Neonatal Femoral Fracture Associated with Vitamin D Deficiency

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A first child of a non-consanguineous couple from Nepal, with an overweight 27-year-old mother (body mass index 27.3 kg/m^2) and a healthy 38-year-old father, was delivered by cesarean section (for breech presentation) at 39 weeks of gestation after a supervised and uneventful pregnancy.

The neonate was appropriate for gestational age and had a good adaptation to extrauterine life. A swelling of the left thigh was evident after birth. The leg radiography (Fig. 1) showed a recent diaphyseal fracture of the femur. The infant was observed by orthopedics and they immobilized the limb with a Pavlik harness.

From the investigation, both the infant and the mother had severe vitamin D deficiency (8.04 ng/mL and 8.90 ng/mL, respectively). The infant presented no other fractures or clinical or analytical changes. Therapy with cholecalciferol was started (1334 IU/day) and the infant was discharged on the eighth day of life. He was reassessed biweekly at the orthopedics appointment. At 1.5 months old, he was clinically well, with the fracture consolidated (Fig. 2), and a normal serum level of vitamin D (65.3 ng/mL).

Despite birth-related trauma fractures, other etiologies are rare in neonatology and vitamin D deficiency should be assessed.[1] This deficiency is more frequent in countries where typical clothing prevents sun exposure,[2] such as in Nepal. Obesity is also a risk factor as well as no varied food, skin pigmentation, and living in areas of reduced sun exposure.[2] In pregnant women, severe vitamin D deficiency can lead to bone disorders in the neonate, leading to fractures, and other obstetric and neonatal complications.[2-4] Some obstetricians recommend vitamin D supplementation,[2] but there is no consensus for its use in Portugal.

Pregnancy follow-up should always consider the risk factors of the pregnant woman, adjusting the supplementation. In the presence of neonatal fractures without an apparent reason, vitamin D deficiency should be considered.[2]

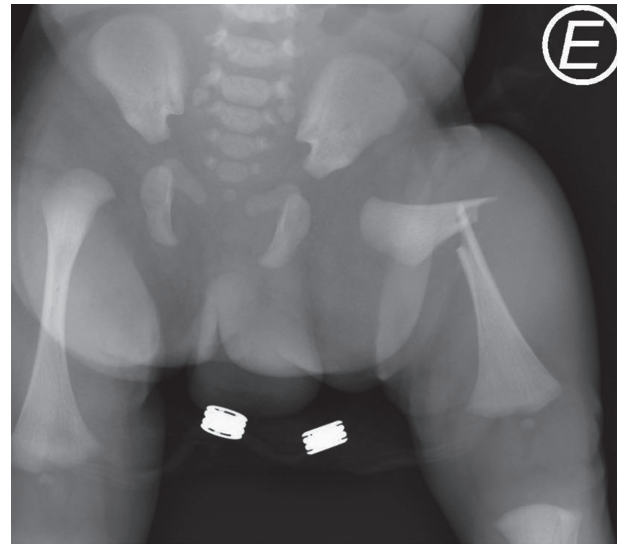

Figure 1. Femur radiography performed on the first day of life showing a diaphyseal fracture of the left femur.

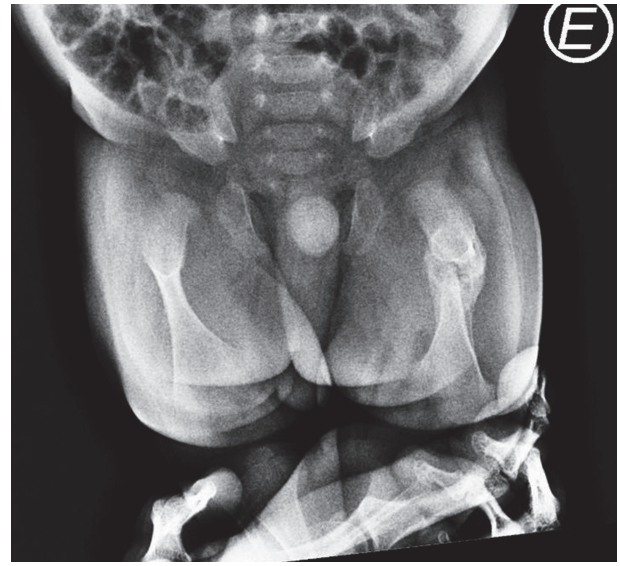

Figure 2. Radiography performed at 1.5 months of life with a consolidated and aligned fracture of the left femur.

Keywords: Femoral Fractures/diagnostic imaging; Femoral Fractures/etiology; Infant, Newborn; Vitamin D Deficiency/complications

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WHAT THIS REPORT ADDS

- Although long bone fractures are rare in term deliveries with no obstetric trauma, they can occur in infants delivered by pregnant women with risk factors for vitamin D deficiency.
- One of the most described risk factors is the use of typical clothing that prevents sun exposure, which is used, for example, in some Eastern countries. That is one of the reasons why the social and cultural habits of each pregnant woman must be considered.
- In the presence of long-bone fractures without particular obstetric trauma, vitamin D deficiency should be checked and treated with replacement therapy.

Conflicts of Interest

The authors declare that there were no conflicts of interest in conducting this work.

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Confidentiality of data

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

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