A Traumatic Hip Dislocation During Pregnancy

T Kamarul, V V Mukundala, A S Deepak, William Y C Loh*

Department of Orthopaedic Surgery,
University of Malaya Medical Centre, Kuala Lumpur, Malaysia
**Department of Orthopaedic Surgery, Southport District General Hospital,*
Town Lane, Kew, Southport, Merseyside PR8 6PN, United Kingdom

HISTORY

A 28-year old, previously fit and healthy lady met with a motor vehicle accident while she was at 34 weeks of gestation. She was the front seat car passenger. She complained of severe pain in her abdomen and the left hip. Clinical examination revealed that the left leg was shorter and was flexed, internally rotated and adducted. The range of movement of the hip was severely restricted. However, there was no neurovascular deficit to the limb. An emergency X-ray of the hip confirmed the posterior dislocation of the hip (Figure 1).

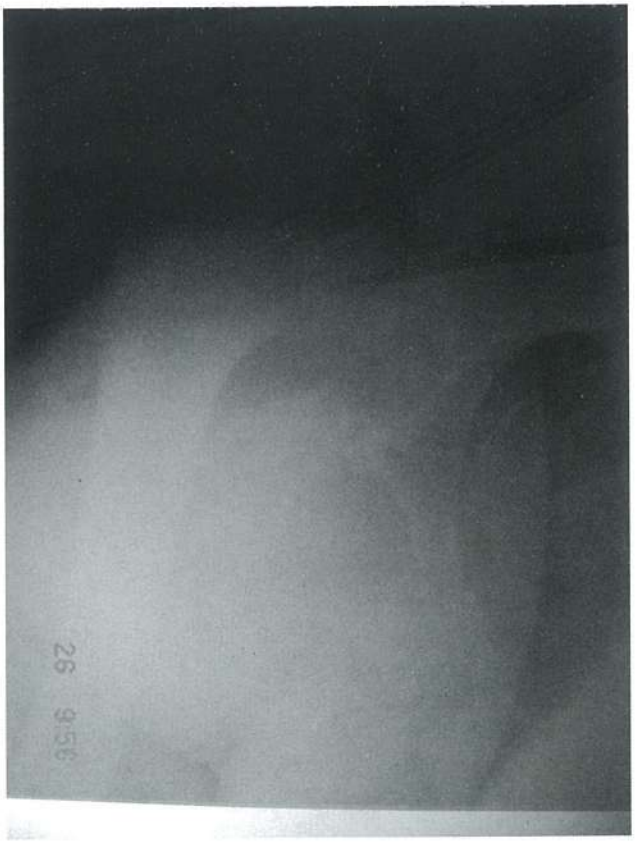


Figure 1. Lateral view of the right hip. Note the posterior dislocation with a small fragment at the posterior lip. Note also the fetal head on the right.

Correspondence should be sent to:
Dr Tunku Kamarul Zaman Bin Tunku Zainol Abidin,
Department of Orthopaedic Surgery,
University of Malaya Medical Centre, Kuala Lumpur,
Malaysia
E-mail: tkzrea@pd.jaring.my
Tel :+6019-3533 830
Fax :+603-7956 4742

Owing to the tender abdomen and fetal distress evident on the cardiotocography, an emergency caesarian section under general anesthesia was carried out with concurrent closed reduction of the dislocated hip. A healthy baby was delivered.

The dislocated hip was reduced by the Allis reduction maneuver. The X-ray examination of the hip confirmed the concentric reduction of the hip (Figure 2). The CT s can of the hip revealed a 4 mm avulsion fracture of the ligamentum teres (Figures 3a and 3b). The left leg was rested and the skin traction was applied for two weeks. She was put on the subcutaneous low molecular weight heparin. No sooner she had commenced the non-weight bearing mobilization than she was discharged home.

The 6 months follow up showed a painless and stable left hip. The X-ray of the left hip taken 2 years post-injury did not show any sign of the avascular necrosis of the femoral head (Figures 4a and 4b). At present 3 years post trauma, the patient has had no symptom from the affected hip. The range of movement of the left hip was normal. She has gone back to work actively and even do horse-back riding as a regular sport.

