transfusion has to be started as soon as possible.

Arrest hemorrhage (see stepwise m/m below)



If catastrophic bleeding-employ life saving (butonly temporary) measure

Manual aortic compression

- Feel for femoral pulse.
- Apply pressure above& to the left the umbilicus to stop bleeding. Apply sufficient pressure by leaning over and feeling the aorta against your knuckles until femoral pulse in not felt.
- Keep applying pressure while definitive measures are instituted.

Stepwise arrest of hemorrhage -within 1 (Golden) hour / till haemostasis

Step-1

Continue resuscitation & monitoring

Tone

Trauma

(Uterus well contracted)

Achieve haemostasis

Tissue (retained)

Examine completeness of expelled placenta

Thombosis error

Do bedside coagulation test

Massage uterus , Catheterize

Oxytocin– 1st Line uterotonic agent (most preferred)

10 units I/M (if not already given) and in drip (20-40 IU in 1 L of N/S @ 60 drops/ minute)

Imp-Limit fluid containing oxytocin to maximum 3 L

See box uterotonics

(Fact File)

Note

I st, 2nd or 3rd Line uterotonics may be administered in rapid succession if any one agent does not seem to be effective.

(Depends upon the amount of bleeding)

Uterus contracts & bleeding controlled

Continue oxytocin infusion (20 IU in 1 L of N/S@ 40 drops/minute)

Uterus remains atonic

Continue massage of uterus and oxytocin drip

Inj. methylergometrine IV- 2nd Line uterotonic agent

0.2mg i/v, repeated 2- 4hrly . Maximum 5 doses(1mg/24 hrs)

Imp-Donot give in c/o hypertension, heart disease &for concomitant use of certain drugs used to treat HIV. (see box-5) unless no other uterotonic is available for saving the life.

Uterus remains atonic

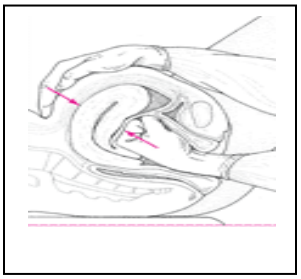
Continue **massage**of uterus and oxytocin drip

Injection Carboprost- 3rd Line uterotonic agent

0.25 mg i/m, may be repeated every 15 minute. Maximum 8 amp

Step-2

Uterus remains atonic



Apply bimanual uterine compression

(As a temporizing procedure until more definitive treatment instituted)

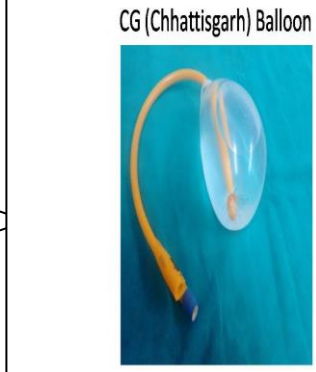
Internal-Introduce the right hand into the vagina, clenched fist, with the back of the hand directed posteriorly and the knuckles in the anterior fornix.
Place the other hand on the abdomen behind the uterus and squeeze the uterus firmly in between the two hands.
External- Compression of the uterus with both hands on the abdomen holding the uterus

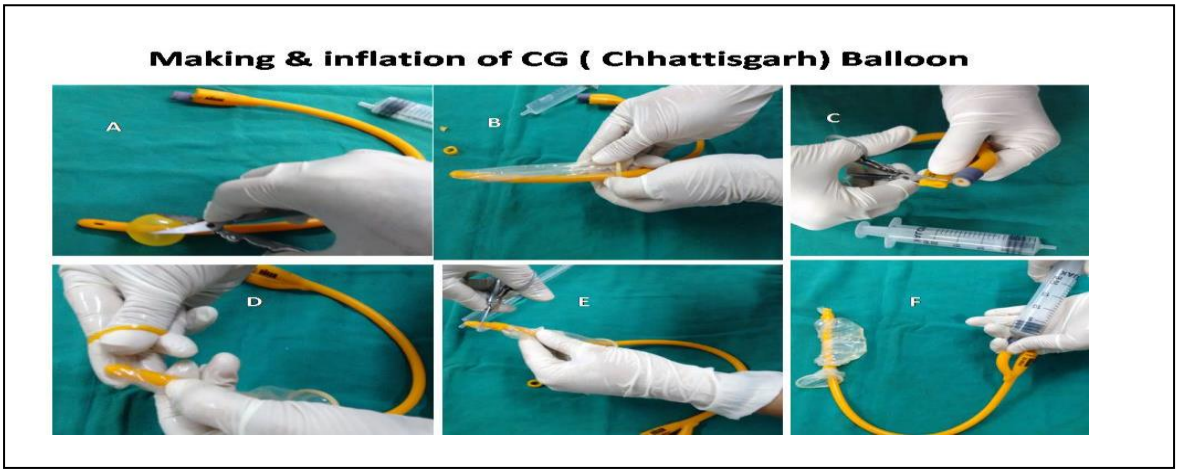
Step-3

Uterus remains atonic

Use: Bakri Balloon®/Easy CG Balloon /Prepare & Use- CG (Chhattisgarh) Balloon):condom Balloon tamponade device – (see figure below)) A: Air; air (2 mL) is introduced into the bulb of Foley's catheter(20-22 Fr) to facilitate excision and the bulb is excised completely.
B: Balloon; the condom is unfolded over one third of the proximal end of the catheter.
C: Cut; two rings, approximately 1–2 mm in width, are cut from the distal end of the drainage tube of the catheter.D: Double secure; the condom is secured over the catheter, 1–2 cm from each end of the condom, by encircling these rings twice over the condom.
E: Excise; the tip of the Foley catheter and condom are excised together, creating the drainage hole.
The device should be dipped in antiseptic solution and inserted into the uterine cavity holding it between two fingers till the rim of the condom comes at the level of cervical os. Vagina is packed with gauze
F: Fill; the balloon is filled with saline (maximum 500 mL) through the bulb-inflation port of the catheter using syringes in repetitive manner until the bleeding is controlled.
Steps A–F should take 5–10 min.

