

Case Reports

Fracture of shaft of left femur in a newborn delivered by caesarean section

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Sri Lanka Journal of Child Health, 2015; 44(1): 53-55

(Key words: Caesarean section; newborn; birth injury; fracture; Pavlik Harness)

Introduction

Reported incidence of birth injuries is about 2% and 1.1% in singleton vaginal deliveries of fetuses in a cephalic position and in caesarean deliveries, respectively^{1,2}. The most common fractures during vaginal delivery occur in the clavicle, humerus and femur. Caesarean section (CS) has been reported to reduce the incidence of birth associated injuries to nearly zero³. Femoral fracture during CS delivery is a rare complication⁴. We report a case of newborn delivered by lower segment caesarean section (LSCS) for transverse lie fetal presentation, producing left femoral shaft fracture treated with Pavlik harness.

Case report

A male newborn 3.43 kg body weight was delivered from 28 year old primigravida by LSCS with fetal transverse lie position in-utero under spinal anaesthesia. Apgar score was 8 at birth and 9 at 1 minute with normal vital and systemic examinations. Operating surgeon gave a history of energetic traction but no obvious sound of bony fracture heard during surgery. Newborn had left thigh swelling immediately after birth noticed by paediatrician, which was painful to touch. Newborn cried immediately on touch at site of swelling on left thigh. There was a mild ballotable feeling at left mid-thigh on palpation. A radiograph of the left thigh revealed a spiral fracture of the left femur shaft (Figure 1). Immediately, newborn was referred to orthopaedic surgeon for management and Pavlik harness was advised and applied (Figure 2).

His laboratory parameters were within normal limits. Paracetamol drops (10 mg/kg) were advised three times a day for pain. Newborn was continued on breast feeding. The baby was released from the ward 4 days later in good condition with mother. A technetium bone

scan did not reveal additional fractures. Eye fundoscopy was normal and a social evaluation did not support the possibility of child abuse at the 2 week follow-up. Laboratory analysis, including serum levels of calcium, phosphorus and alkaline phosphatase, was normal. The working diagnosis was fracture of the left femur shaft as a result of birth injury.



Figure 1: *Spiral fracture of left femur*



Figure 2: *Newborn with Pavlik Harness*

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(Received on 30 October 2013; Accepted after revision on 20 December 2013)

After 17 days of follow-up, a healing fracture was observed on X-ray lateral view of left lower limb (Figure 3).



Figure 3: Healing fracture

Physical examination at the age of 1 month and 26 days was normal without any significant deformity and normal range of movement. Parents were reassured and asked to continue the Pavlik harness for 6-8 weeks and advised regular follow-up with paediatrician and orthopaedic surgeon.

Discussion

There are very few reports on bone trauma in LSCS. Through the 60's, 70's and 80's, there have been occasional reports of fracture of femur, depressed fracture of skull, fracture of tibia, radius and rarely humerus and these were mostly in difficult breech extractions⁵. During caesarean section, fractures occurred following difficult deliveries where considerable traction was involved. Manoeuvres employed during CS, poor delivery technique, uterine incision and inadequate relaxation may cause these injuries. The typical situation is when the breech is well engaged in the pelvis or when a footling has descended into the vagina. Research has shown that risk factors speculated to be associated with femoral fractures during CS are large fetuses, breech presentation, difficult delivery, inadequate uterine relaxation, small incision, twin pregnancies, osteogenesis imperfecta, prematurity and osteoporosis⁶.

Several treatment modalities are described for fracture of femur including gallow's traction, spica cast, and Pavlik

harness⁷. In our patient, Pavlik harness led to reunion of fractured shaft of femur at 17 days of life with no limb deformity and normal range of movement with absence of crying on follow-up. Parents were reassured and come for regular follow-up with their son to paediatrician and orthopaedic surgeon.

There is apparently no literature on fracture of left femur shaft in neonate with transverse lie fetal presentation during LSCS delivery in the last decade.

Acknowledgement

The authors acknowledge the help of their chief librarian Ms. Jyotsna Suthar for providing literature survey.

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