CASE REPORT

Traumatic rupture of the symphysis pubis during pregnancy that needed an emergency caesarean section and pelvis reconstruction: A case report

Rafael Ballesteros a,*, Miguel Ángel Ruiz a, Julián Del Río a, María Teulón b, Marta Chacón c, Francisco Javier García-Lázaro a

a Department of Orthopaedic Surgery, Hospital Universitario de Fuenlabrada, Madrid, Spain
b Department of Gynaecology and Obstetrics, Hospital Universitario de Fuenlabrada, Madrid, Spain
c Department of Pediatrics, Hospital Sur de Alcorcón, Madrid, Spain

Accepted 23 April 2008

Case report

A 37-year-old woman, in the 39th week of her first pregnancy, fell from a standing position and landed on her buttocks with both hips in flexion, abduction and external rotation. She complained of pubic and lumbar pain (mainly on the left side) and was unable to sit, walk or even perform active flexion of the hips.

She complained of tenderness over the pubis and pubic pain with trochanteric pressure. Neurovascular exam was normal. Radiographs showed a traumatic disruption of the symphysis pubis with a 7 cm diastasis and the fetal skull in cephalic presentation, without apparent injury (Fig. 1).

In the first hours, the mother remained stable. Repeated tests showed a slight decrease in haemoglobin levels. Externnal fetal heart rate monitoring and ultrasound showed no signs of abruption placentae nor fetal distress.

After discussing the case with the obstetric team, vaginal delivery was ruled out given the massive symphysis disruption. Due to maternal and fetal stability it was decided to delay the intervention and perform a nonemergent C-section the next day.

Five hours after admission, the fetus started to show signs of distress, so it was necessary to perform the surgery in emergency. The patient underwent first a C-section and then an open reduction and internal fixation through a Pfannenstiel exposure. A great haematoma was found at Retzius\’ space. Synthesis was performed with a four-hole superior plate with bicortical screws and an anterior three-hole plate with two cancellous screws. Muscle laceration was repaired and supplemented with mesh. Postoperative CT showed no sacral lesion and accurate synthesis (Fig. 2).

The newborn weighed 3064 g and her Apgar score was 4, 5 and 8 at 1, 5 and 10 min (anaesthetic depression), with a pH of 7.11, and she needed intermittent positive pressure for 5 min. The amniotic fluid was slightly haemorrhagic although the placenta was well inserted. Two hours after birth, the neonate presented with respiratory distress, which was treated with oxygen by hood and resolved in 48 h. She presented also early hipoglycemia, with a capillary glucose of 39 mg/dL at 2 h of age, which resolved with the administration of oral glucose. The mother was discharged 13 days after admission with an elastic support to contain the muscles of the anterior...
abdominal wall. She complained of mild pain, without incontinence. Rest was continued 4 weeks and was followed by full weight bearing.

At follow-up 9 months after injury the mother was completely asymptomatic. There were no urinary symptoms nor problems with physiologic arousal, dyspareunia or orgasm complaints. The baby was completely healthy.

Discussion

To our knowledge, there have been only four reports in the literature addressing series of patients who have sustained pelvic fractures associated with major trauma in pregnancy. They show that there is a high maternal (9%) and fetal (35%) mortality, mainly related to the mechanism of injury and injury severity and without relation to fracture classification, fracture type, trimester of pregnancy and year of publication.

Disruption of symphysis pubis during labour without prior trauma is relatively uncommon (1:300 to 1:30,000) and it is related to the physiologic levels of hormones at the third trimester of gestation, maternal age, parity, clinical pelvimetry, overdose of oxytocin and macrosomia. Its management is generally non-surgical (bedrest, pelvic binders, ambulation devices), even with diastasis of 9.5 cm and 3.5 mm of widening of the sacroiliac joints, as in Jain and Setenberg’s case, although in other severe cases, surgery was needed. Petersen and Rasmussen recommended external fixation when lesions are unstable, when inadequate reduction is achieved or when the diastasis is more than 4 cm. Vertical displacement of the pubic rami associated to a widening of the sacroiliac joint means a disruption of the pelvic ring and may be treated with a pelvic fixator. In addition, in cases of severe pain after conservative treatment, it may be necessary to perform an open reduction and internal fixation. Symphysis disruption can be associated with severe lesions as complete urethral rupture and there are even historical cases of death.

Only one article was found reporting a case of traumatic separation of the symphysis pubis during pregnancy. In this article, Luger et al. consider that the extensive separation of the symphysis might result from a very forceful descent of the fetal head against the pelvic ring after a direct fall on the mother’s buttocks. Their case was resolved by nonemergent C-section and synthesis 1 day after the lesion through a longitudinal medial incision.

Our case, as the case of Luger et al., is an external traumatic injury to an especially susceptible structure almost ready for the delivery. The mechanism of bilateral flexion, abduction and external rotation of the hips results in an indirect loading through the hips similar to the open book injury to the pelvis due to a direct force on the hemipelvis, and is different to the mechanism reported by Luger et al., consisting of a battering ram effect exerted by the fetal head. An anterior diastasis of 7 cm means that the anterior left sacroiliac ligaments have been damaged and the absence of vertical displacement suggests that the posterior sacroiliac ligaments were intact, so the injury may be classified as type B1 (rotationally unstable, vertically stable) according to Tile.

Although the initial plan was to perform a nonemergent C-section and synthesis, considering the haemostatic effect of the uterus and fetus over the pelvic vessels reducing the
effective radius of the pelvic cavity, an emergency procedure was needed due to the beginning of fetal distress related to haemodynamical destabilisation of the mother. We used a standard Pfannenstiel incision for both procedures. Although the incision was a little more proximal than the one usually used to treat traumatic diastasis of the pubis it allowed easy access to the uterus and symphysis.

Associated to the pelvic diastasis, a musculodiastasis of the infra-umbilical area with detachment of the most inferior myoaponeurotic layer of the abdominal wall was found. The mesh augmentation is optional, but we use it because we have had a case of postsurgical herniation after a high-energy diastasis of the pubis.

There is a low chance of late genitourinary sequelae, miscarriage or infertility, although the persistence of synthesis material may affect the ability to deliver a new child vaginally and it may be possible that the hardware has to be removed to avoid the need of cesarean section in a further pregnancy.

**Conclusion**

Although rare, this lesion may compromise the fetal life and must be closely monitored. Coordinate management between the obstetrician and the orthopaedic surgeon is required for successful treatment of this injury. Pfannenstiel approach allows access to the uterus and symphysis. Internal fixation gives an appropriate stability. It is important to pay attention to the muscular reconstruction to the abdominal wall.

**Acknowledgements**

We wish to thank Dr. Cueto and Dr. Sánchez-Robles for their help.

**References**