Once the hemorrhage is arrested, the bleeding is assessed at the drainage port of Foley's, which should be connected to a collecting bag (Urosac)





Step-4

Uterus remains atonic

Selective Uterine artery Embolisation (if available)
Important-Only in case of hemodynamically stable pt having moderate trickle as it takes around 60-90 minutes at the earliest to achieve haemostasis)

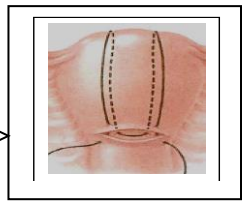
Step-5

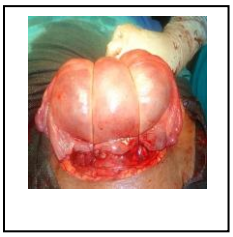
Uterus remains atonic / in C S

Surgical interventions

1:Laprotomy -Haemostatic brace suturing (B-Lynch)/

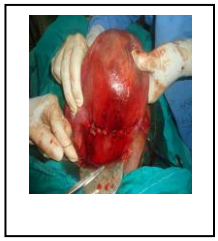
Hayman's modification of compression sutures

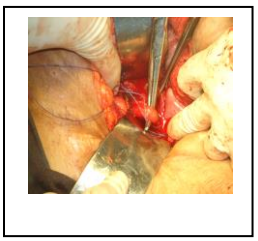




2:Stepwise Devascularization

- **bilateral ligation of uterine arteries**
- **Ligation of utero-ovarian Anastomosis**
- **bilateral ligation of internal iliac arteries**





3:Resort to hysterectomy (EARLIER THAN LATER)

- **Before dilutional coagulopathy develops**
- **(sp in cases of placenta accrete or uterine rupture)**
  (Involve the opinion of a second consultant Obstetrician in the decision of obstetric hysterectomy)

Resort to hysterectomy EARLIER THAN LATER

Before dilutional coagulopathy develops

Involve the opinion of a second consultaterectomy.

Box-1

Oxytocic Drugs

Name	Mechanism of action	Onset & (duration of action)	Important facts
Oxytocin (1^{st} st line drug)	Acts on the physiological contractile pattern of uterus. Normal polarity is maintained i.e. upper segment of the uterus contracts Rhythmically	30 seconds (8 min)	Antidiuretic effect in doses 40-50 mIU/ml For a long time
Misoprostol	Acts on smooth muscles of myometrium (There is no evidence about the safety and efficacy of the 800-μg dose for treatment of PPH when given to womenwho have already received 600 μg of prophylactic misoprostol orally)	Oral-8 min (2 hrs) Sublingual-11 min (3 hrs) Vaginal-20 min (4 hrs) Rectal 100 min (4hrs)	Rarely hyperpyrexia may occur after 800 μg of oral misoprostol . There is **NO added benefit when given simultaneously with other injectable uterotonic drugs for the treatment of PPH**
Ergometrine/ Methylergometrine (2^{nd} line drug)	Acts directly on the myometrium, producing titanic uterine contraction with complete loss of polarity i.e. smooth muscle of both the upper and the lower part of uterus	I/V : 45-60 Seconds (ergometrin) 1.5 min (methergin) I/M: 7 min (8hours)	Contraindicated with concomitant use of certain drugs for HIV- protease inhibitor, efavirenz, or delavirdine.
Syntometrin Ergometrin0.5 mg+oxytocin 5IU	Same as ergometrin	2.5 min (8 hours)	Do not give I/V
15-methyl prostaglandin F2alpha (3^{rd} line drug)	Acts on smooth muscles of myometrium Also sensitize the myometrium to oxytocin	Intramyometrial- Peak effect at **5 min** Intramuscular- Peak effect at **15 min**	No antidiuretic effect May cause nausea & vomiting

22.1 Secondary PPH.

(Between 24 hours – 6 weeks of delivery)

- Bleeding may be moderate to heavy
- O/E- systemic illness, fever, rigors, tachycardia, tissue visible within os.
- Suprapubic area may be tender, with elevated fundus that feels boggy in case of retained products of conception.
- **There may be foul smelling discharge p/v.**

Management

- Ultrasound - to screen for retained products of conception

Send investigation-

- CBC, Blood culture, high vaginal swab.

If features are s/o infection - give antibiotics

- (Ampicillin/ clindamycin+ Gentamycin + Metronidazole)

Oxytocics

- If severe anemia- give blood transfusion.
- Remove the clots and placental fragments if cervix is dilated / bleeding heavy not responding to oxytocics.

If cervix is closed- evacuate under antibiotic cover.

- Consider uterine and utero-ovarian artery ligation if bleeding continues.
- Consider selective uterine artery embolisation if facility available.

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23. MANAGEMENT OF RH NEGATIVE PREGNANCY

Prevention of Rh sensitisation

- Proper matching of blood before transfusion particularly in women before childbearing.
- In cases of accidental Rh+ve blood transfusion give anti D Immunoglobulin prophylaxis.
- Platelet transfusion- each unit contain <0.1ml RBC so give anti D Immunoglobulin
- Premarital counselling
- Proper management of unsensitised Rh negative pregnancies.

Antepartum and post partum anti D prophylaxis –

- Reduces risk of sensitisation from 12-16% to 1.6%-1.9%. The Rh negative woman who is not Rh – D alloimmunized should receive anti – D immune globulin:
- At approximately 28 weeks of gestation, unless the father of the baby is also known to be Rh D negative. Repeat if undelivered in 12 weeks.(mantoba/ASCP Guideline), RAADP should not be affected by if already received antepartum anti D prophylaxis (AADP) after potentially sensitizing events.
- Post partum (PPADP) ideally within 72 hours after the delivery of an Rh – D positive infant/dead baby (blood group & type not known). May be given up to 28 days after exposure.
- Maximum benefit is upto 13 days after exposure. PPADP is not affected by AADP, however not cost effective if woman has opted for sterilization or she is certain she won't have another child
- After any pregnancy loss > 6 weeks
- After invasive procedures, such as chorionic villus sampling, amniocentesis or fetal blood sampling, Intrauterine procedure- insertion of shunt, embryo reduction
- Anti – D immune globulin prophylaxis should be considered if the patient has experienced:
    - Threatened abortion.
    - Molar pregnancy

- Second or third trimester antenatal bleeding.
- External cephalic version.
- Abdominal trauma.

