ABDOMINAL TRAUMA IN PREGNANCY

Introduction

The pregnant trauma patient presents a unique challenge because care must be provided for two patients – the mother and the fetus.

Anatomic and physiologic changes can mask or mimic injury, making diagnosis of trauma related problems difficult.

Care of a severely injured pregnant patient often requires a multidisciplinary approach involving an emergency clinician, trauma surgeon, obstetrician, midwife and neonatologist.

Causes of injury

- Motor vehicle accidents (Very common)
- Assault
- Domestic violence and Physical abuse
- Falls
- Recreational drug abuse
- Burns

Injuries may be classified as minor or severe (major) injuries

- **Minor injury** – No visible signs of abdominal injury, but fetus could still be at risk with minor maternal injury.
- **Major injury** - Clinical signs of trauma visible which could be swelling or haematoma, bruising, laceration, erythematous area on the abdomen.

Complications associated with injury:

- **Obstetric complications**
  - Abruptio placentae
  - Preterm labour
  - Uterine rupture
  - Feto-maternal haemorrhage
  - Direct fetal injury with subsequent fetal demise

- Factors predicting fetal morbidity/mortality are:
  - ✓ Hypoxia
  - ✓ Infection
  - ✓ Drug effects
  - ✓ Preterm labour

- **Other complications(Maternal)**
  - Hepatic rupture
  - Splenic rupture
  - Bowel injury
  - Diaphragmatic injury
  - Stomach injury

Management

Patient with minor injury should receive routine medical treatment and appropriate fetal assessment, and admitted for 24 hours observation, because sometimes they can get retarded separation of placenta.

General management of severely injured patient can be divided into the following steps

1. Primary survey
2. Resuscitation
3. Secondary survey
4. Special investigations
5. Definitive Management

1. **Primary survey**
   - Stabilise patient
   - Call for help
   - Current resuscitation guidelines must be followed
   - Adequate exposure of patient to identify injuries and examine properly
   - Obtain history to establish mechanism of injury, vaginal bleeding, history suggestive of ruptured membranes, abdominal pains to exclude abruptio placentae
   - Do a neurologic assessment
   - Put her on left lateral position
   - Administer oxygen if required
   - Patient should be intubated if necessary
   - Put up intravenous line for fluid or blood administration a large – bore cannula
   - Inspect her antenatal card (Blood group, HIV status, RPR, Hepatitis etc.) if available , or try obtain her obstetric history
   - Establish gestational age
   - A CVP is required if peripheral access cannot be established
   - Put in an indwelling urinary catheter

2. **Resuscitation**
   - Monitor maternal response to initial treatment
   - Optimize intravascular volume and oxygen delivery
   - Monitor vital signs
   - Monitor urine output and check for haematuria
   - Output of 30ml/h shows adequate renal perfusion
   - Haematuria might suggest bladder or urethral injury

- Absence of urine may suggest bladder rupture
- If patient not responding to resuscitation, remains shocked, operative intervention should be considered, concealed abruption should be suspected
- Other conditions like hypoxia, neurogenic shock, tension pneumothorax, cardiac tamponade, should be excluded.
- Alcohol intoxication, diabetic ketoacidosis, drug overdose like barbiturates, cerebrovascular accident can depress level of consciousness

3. Secondary Survey

- Initiate once maternal condition is stabilized
- Complete physical examination and obstetric evaluation
- The four Leopold's manoeuvre
- Measure symphysis fundal height
- Check uterine tone, contractions and tenderness
- Check fetal heart rate, estimate fetal weight, do CTG if viable
- Perform a sterile speculum examination
- If membranes are ruptured – Follow PPROM guidelines
- Look for vaginal lacerations and foreign bodies
- After excluding placenta praevia by ultrasound and if membranes are intact do a digital cervical assessment.
- A rectal examination is also advisable
- Pelvic, vaginal and rectal examinations are contraindicated in case of pelvic fracture, unstable spine and femur fracture

4. Special investigations

- Full blood count
- Serum electrolytes
- Haemoglobin should be more than 10g/dl crossmatch
- If HB is less than 8g/dl cross match and consider transfusion
- Blood gas
- Urine for MC+S
- Coagulation profile
- Kleihauer-Betke test
- AST and ALT
- Glucose
- Urine and blood for toxicology
- Once mother is stable consider X-rays if indicated - shield the abdomen
- CT scan if indicated.

5. Definitive management

- Consult with appropriate specialist for treatment of specific injuries
- Tetanus toxoid 0.5ml IMI should be given if there is an open wound.
- Anti D immunoglobulin for RH Negative patients
- Thromboembolism prophylaxis
- Involve Social Worker
- Make sure documentation is accurately completed

Management of minor trauma in pregnancy

Gestation of ≤ 26 weeks

- Treat like a non - pregnant woman
- Confirm fetal heart presence with an ultrasound
- If she is asymptomatic and normal vitals discharge
- Counsel patient on signs and symptoms to look out for i.e. abdominal pain, vaginal bleeding, absent fetal movements.
- If no fetal heart activity seen, then she needs counselling and induction of labour to be recommended – Follow Induction of labour guidelines

Gestation of >26w0d

- Admit to hospital for 24 hrs observation
- Check fetal heart presence by ultrasound
- Counsel patient about symptoms of preterm labour and abruptio
- Inform the neonatologist
- If there is no fetal heart activity, offer counselling,

Maternal support

Involve Social worker

Advice on induction of labour

Management of major trauma in pregnancy

Gestation ≤ 26w0d weeks

- Stabilise the mother as discussed before
- Admit
- She will be treated by appropriate specialities
- Check for the presence of fetal heart activity
- Counsel mother about severe prematurity in case she goes into labour
- Discuss with neonatologist regarding giving steroids and monitoring.

Gestation between 26w0d and 33w6d

- Stabilise patient
- Admit
- Treated by appropriate specialities
- Give Betamethasone (Celestone Soluspan®) 12mg IMI immediately
- To give another Betamethasone (Celestone Soluspan®) 12mg IMI 24hrs later
- Counsel mother
- Discuss with the neonatologist
- Continuous CTG monitoring for 12 hours post traumatic incident, if normal then intermittent every 6 hours for another 24 hours
- If a pathological CTG she will need a Caesarean section and notify the General surgeon of the possibility of intra- abdominal organ injury.
- **No tocolysis for abdominal injured patients**

Definitions

Term, Acronym or abbreviation	Definition
Leopold's Manoeuvre	Manoeuvre's to determine the position and presentation of the fetus 1. First manoeuvre : palpation of uterine fundus to identify the fetal part 2. Second manoeuvre: Umbilical palpation/grip to identify the location of the fetal back 3. Third manoeuvre: Pelvic grip with cupped hands to determine the presenting part and station 4. Fourth manoeuvre: Palpation of the cephalic prominence to determine the degree of flexion
PPROM	Preterm Premature Rupture of Membranes
CTG	Cardiotocograph

Authorship

These guidelines were drafted by a clinical team from Mediclinic and were reviewed by a panel of experts from SASOG and the BetterObs clinical team. All attempts were made to ensure that the guidance provided is clinically safe, locally relevant and in line with current global and South African best practise. Succinctness was considered more important than comprehensiveness.

All guidelines must be used in conjunction with clinical evaluation and judgement; care must be individualised when appropriate. The writing team, reviewers and SASOG do not accept accountability for any untoward clinical, financial or other outcome related to the use of these documents. Comments are welcome and will be used at the time of next review.

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