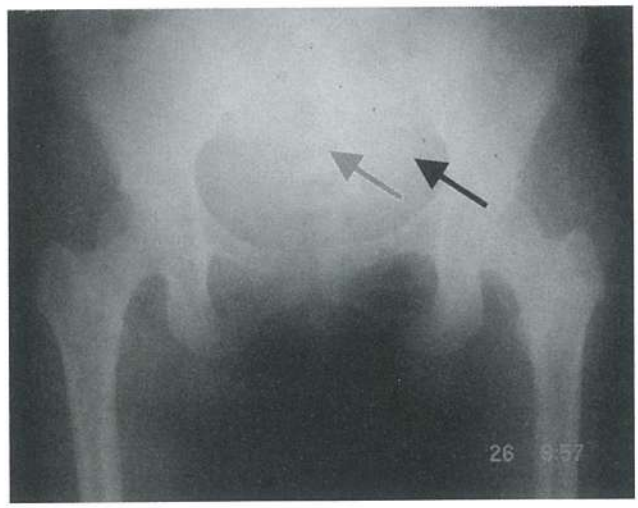
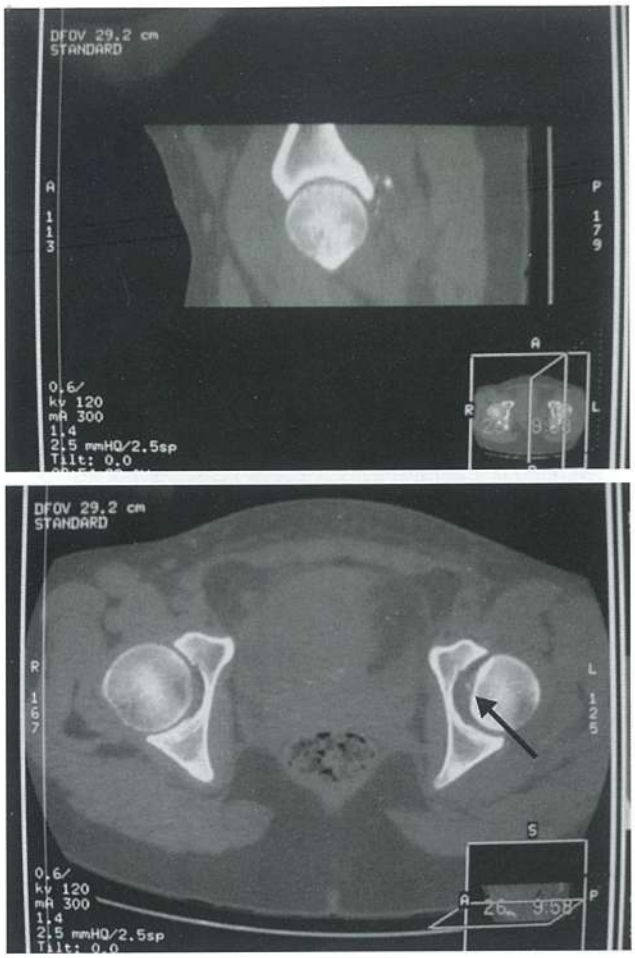


Figure 2. Post reduction X-ray showing a reduced dislocated hip.

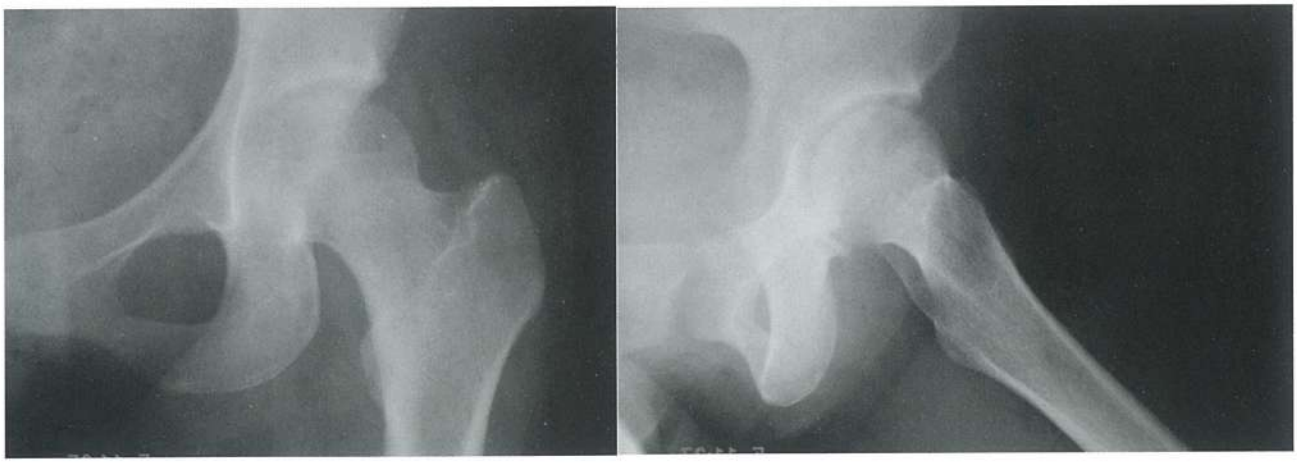


Figures 3a and 3b. Confirmed CT scan of a good reduction. Note the small posterior fragment has reduced as well. The avulsion is noted (Arrow).

increases in the number of woman drivers and the duration of road travel they make[1]. Pregnant women are at a higher risk of being injured in a motor vehicle accident as they often do not wear seatbelts. When restrained with the seatbelt, there is an increase risk of abruption placenta and uterine rupture during the rapid deceleration of the motor vehicle. On the other hand, without the seat belt restraint, there is also a higher chance of multiple high energy injuries such as hip dislocation as in this case.

Due to the physiological changes during pregnancy, the women are prone to increased joint laxity, thereby susceptible to joint dislocations and subluxations. Relaxin, a polypeptide hormone, is believed to be responsible for this effect and is present in abundance during pregnancy. Apart from the hip joint, the knee joint is the second most affected.