Dose of RhD IgG:

- For routine AADP and PPADP 300 μg (neutralises 30 ml fetal blood /15ml of fetal RBCs.
- In major fetomaternal hemorrhage (FMH) additional dose is required as per Kleihauer-Betke count(80 RBCs in 50 HPF = 4 ml fetal blood), flow cytometry, rosette technique. Add 20 μg for each ml of FMH after 30 ml)
- GA<12 wks-50 μg, GA>12 Wks-300 μg

Amniocentesis-

- Management based on amniotic fluid Delta OD 450 value & management based upon Liley's chart (useful after 27 wks) rarely indicated in present day obstetrics as better noninvasive
- method like MCA PSV is available. Amniocentesis may be used for fetal lung maturity assessment.

Fetal Blood Sampling (FBS)/Cordocentesis –

- Gold standard for detection of fetal anaemia
- Fetal blood is collected for hematocrit,haemoglobin, blood group and RH typing, Direct coomb's testperipheral blood smear, bilirubin
- Sites -Near placental insertion of umblical cord in umblical vein or intra hepatic umbilical vein
- Demerits-Requires expertise,Pregnancy loss 1%, Risk of sensitization, fetal bradycardia
- Indication-Increased MCA-PSV (>1.5mom), amniotic fluid Delta OD 450 Zone III

Ultrasound-Used to detect the progress of disease from mild to severe.Findings include

- Hepatosplenomegaly. Placentomegaly.
- Increase in portal venous diameter flow velocity (N<5mm).
- Fluid in serous cavities (1st in pericardial space).
- Subcutaneous oedema – very late.
- Liquor disturbances – Polyhydramnios / Oligohydramnios.

Middle cerebral artery peak systolic velocity (MCA PSV)-

- Highly sensitive non invasive method for determining the degree of fetal anaemia.
- Increase in PSV correlates directly with severity of anemia.
- Sensitivity of 100%,False positive rate 12%.
- Replaced amniocentasis in management of RH positive pregnancy.
    - Indications -Antibody level 1:32/>15IU
      - H/O Previous loss, IUT
    - Basis for MCV PSV-Highest point in waveform is measured
      Three consistent waveform
      Do not press the abdominal wall
    - Demerits - Accuracy diminishes after 35 weeks & after multiple transfusions.
      - Needs expertise

Intrauterine Transfusion- can be performed upto 35 wks

Indications -

- Fetal Hematocrit < 30%
- Fetal Hemoglobin <2gm% below mean for normal fetus of corresponding gestational age or fetal Hb < 8gm
- Doppler flow studies – PSV MCA >1.5 MOM GA less than35 wks

Care during delivery - Do's & Don'ts

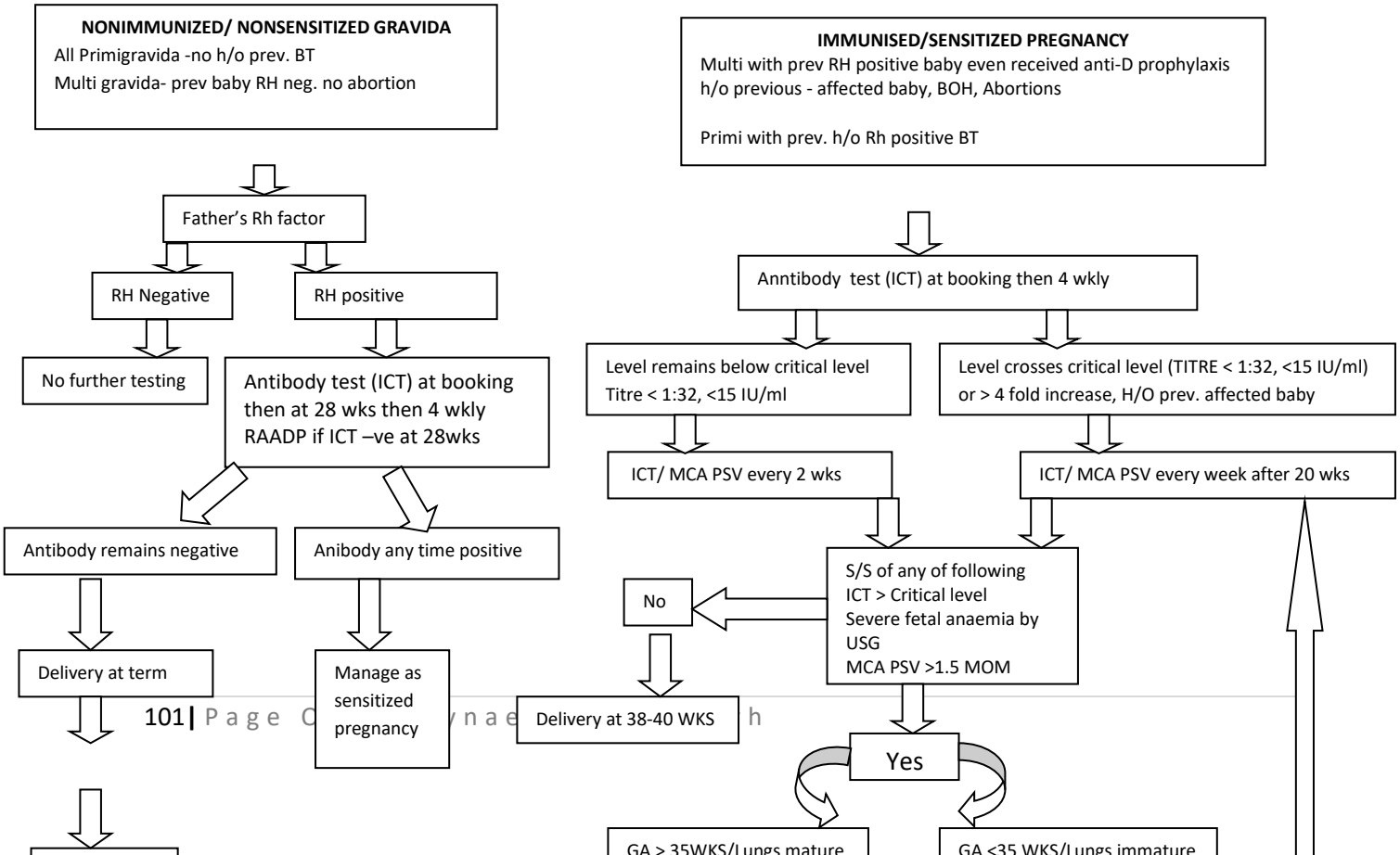
- Vaginal delivery at term is the goal of management
- Continuous Intrapartum fetal monitoring.
- No ergometrine. Use oxytocin or PG's.
- Gentle handling of the uterus.
- In caesarean section, avoid spillage of blood in peritoneal cavity, manual removal of placenta should be withheld.
- Cord should be clamped as quickly as possible to minimize amount of antibody to cross baby.
- Length of cord should be kept long (15 to 20 cms) for future need for exchange transfusion.
- Collection of cord blood for investigations
    - Blood group and Rh typing
    - Haemoglobin estimation

