

INTRAUTERINE ISOLATE INCOMPLETE FRACTURE OF FEMUR: A CASE REPORT

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SUMMARY

Intrauterine fracture of long bones are rare and usually associated with trauma or metabolic/structural disease. In this case we reported an incomplete fracture of femur at 25th gestational week without significant trauma or disease. The angulation of bone was become overt and was disappearing with movements of fetus. Fracture line or callus formation could not be demonstrated. This is the first case of fetal incomplete fracture with changing in apperance with movements of fetus in literature.

Key words: femur fracture, incomplete, intrauterine

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İNTRAUTERİN İZOLE İNKOMPLET FEMUR KIRIĞI

ÖZET

Uzun kemiklerin intrauterin dönemde kırılması nadir bir durumdur ve genellikle travma veya metabolik yada yapısal hastalıklar ile ilişkilidir. Olgumuzda intrauterin ultrason incelemesinde, sağ femurda fetusun hareketleri ile belirginleşen veya kaybolan açılanma mevcuttu. Doğum sonrası X-ray grafide kırık hattı veya kallus oluşumu tespit edilmedi fakat sağ femur orta diafizde internal korteks kalınlaşması ve açılanma mevcuttu. Biz 25. gebelik haftasında tespit edilmiş, travma veya herhangi bir hastalık ile ilişkilendirilemeyen inkomplet femur kırığı olduğunu düşündüğümüz olguyu sunduk.

Anahtar kelimeler: femur kırığı, inkomplet, intrauterin

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INTRODUCTION

Fracture of bones during intrauterine period is not ordinary. Maternal tissues and amniotic fluid protect the fetus unless the bones are fragile⁽¹⁾. Trauma and skeletal dysplasias like osteogenesis imperfecta are usually associated with this situation⁽²⁻⁵⁾. We report a case in which metaphyseal fracture was diagnosed in mid-trimester in a fetus with normally mineralized bone, unassociated with trauma or disease.

Case Report

A 22 year old primigravid woman referred to our clinic as there is angulation in right femur of the fetus at the 25th gestational age. The targeted 2D ultrasonography showed the fetus has sharply angulated right femur. Surprisingly, the angulation was disappearing with the movements of the fetus. The femur measured 44 mm while the angulation is overt (Figure 1.). Other femur measured 46,9 mm and there was no angulation with movements of fetus (Figure 2.). All bones, including the right femur were normal for complete fracture appearance. No other fractures or fetal abnormalities were observed. The measurements of the other structures corresponded to the period of the gestation.

The patient was lost to follow up and at the 34th gestational age 2200 gr healthy girl baby delivered vaginally due to premature rupture of membranes in another hospital. The neonate was examined after labor and any abnormality couldn't found. X-ray graphy showed no anomaly at cranium. In Femur graphy there was angulation and thickness of internal cortex which was suspicious for healing bone fracture. Comprehensive bilaterally femur graphy was performed and any difference was not seen at radioopacities of bones. Graphies were discussed and any fracture line or callus formation could not detected by radiologist and orthopedist. Serum calcium and alkaline phosphatase levels of the neonate were normal. Advanced tests were not allowed by family.

Baby is in her second age and any problem has not been occurred. The parent signed the consent form and declared that clinical data might be used for a scientific aim.



Figure 1: Ultrasonographic appearance of angulation at right femur.



Figure 2: Ultrasonographic normally appearance of left femur.



Figure 3: X-ray femur graphy at postpartum period.

DISCUSSION

Fracture of bones during intrauterine life is unusual condition except predispositions like metabolic disease and trauma. There are published reports whom highlights this association^(3,6-8), but in last years reports has showed that this can be an isolate event^(1,9,10). Demonstrating fracture line or callus formation were confirming markers for the diagnosis.

In utero fractures of long bones can present as a part of syndromic presentation⁽¹¹⁾. Osteogenesis imperfecta (OI) is most closely related to extremity fractures. OI, a heritable disorder of bone formation, is characterized by bone fragility and low bone mass. Type II OI is the most severe form of OI and these individuals exhibit multiple intra-uterine rib and long bone fractures, and severe skeletal deformities like shortening of long bones. The thorax is short but not narrow. The presence of blue sclera is a highly suggestive but not pathognomonic sign of OI. In our case there was not family history corresponding this situation and there was only one bone deformity as a fracture, the thorax and the newborn's sclera was normal^(3,11).

Fracture in fetus must distinguish from bowing of the long bones. Bowing can be isolated (isolated femoral hypoplasia) or be a part of syndromes like campomelic dwarfism⁽¹²⁾. No other abnormalities at targeted ultrasonography and MRI with normal appearance and measurement of bone with movements of fetus eliminated this diagnosis.

Fetus is at risk of injury from maternal trauma and it is estimated that there is a 10% to 15% risk of maternal or fetal injury during the first trimester, 32% to 40% in the second trimester, and 50% to 54% during the third trimester. Motor vehicle crashes cause most injuries, but domestic violence, penetrating trauma, and head injuries are also frequently seen^(4,5). Domestic violence affects up to 20% of all pregnancies⁽⁷⁾. The patient and her partner asked about this situations but they denied any trauma include domestic violence.

We are unable to explain the occurrence of this

intrauterine fracture based on the current available knowledge of etiology. It is possible that it was caused by unnoticed maternal trauma. This case has showed that the fracture can be incomplete and confirming markers may not found in extrauterine examination.

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