Dislocation of the hip is classified into anterior, posterior and central dislocation. Anterior dislocation of the hip constitutes to about 10% to 15% of cases. Central dislocation of the hip is usually associated with the acetabular fracture and is the rarest presentation. Posterior dislocation accounts for approximately 90% of all traumatic hip dislocations. It occurs when a direct blow is given with the knee in flexed position. In this case, the patient was a front seat passenger when she knocked her knee against the dashboard as the vehicle was in the rapid deceleration. This dashboard dislocation was described by Funsten et al[2]. Patients usually present with the shortening of the limb, hip internally rotated and adducted. However, Simmert et al[3] have described patients with this injury present without any of these signs. As a result, the correct diagnosis may have been missed. More than 50% of these patients have other associated



Figures 4a and 4b. Follow up after 3 year. No residual restriction of motion was noted on examination while radiographs did not show any abnormality.

DISCUSSION

Dislocation of the hip is uncommon. It takes place when there is a high energy injury. In this injury, there are large amount of ligamentous defects disrupting the stability of the hip joint.

The research from John Hopkins Schools of Medicine and Public Health has shown that women are more prone to end up in a motor vehicle accident than men because of the fractures. The most important fracture is the fatal pelvic fracture. Pelvic trauma is more deleterious during the pregnancy. Fatal hypovolaemic shock had been attributed to an isolated posterior hip dislocation before as described by Tronzo et al. An early reduction of the dislocated hip joint may avert such dire consequence[4].

It is important to reduce the dislocation within 12 hours of injury. A delay in the reduction of hip dislocation increases the risk of avascular necrosis. Yue et al. reported that

posterior dislocation of the hip causes kinking of the external iliac artery over the pelvic brim, impeding flow through the medial femoral circumflex artery in cadaver specimens[5]. Following the emergency caesarean section, the hip joint was reduced by the Allis maneuver. The stability of the reduced hip was assessed and was found to be good. The affected lower limb was then immobilized with the aid of skin traction for a period of 2 weeks. The type and duration of traction immobilization are controversial as there have been no published results.

Epstein et al used the skeletal traction following the closed reduction of the hip joint[6]. Other more recent studies have demonstrated a similar result without any traction[1]. The post-reduction traction was thought to provide the benefit of decompressing the injured hyaline cartilage while the torn capsule heals[2]. This observation, however, has not been proven by any study. There is still no published consensus on the duration of immobilization.

The other contentious issue is the timing of weight bearing of the affected leg. There has been no agreement among treating orthopaedic surgeons on this. There has been no randomized study of the effect of early weight-bearing on the risk of avascular necrosis of the femoral head. The common sense prevails and dictates that once the pain has become tolerable, provided the hip joint is stable, an early weight bearing of the affected leg is permitted. In our case, early mobilization of the patient was crucial during the post partum period because of the high incidence of deep vein thrombosis (DVT) as a result of venous stasis.

Available evidence suggests that the risk of venous thrombo-embolism (VTE) is higher after cesarean section (particularly emergency cesarean section) than after vaginal delivery[3]. The true incidence of DVT in pregnancy is not known but it has been reported that an estimated incidence in the US is 1 in 1000. Of these, 30% of patients die within 30 days; one-fifth suffer sudden death due to pulmonary embolism[4]. Furthermore, it is estimated to be higher in women with previous history of VTE which has a recurrence rate as high as 13%. After having considered all these factors, the use of prophylactic anti-thrombotic agents such as LMW heparin to prevent these complications may be a prudent course of action.

In essence, the treatment of hip dislocation in pregnancy following a major trauma needs careful but decisive action. It involves a multi-disciplinary approach with adequate cooperation between the specialities. Adequate knowledge of the pros and cons in the options of treatment is also required to ensure than mother and baby remain safe without resulting in morbidity to the dislocated hip.

REFERENCES

1. Anonymous. Property/casual insurance edition. 99(7):76. Nov 1998.
2. Funsten RV, Kinser P, Frankel CJ. Dashboard dislocation of the hip. J Bone and Joint Surgery 1938, 20:124-132.
3. Simmert JB, Nagel TD, Ray S. An unusual fracture dislocation of the hip. J Orthopaedic Trauma 1993, 7: 567-568.
4. Tronzo RG. Surgery of the hip joint. 451-454, 1973.
5. Yue JJ, Wilber JH, Lipuma JP, et al. Posterior hip dislocation. A cadaveric angiography study. J. Orthop Trauma: 10(7):447. 1996
6. Epstein HC. Traumatic dislocations of the hip. Baltimore: Williams & Wilkins,1980.
7. Schlickewei W, Elsasser B, Mullaji AB, Kuner EH. Hip dislocation without fracture: traction or mobilization after reduction? Injury 1993, 24:27.
8. Danilenko-Dixon DR, Heit JA, Silverstein MD, et al. Risk factors for deep vein thrombosis and pulmonary embolism during pregnancy or post partum: a population-based, case control study. Am J Obstet Gynecol 2001,184:104–110
9. Kierkegaard A. Incidence and diagnosis of deep vein thrombosis associated with pregnancy. Acta Obstet Gynecol Scand 1983, 62:239–243