- Direct Coomb's test
- Serum bilirubin
- Reticulocyte count
- Peripheral smear picture

Management of new born by neonatologist- depending upon severity of hemolysis-

- Phototherapy
- Exchange transfusion- (HB- < 15gm%, rapidly developing jaundice i.e bilirubin rise >5mg%
- phenobarbitone

MANAGEMENT OF RH NEGATIVE PREGNANCY



Blood group RH type of baby

Anti D 300 mcg
+ add 20 mcg for
each ml FMH > 30
ml , give in < 72 hrS

Note -Determination of Zygosity of father does not alter the management
Fetal DNA detection in maternal blood& fetal RH typing may be promising in management. Tested after 16 wks gestation

24. Urinary tract infection:

- May be in the form of cystitis or acute pyelonephritis.
- Fever > 38 degree C with chills, burning and frequent micturition with abdominal pain is the

typical presentation.

- Can cause abortion, pre-term delivery.
- Urine examination requires clean mid stream sample.
- Treat woman with antibiotics which are safe in pregnancy.
- if no response, refer her to FRU (with referral slip)

Treatment Regimens for Pregnant Women with UTI

First-line therapy(CHC PHC)

▪ Nitrofurantoin monohydrate/macrocrystals 100 mg orally twice daily for 5-7 days *or* ▪ Amoxicillin 500 mg orally twice daily for 5-7 days *or* ▪ Amoxicillin-clavulanate 500/125 mg orally twice daily for 3-7 days *or* ▪ Cephalexin 500 mg orally twice daily for 3-7 days *or* ▪ Cefuroxime 250 mg orally twice daily for 3-7 days
Second-line therapy(CHC,DH,MC)
Cefotaxim-1gm vial 12hourly IM/IV Ceftriaxone-1 gm daily deem IM orIV shot in 5 minutes

Antibiotics contraindicated in pregnancy

- Norfloxacin
- Ofloxacin
- Nalidixic acid
- Ciprofloxacin

25. Medical Termination of Pregnancy

The government of India has legalized medical termination of pregnancy up to 20 weeks of gestation by MTP Act 1971. Under this act, pregnancy can be terminated under following clauses by registered persons in registered places only.

Clauses and requirements

1. Damage to the life of the pregnant woman.
2. Grave injury to the physical or mental health of the pregnant woman.
3. Pregnancy caused by rape.
4. Substantial risk, that if the child was born, it would suffer from such physical or mental abnormalities as to be seriously handicapped.
5. Failure of any contraceptive method or device.

Necessary consent form as laid down in the Act should be duly filled and signed. Opinion of two registered medical practitioners is mandatory for second trimester MTP (>12 weeks).

(1) Provision of services at different level of health care

1. In the public sector, tertiary level of health care centers (Medical Colleges) and Secondary level of health Care Centers (District Hospitals and FRU) can provides MTP services for pregnancies upto 20 weeks.
2. Primary health centers and non designated (which do not fulfill the eligibility criteria) community health centers are not permitted to offer second trimesters MTP services.
3. Private Sector facilities are permitted to provide second trimester terminations after approval from the DLC in accordance with the MTP rules 2003.

First trimester MTP methods

Medical method, It can be done up to 49 days amenorrhea after proper counseling and excluding contraindications. OralMifepristone 200-600 mg given on day1. On day 3 Misoprostol 400mcg orally or 800 mcg vaginally is inserted in hospital. Woman generally aborts in next 4-8 hours and USG to be done on day 14 to confirm complete abortion. Woman is asked to report if there is excessive bleeding anytime in between. The procedure should be done only in centers approved under MTP Act.

Protocols for mifepristone and misoprostol

Gestational age		Mifepristone on day 1		Misoprostol on day 3	
		Dose	Route	Dose	Route
Recommonded options	Upto 49 days	200mg (One tab 200mg)	Oral	400mcg (Two 200 mcg tablets)	Oral / vaginal

Surgical method. Suction and evacuation can be done in all centers approved under MTP Act.

MTP related records to be maintained as per MTP act.

Patient education

- Details of the method and small risk of complications should be explained.
- Medical method fails in around 5% cases and these will require surgical curettage.
- Patient should be motivated for concurrent contraception and option of all available methods both temporary and permanent should be discussed.

Second trimester MTP methods

To be conducted in secondary and tertiary care level. None of the second trimester methods are 100% safe and effective. That is why many methods, bothSurgical and medical, are available and being used. For second trimester MTP medical methods are preferred.

- Methods are usually combined so as to increase the success rate and to shorten induction abortion interval. Most commonly extra amniotic ethacridine is combined with oxytocin or prostaglandins by various routes.
- Better results if some method for cervical ripening is used 6-12 hours before.
- If some method fails switch over to other methods or surgical method.

Table 15.6 MTP methods for second trimester

Method	Drug	Mean induction abortion interval	Success rate	Side effects
Extra amniotic instillation	0.1% Ethacridine lactate 10ml/week of gestation maximum 150ml with IV Oxytocin drip after 6-24 hours Or	32 - 16 hours	75 – 80% 97%	
Intramuscular	15methyl PGF 250mg IM 3 hourly for a maximum of 10 doses	15 – 17 hours	95%	Nausea, Vomiting, Diarrhea, Broncho-spasm
Misopristol	400 mcg S/L 3 herly for maximum 5 dose	11 – 12	84%	
Mifepristone plus misoprostol	200 mcg Oral mifepristone followed 36 – 45 hr later by 400 mcg misoprostol s/v1/ vagival/ oras enery 3 -6 hours up to five dose	.		

26.HIV IN PREGNANCY PROTOCOL

HIV in pregnancy protocol to be used as per latest PPTCT, NACO Guidelines.

