

TRAUMATIC TIBIA FRACTURE IN 3RD TRIMESTER OF PREGNENCY: A CASE REPORT

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Abstract:

Introduction:

Fracture of the tibia is second most common long-bone fracture and is generally associated with fibula fracture. There are many options like- non-operative treatment, with plaster immobilization and traction, or operative treatment, with intra-medullary nailing, plating and external fixation or ILIZAROV. The complications of non-operative treatment include mal union, non-union and delayed-union. Operative management has similar complications with the addition of wound infection, osteomyelitis and fat embolism. Management depends not only on the fracture pattern but also other factor like patients systemic condition.

Trauma is the main cause of non-obstetric death in the gravid mother in the United States.[1] With trauma, fetal mortality can rise to 65% as the result of abruptio placenta, direct fetal injury, and other causes.[2]

We report a case of a pregnant woman in the 33+ wks gestation week who sustained a traumatic isolated tibia fracture.

CASE REPORT

A 26-year-old woman primi, at 33+ weeks gestation presented to the outpatient department (OPD) with pain in right-sided lower extremity and long leg back slab. She come here after 7 days of trauma. The injury was associated with a low-energy fall. She had no history of any medical disorder. She was nonsmoker and did not take alcohol during pregnancy. Her present pregnancy had been uneventful. She was on regular ante natal checkup and routine laboratory test and ultrasonogram and the fetus had developed normally.

She was initially evaluated by an orthopedic surgeon in OPD, followed by consultation with an obstetrician. Apart from generalized pain and limitation of movement in the patient's lower right extremity due to long leg back slab, the general physical examination was unremarkable. There was no sign of compartment syndrome or neurovascular injury. The skin was intact. Plain radiograph done under lead sheet protection showed a displaced lower shaft fracture of the right tibia. Abdominal ultrasound revealed no significant findings. Cardiotocography showed heart rate variation with normal fetal heart rate. Obstetrician gave patient intramuscular dexamethasone 5mg 6 hourly (4 dosage) for early maturation of fetal lung.

We decide to continue the pregnancy up to at least 36+ wks as continue fetal growth. We cannot continue more because fracture need bone graft as need another surgery. Meanwhile advice the patient to go home and take proper care maintaining lateral decubitus position to reduce pre load and pressure on inferior venacava. She was advised to contact with us if any kind of emergency.

We planned the cesarean section and open reduction and internal fixation of tibia in same setting. We involve our anesthetist, neonatologist, cardiologist with obstetrician and orthopedic surgeon and theater team for better management of the patient during operation and post-operative period. We chose epidural analgesia and spinal anesthesia lengthen the operation period as we plan two operation in same table and also maintain analgesia in post-operative period.

At 36+ wks of pregnancy under epidural analgesia and spinal anesthesia. we first do caesarian section and delivered a healthy child. Then same table we go for open reduction and internal fixation of tibia by intramedullary inter locking nail. We took the help of image intensifier for distal locking screw insertion that's shorten the operative period. We did not put any external immobilizer after operation and encourage the patient to mobilize limb and good care of neonate. After 6 hours later we started low molecular weight heparin (enoxaparin 40mg/0.4ml) subcutaneously single dosage daily and continue for 10 days.

On 3rd post-operative day we check the wound and dressing then advice the patient for discharge. We allow mobilization of lower limb but non weight bearing for 3 weeks. After that we allow partial weight bearing. We check the fracture site at that time and found good quality of callus.(Figure : 1&2)

DISCUSSION

Fracture is not common in pregnancy so that the management is not so much easy as non pregnant women. We concern two main issues regarding the management of fractures in pregnancy. One is mother's health and another is baby. Some study define vertebra are the most common fractures bone during pregnancy in literature, an ankle is the most common fracture region in a study by Herath et al. and is commonly distributed between the second and third trimesters. [3,4] Most of the falls that occur in pregnancy

are in the second and third trimester. Half of these falls usually result in lower extremity fractures. Possible pre-disposing causes of fall risks include changes in gait, balance, centre of gravity and inability to see foot placement. [5]

Trauma, affecting 7% of all pregnancies, is the leading cause of non obstetric death in pregnant women, with an overall maternal mortality of 6% to 7% [6,7]. Fetal mortality has been shown to range from 55% to 65% in major trauma cases. [6,8] Trauma affects the obstetric outcome when it is associated with maternal death or direct uterine or placental injury [9]

The operative treatment of tibia fracture in third trimester of pregnancy still controversial. But if displaced fracture then operative procedure is the best option. We could find only a few cases in the literature regarding tibial fracture treatment in the third trimester of pregnancy [10, 11, 12 13]. Since there are so few published case reports in the literature, there is no consensus on the appropriate management of maternal fractures during pregnancy. Our patient having displaced fracture that's why planned for operative treatment. We delay total 3 weeks as because fetal lung maturation, body fat deposition and weight gain. But we did not wait more than 3 weeks because thus fracture site need bone graft & require another surgery and increase the morbidity of patient.

Anesthetics affect both the mother and the fetus, therefore anesthesia is more complex during pregnancy. Most of the Organogenesis occurs in the first trimester, and although there are no anesthetic agents shown to be teratogenic. Surgical treatments are usually delayed until the second trimester. From the second trimester until the end of pregnancy, the fetus will be less affected by anesthesia at that time [14]. Currently used anesthetics are less teratogenic but when possible regional technique can be used. We use epidural method for analgesia for post per operative and post-operative period and spinal anesthesia during the surgery time. We also decide to do first the baby delivery following tibial interlocking thus less anesthetic exposure to the baby.

Radiation exposure is one of the risk factor for the fetus. But it affects the fetus more during the first trimester since the development of the central nervous system (CNS) is faster and more susceptible to radiation during this period. After 25 weeks of conception, the CNS becomes more resistant to radiation; however, the cumulative radiation effects are still important. The fetus can absorb not more than 100 mGy (milligray) of radiation safely, and, as long as this is not exceeded, image intensifier can be used during surgery [16].

There is an increased risk for deep venous thrombosis (DVT) due to immobilization. However, pregnancy designates a hypercoagulable status, and unfractionated heparin and low molecular weight heparin (LMWH) can be used for prophylaxis. [15] It also reduce the possibility of post-operative embolic phenomenon. We use low molecular weight heparin post operatively and continue upto 10 days & get good outcome.

We found good callus at fracture site after 3 weeks of fixation that is also explained by hormonal change in pregnancy and puerperium. This is also published by some author, for example- Ahmad et al reported a case of accelerated tibia fracture union in the third trimester of pregnancy. [12]

Conclusion –

Our case of traumatic mid shaft displaced tibia fracture at the 33+ week of pregnancy suggests that these injuries can be successfully managed by surgical intervention. That time one should consider not only the fracture, but also the comfort of the mother and fetus before and after delivery.

Refferance—

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Figure: 01



Figure: 02