Breastfeeding should be encouraged in HIV positive pregnant women (See the NACO Guidelines).

27. Dysmenorrhea

Complain :

- Crampy pain over lowerback above suprapubic region pelvic bone
- Some have severe pain in back +thighs
- Starts usually first before on as menstrual bleeding begins and gradually less over 1-3days

Other symptoms

- Nausea, diarrhea, fatigue, headache,fever

- Intermittent mild to disabling

Causes:

- Primary
- Secondary: Fibroids, Adenomyosis,
- PID, Endometriosis, Ovarian Cyst or tumors, IUCD, STI

Diagnosis:

Physical examination: P/A,PV Examination

Other test : Pelvic USG

- Laproscopy

Treatment :

- NSAID
- OC pills

Non Pharmacological treatment:

- Rest
- Exercise
- Tab Paracetamol (500mg) 1 tab 3 times a day for 5 days.
- Tab medroxyprogesterone acetate 10 mg 1 tab once daily for 21 days.
- Treat for anaemia with Iron and folic acid tablets symptomatic care at primary level.
- If patient requires child bearing or is symptomatic refer to gynecologist for myomectomy or hysterectomy.

Surgical Options: in district hospital

Myomectomy/hysterectomy/resection of submucous fibroid by:

- Hysteroscope
- Laparoscope
- Conventional surgery

PROLAPSE OF UTERUS

- Refer to district hospital

RTI

- Reproductive tract infection is a broad term that includes sexually transmitted infections as wellas other infections of the reproductive tract that are not transmitted through sexual intercourse.
- In women, RTI includes infections of the outer genitals, vagina, cervix, uterus, tubes, or ovaries.

- In men, RTI involves the penis, testes, scrotum, or prostate. RTI are caused by bacteria, viruses, or protozoa that person gets either through sexual contact or by non-sexual route.

STD

- STD means sexually transmitted diseases caused by microbes that are passed from one person toanother through sexual contact.
- The terminology is used to describe the diseases that are acquired through sexual contact.

STI

- The term "Sexually Transmitted Infections" (STI) is a newer term used to indicate that infections caused by microbes may not manifest as symptoms and do not always result in a disease.

STI versus STD

- Historically, the terminology used to describe infections and diseases acquired through sexual contact has demonstrated the social stigma attached to these infections.
- for a more accurate, technical description, the term STI was approved by WHO and hence becamethe standardized term.

Incidence

- Incidence means the number of new cases of disease occurring (usually each year) e.g. WHO estimates that about 340 million curable STI/RTI occur globally each year.
  STIs-------● Gonorrhoea● Chlamydia● Syphilis● Chancro,HPV,HSV
  RTI--------Disruption of normal vaginal flora(e.g.candida),Postpartum and post abortion infections, Infections following the procedure(e.g.IUD)

Types of STI/RTI

- Any individual can become infected with a sexually transmitted infection (STI) or reproductive tract infection (RTI), regardless of age, background, or socioeconomic class.

RTI that are most common but may not always be sexually transmitted are:

1. **Bacterial vaginosis (BV)-** A RTI in women that is caused by an imbalance in the vagina's normal environment and overgrowth of bacteria in the vagina.

2**. Vaginal yeast infection-** A RTI in women that occurs when the normal environment in the vagina changes and there is overgrowth of yeast, commonly candida albicans.

There are over 20 STI. But the most common are:

1. **Syphilis**- A STI caused by Treponema Pallidum that initially causes painless sores that will heal on their own but, if left untreated, can cause serious complications or even death.
2. **Gonorrhoea**- A STI due to infection by Neisseria gonorrhoea that can cause infertility in both men and women. It includes ophthalmia neonatarum

3. **Chlamydial infection**- A STI due to infection by chlamydia trachomatis in both men andwomen.It is often asymptomatic.
4. **Trichomonas infection**- A STI due to infection by Trichomonas vaginalis in both men and women.It is often asymptomatic.
5. **Chancroid**- A STI due to infection by Haemophilus ducreyi, that causes lymph node swelling and painful ulcers in the genital area.
6. **Genital herpes**- A STI due to Herpes simplex virus that causes painful genital ulcers.
7. Genital and cervical warts due to Human papilloma virus (HPV) - Growth or warts in the
8. genital area caused by some forms of HPV. Other forms of HPVs can lead to cervical cancer.
9. **HIV infection** - is caused by a retrovirus (Human immunodeficiency virus infection virus) that weakens the immune system and causes AIDS.
10. **Hepatitis B and hepatitis C infection**- can cause liver damage, and possibly even liver failure.
11. **Donovanosis**- A STI due to infection by Calymmatobacterium granulomatis or Klebsiella granulomatis that can cause serious ulcers at the site of infection. These ulcers can grow together and cause permanent scarring and genital destruction.
12. **Lymphogranuloma venereum (LGV)** - A STI due to a subtype of Chlamydia trachomatis that causes inflammation of and prevents drainage of the lymph nodes in the genital area. LGV can cause destruction and scarring of surrounding tissue.
13. **Molluscum contagiosum** -A STI due to a virus that causes relatively benign skin infections. Molluscum contagiosum infection can lead to secondary bacterial infections.
14. **Genital scabies**- A STI in both men and women caused by itch mite, Sarcoptes scabiei.
15. **Pubic lice**- A STI in both men and women caused by pubic lice (Phthirus pubis). Signs and symptoms of common STI/RTI

Signs and symptoms
STI/RTI:

In men:

- Urethral discharge: chlamydia, gonorrhoea, trichomonas infection
- Genital ulcer: treponema pallidum, H. ducreyi, Herpes Simplex infection
- Genital itching: chlamydia, gonorrhoea, trichomonas infection
- Swollen and/or painful testicles: chlamydia, gonorrhoea

In women:

- Unusual vaginal discharge: BV, Chlamydia, gonorrhoea, trichomonas infection, vaginal yeast infection
- Genital itching: BV, trichomonas infection, vaginal yeast infection

- Abnormal and/or heavy vaginal bleeding: chlamydia, gonorrhoea (Note: This symptom is often caused by factors other than STI.)
- Bleeding after intercourse: chlamydia, gonorrhoea, chancroid, genital herpes
- Lower abdominal pain (pain below the belly button; pelvic pain): chlamydia, gonorrhea and mixed anaerobic infection.
- Persistent vaginal candidiasis: HIV/AIDS
- Dyspareunia

In men or women:

- Blisters or ulcers (sores) on the mouth, lips, genitals, anus, or surrounding areas: chancroid, genital herpes, and syphilis
- Burning or pain during urination: chlamydia, genital herpes, trichomonas infection, and gonorrhea
- Itching or tingling in the genital area: genital herpes, candidiasis
- Jaundice (yellowing of the eyes and skin) and/or fever, headache, muscle ache, dark urine: hepatitis B, hepatitis C
- Warts or bumps on the genitals, anus, or surrounding areas: HPV (genital warts)
- Flu-like syndromes (fever, fatigue, headaches, muscle aches), mild liver inflammation: CMV
- Small, dimpled bumps or lesions on the skin that usually do not hurt or itch and are flesh colored, but can vary from white to yellow to pink: molluscum contagiosum
- Small, red lesions or ulcers in the genital or anal area; lymph node swelling in the genital area; chronic ulcers on the genitals or anus: LGV
- Red nodules or bumps under the skin on the mouth, genitals, or anus that ulcerate, become tender, and often bleed easily

Classification of STI/RTI based on mode of transmission

	Where do they come FROm	How they spread	Common examples
Endogenous infections	Normally found in small numbers in vagina	Overgrowth can lead to symptoms	Yeast infection, Bacterial vaginosis

Sexually transmitted infections (STI)	Sex Partners	Sexual contact	Gonorrhoea, Chlamydia. Syphilis Chancroid, Trichomoniasis, Genital herpes, Genital warts,HIV
Iatrogenic infections	Inside or outside the body: ● Endogenous (vagina) ● STI (cervix or vagina) ● Outside Contamination	Infection may be pushed through the cervix into the upper genital tract and cause serious infections of the uterus, fallopian tubes and other pelvic organs. Contaminated needles or other instruments may also transmit infection if infection control is poor.	Pelvic inflammatory disease (PID) following abortion or other transcervical procedures. Also, many infectious complications of pregnancy and postpartum period. Transmission from patient to patient (or healthcare provider) of HIV, HBV, syphilis or other infection.

Complications of STI/RTI in males

(i) Infertility

Infection of the upper reproductive tract can occasionally result in partial or complete blockage of the sperm ducts, and disorders in sperm production. This can cause low sperm counts in semen orabnormal sperm, which contribute to male infertility.

(ii) Carcinoma of the penis

Infection with Human papilloma virus (HPV) is associated with the development of penile cancer.

Complications of STI/RTI in females

- Pelvic inflammatory disease

- Adverse outcomes of pregnancy

● **Fetal wastage** - spontaneous abortion or stillbirth.

● **Low birth weight** due to premature delivery or intra-uterine growth retardation.

● **Congenital or perinatal infections** - eye infections causing blindness, infant pneumonias and mental retardation.

(iii) Infertility

(iv) Ectopic pregnancy

(v) Cervical cancerSTI/RTI case management

The main objectives of STI/RTI management are:

- To diagnose the infection at the earliest,
- Provide correct and complete treatment,
- Encourage change in risk behaviors, and
- Ensure that sexual partners are appropriately treated.

The 7 steps of comprehensive STI/RTI case management are:

1. Take history.
2. Conduct physical examination.
3. Provide treatment.
4. Provide health education on prevention.
5. Provide condoms and demonstrate use.
6. Offer Partner treatment.
7. Follow up or refer as needed.

These seven components are sometimes referred to as the "Six C's":

1. Counseling and education of patient
2. Contact tracing
3. Condom promotion
4. Compliance with treatment
5. Come back for follow up

6. Cure the patient

Flowcharts for Management of STI/RTI Syndromes Management of Vaginal Discharge in Females

<table>
<tr><td colspan="2">SYNDROME: VAGINAL DISCHARGE

VAGINITIS
TRICHOMONIASIS
CERVICAL HERPES</td></tr>
<tr><td>Causative organisms
Vaginitis
● Trichomonas vaginalis (TV)
● Candida albicans
● Gardnerella vaginalis, Mycoplasma</td><td>Causative organisms
Cervicitis
● Neisseria Gonorrhoea
● Chlamydia trachomatis
● Trichomonas vaginalis
● Herpes simplex virus</td></tr>
<tr><td>History
● Menstrual history to rule out pregnancy
● Nature and type of discharge (amount, smell, color, consistency)
● Genital itching
● Burning while passing urine, increased frequency
● Presence of any ulcer, swelling on the vulval or inguinal region
● Genital complaints in sexual Partners
● Low backache</td><td>Examination
● Per speculum examination to differentiate between vaginitis and cervicitis.
a) Vaginitis:
Trichomoniasis - greenish frothy discharge
Candidiasis - curdy white discharge
Bacterial vaginosis – adherent discharge
Mixed infections may present with atypical discharge
b) Cervicitis:
Cervical erosion /cervical ulcer/mucopurulent cervical discharge
● Bimanual pelvic examination to rule out pelvic inflammatory disease
● If Speculum examination is not possible or Client is hesitant
treat both for vaginitis and cervicitis</td></tr>
<tr><td colspan="2">Laboratory investigations (If available)
● Wet mount microscopy of the discharge for Trichomonas vaginalis and clue cells
● 10% KOH preparation for Candida albicans
● Gram stain of vaginal smear for clue cells seen in bacterial vaginosis
● Gram stain of endocervical smear to detect gonococci</td></tr>
</table>

Treatment

Vaginitis (TV+BV+Candida)

● Tab. Secnidazole 2gm orally, single dose or
Tab. Tinidazole 500mg orally, twice daily for 5 days

● Tab. Metoclopropramide taken 30 minutes before Tab. Secnidazole, to prevent gastric intolerance

● Treat for candidiasis with Tab Fluconazole 150mg orally single dose or local Clotrimazole 500mg
vaginal pessaries once

Treatment for cervical infection (chlamydia and gonorrhoea)

● Tab cefixim 400 mg orally, single dose

● Plus Azithromnycin 1 gram, 1 hour before lunch. If vomiting within 1 hour, give anti-emetic and repeat

 If vaginitis and cervicitis are present treat for both

 Instruct client to avoid douching

 Pregnancy, diabetes, HIV may also be influencing factors and should be considered in recurrent infections

 Follow-up after one week

Specific guidelines for Partner management

● Cervicitis: Treat all Partners for gonorrhea and Chlamydia.

● Vaginitis: Generally partner treatment is not required. If Partner is symptomatic, treat Partner for the symptom.

● Advise sexual abstinence during the course of treatment

● Provide condoms, educate about correct and consistent use

● Schedule return visit after 7 days

Management in pregnant women

Per speculum examination should be done to rule out pregnancy complications like abortion, premature
rupture of membranes

Treatment for vaginitis (TV+BV+Candida)

In first trimester of pregnancy

● Local treatment with Clotrimazole vaginal pessary/cream only for candidiasis. Oral Flucanozole is
contraindicated in pregnancy.

● Metronidazole pessaries or cream intravaginally if trichomoniasis or BV is suspected.

In second and third trimester oral metronidazole can be given

● Tab. Secnidazole 2gm orally, single dose or
Tab. Tinidazole 500mg orally, twice daily for 5 days

● Tab. Metoclopropramide taken 30 minutes before Tab. Metronidazole, to prevent gastric intolerance

Management of pregnant women with cervicitis

Pregnant women with cervical discharge should be examined by doing a per speculum as well as per
vaginal examination and should be treated for gonococcal as well as chlamydial infections.

● Cephalosporins to cover gonococcal infection are safe and effective in pregnancy

 Tab. Cefixime 400 mg orally, single dose or

- Ceftriaxone 125 mg by intramuscular injection +
- Tab. Erythromycin 500mg orally four times a day for seven days or
- Cap Amoxicillin 500mg orally, three times a day for seven days to cover chlamydial infection
- Quinolones (like ofloxacin, ciprofloxacin), doxycycline are contraindicated in pregnant women.

Flowchart 6: Management of Lower Abdominal Pain in Females

Causative organisms

● Neisseria gonorrhoea
● Chlamydia trachomatis
● Mycoplasma,Gardnerella, Anaerobic bacteria (Bacteroides sp,gram positive cocci)

History	Examination	Laboratory investigations (if available)
● Lower abdominal pain ● Fever ● Vaginal discharge ● Menstrual irregularities like heavy, irregular vaginal bleeding ● Dysmenorrhoea ● Dyspareunia ● Dysuria, tenesmus ● Low backache ● Contraceptive use like IUD	● General examination: temperature, pulse, blood pressure ● Per speculum examination: vaginal/ cervical discharge, congestion or ulcers ● Per abdominal examination: lower abdominal tenderness or guarding ● Pelvic examination: Uterine/adnexal tenderness, cervical movement tenderness, Note: A urine pregnancy test should be done in all women suspected of having PID to rule out pregnancy	● Wet smear examination ● Gram stain for gonorrhoea ● Complete blood count and ESR ● Urine microscopy for pus cells **Differential diagnosis** ● Ectopic pregnancy ● Twisted ovarian cyst ● Ovarian tumor ● Appendicitis ● Abdominal tuberculosis

Treatment (Out Client treatment)

In mild or moderate PID (in the absence of tubo ovarian abscess), Out Client treatment can be given. Therapy is required to cover Neisseria gonorrhoea, Chlamydia trachomatis and anaerobes.

● Tab. Cefixim 400 mg orally Stat + Tab. Metronidazole 400mg orally, twice daily for 14 days +

● Doxycycline, 100mg orally, twice a day for 2 weeks (to treat Chlamydial infection)

● Tab. Ibuprofen 400mg orally, three times a day for 3-5 days

● Tab. Ranitidine 150mg orally, twice daily to prevent gastritis

● Remove intra uterine device, if present, under antibiotic cover of 24-48 hours

● Advise abstinence during the course of treatment and educate on correct and consistent use of condoms

● Observe for 3 days. If no improvement (i.e. absence of fever, reduction in abdominal tenderness, reduction
in cervical movement, adnexal and uterine tenderness) or if symptoms worsen, refer for in Client treatment.

● Schedule return visit after 3 days, 7 days & 14 days to insure compliance.

Caution: PID can be a serious condition.

- Refer the Client to the hospital if she does not respond to treatment within 3 days and even earlier if her condition worsens
- Hospitalization of Clients with acute PID should be seriously considered when:

The diagnosis is uncertain

- Surgical emergencies e.g. appendicitis or ectopic pregnancy cannot be excluded

- A pelvic abscess is suspected
- Severe illness precludes management on an outpatient basis
- The woman is pregnant
- The Client is unable to follow or tolerate an out regimen
- The Client has failed to respond to outpatient therapy

Note: All Clients requiring hospitalization should be referred to the district hospital

Syndrome specific guidelines for Partner management

- Treat all Partners
- Treat male Partners for urethral discharge (gonorrhoea and chlamydia)
- Advise sexual abstinence during the course of treatment
- Provide condoms, educate on correct and consistent use
- Refer to ICTC for HIV & Syphilis testing
- Inform about the complications if left untreated and sequelae

Management of pregnant women

Though PID is rare in pregnancy,

- Any pregnant woman suspected to have PID should be referred to district hospital for hospitalization and treated with a parenteral regimen which would be safe in pregnancy.
- **Doxycycline is contraindicated in pregnancy.**

Note: Metronidazole is generally not recommended during the first three months of pregnancy. However, it should not be withheld for a severely acute PID, which represents an emergency.

LABORATORY TESTS FOR STI/RTI

The laboratory tests can be done at 3 tier level:

(i) Primary health care level:

At PHC following tests can be offered -

● Microscopic examination of fresh and stained samples of urethral and cervical discharges

● Wet mounts for examination of vaginal discharge.

● Collect cervical samples such as Pap smears and send them to more sophisticated laboratories for reading

● RPR testing for syphilis can easily be done at the PHCs

● In case of 24x 7 PHCs (ICTC centers) they may be able to do gonorrhoea cultures, confirmatory

tests for syphilis and HIV antibody testing.

(ii) Secondary health care level:

● At CHC level laboratories are usually larger than at the PHC level

● May have more skilled workers

● More reliable infrastructure

● They may be able to do gonorrhoea cultures, confirmatory tests for syphilis, HIV antibody testing

● If there is a cytotechnician, Pap (cervical) smears could be done and read.

(iii) Tertiary health care level:

● These laboratories are usually located in a District hospital or teaching hospital

● They have the highest level of services

● Most of the above tests are done at these facilities

MENOPAUSE

- **Refer to District Hospital.**

FIBROID

Diagnosis

This may present as

- Abnormal bleeding
- Dysmenorrhoea
- As anaemia,
- Asymptomatic with lower abdominal mass discovered on examination.

Investigation

- Ultrasound is helpful for diagnosis

Treatment

- Diagnosis & definitive treatment is done at the level of CHC or District Hospitalwhere a gynecologist is available
- If patient is asymptotic/ Uterine size < 12 weeks
- No further treatment
- Only surveillance
- If patient is having dysmenorrhoea or abnormal uterine bleeding then,

- Tab paracetamol (500 mg) 1 Tab 3 times a day for 5 days.
- Tab medroxyprogesterone acetate 10 mg 1 tab once daily for 21days.
- Treat for anaemia with Iron and folic acid tablets symptomatic care at primarylevel
- If patient requires child bearing or is symptomatic refer to gynecologist

Surgical Options: in district hospital

Myomectomy / hysterectomy / resection of submucous fibroid by:

- Hysteroscope
- Laparoscope
- Conventional surgery

PROLAPSE OF UTERUS

- Refer to District Hospital

STI/RTI SYNDROMIC CASE MANAGEMENT

Urethral Discharge	Cervical Discharge	Painful Scrotal Swelling	Vaginal Discharge	Genital Ulcer-Non Herpetic		Genital Ulcer - Herpetic	Lower Abdominal Pain (LAP)	Inguinal Bubo (IB)
▪ Urethral Discharge (Pus or muco-purulent) ▪ Pain or burning while passing urine ▪ Increased frequency of urination ▪ Systemic symptoms like malaise, fever	▪ Nature and type of discharge (quantity, color and odor) ▪ Burning while passing urine, increased frequency ▪ Genital complaints by sexual partners ▪ Low backache *(Take menstrual history to rule out pregnancy)*	▪ Swelling and pain in the scrotal region ▪ Pain or burning while passing urine ▪ Systemic symptoms like malaise, fever ▪ History of urethral discharge	▪ Nature and type of discharge (quantity, color and odor) ▪ Burning while passing urine, increased frequency ▪ Genital complaints by sexual partners ▪ Low backache *(Take menstrual history to rule out pregnancy)*	▪ Genital ulcer, single or multiple, painful or painless ▪ Burning sensation in the genital area ▪ Enlarged lymph nodes		▪ Genital ulcer or vesicles, single or multiple, painful, recurrent ▪ Burning sensation in the genital area	▪ Lower Abdominal Pain ▪ Fever ▪ Vaginal Discharge ▪ Menstrual irregularities like heavy, irregular vaginal bleeding ▪ Dysmenorrhoea, dysparenunia, dysuria, tenesmus ▪ Lower backache ▪ Cervical motion tenderness	▪ Swelling in inguinal region which may be painful ▪ Preceding history of genital ulcer or discharge ▪ Systemic symptoms like malaise, fever etc
Tab. Azithromycin 1 gm OD Stat + Tab. Cefixime 400 mg OD Stat	Tab. Azithromycin 1 gm OD Stat + Tab. Cefixime 400 mg OD Stat	Tab. Azithromycin 1 gm OD Stat + Tab. Cefixime 400 mg OD Stat	Tab. Secnidazole 2 g OD Stat + Cap. Fluconazole 150 mg OD Stat	Inj. Benzathine penicillin (2.4 MU) - 1 vial Tab. Azithromycin (1 gm) - Single dose	**If allergic to Inj. Penicillin:** Doxycycline 100 MG (Bid for 15 days) Azithromycin 1GM (Single dose)	Tab. Acyclovir 400 mg TDS for 7 days	Tab. Cefixime 400 mg OD stat + Tab. Metronidazole 400 mg BD X 14 days + Doxycycline 100 mg BD X 14 days	Tab. Azithromycin 1 gm OD Stat + Tab. Doxycycline 100 mg BD for 21 days
KIT 1/Grey	KIT 1/Grey	KIT 1/Grey	KIT 2/Green	KIT 3/White	KIT 4/Blue	KIT 5/Red	Kit 6/Yellow	Kit 7/Black
Treat all recent partners	Treat partners when symptomatic	Treat all recent partners	Treat partners when symptomatic	Treat all sexual partners for past 3 months		No partner treatment	Treat male partners with Kit 1	Treat all sexual partners for past 3 weeks

IMPORTANT CONSIDERATIONS FOR MANAGEMENT OF ALL STI/RTI

- Educate and counsel client and sexual partner/s regarding STI/RTI, safer sex practices and importance of taking complete treatment
- Treat partner/s
- Advise sexual abstinence or condom use during the course of treatment
- Provide condoms, educate about correct and consistent use
- Refer all patients to ICTC
- Follow up after 7 days for all STI, 3rd, 7th, and 14th day for LAP and 7th, 14th, and 21st day for IB
- If symptoms persist, assess whether it is due to re-infection and advise prompt referral
- Consider immunization against Hepatitis B

NACO

Glossary

ANC	ANTENATAL CARE
ANM	AUXULARRY NURSE MIDWIFERY
HIV	HUMAN IMMUNODEFICIENCY VIRUS
TSH	THYROID STIMULATING HORMONE
VDRL	VENERIAL DISEASE RESEARCH LABORATORY
IFA	IRON FOLIC ACID
PIH	PREGNANCY INDUCED HYPERTENSION
PPH	POST PARTUM HEMORRHAGE
AMTSL	ACTIVE MANAGEMENT OF THIRD STAGE OF LABOUR
IUCD	INTRA UTERINE CONTRACEPTIVE DEVICE
MO	MEDICAL OFFICER
WHO	WORLD HEALTH ORGANIZATION

CHC	COMMUNITY HEALTH CENTRE
GDM	GESTATIONAL DIABETES MELLITUS
LFT	LIVER FUNCTION TEST
RFT	RENAL FUNCTION TEST
UTI	URINARY TRACT INFECTION
MTP	MEDICAL TERMINATION OF PREGNANCY
PPTCT	PREVENTION OF PARENT TO CHILD TRANSMISSION
STI/D	SEXUALLY TRANSMITTED INFECTION / DISEASE
RTI	REPRODUCTIVE TRACT INFECTION