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Case Report

A case of postpartum multiple vertebral fractures in a patient with osteogeneis imperfecta

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Summary

Introduction: Physicians tend to pay limited attention to lower back pain (LBP) during or after pregnancy, since LBP is experienced by about 70% of pregnant females. Although the etiologies of LBP in most cases are left unclarified, there are some cases in which the cause of pain should be identified to avoid disease progression. *Case Report:* A 32-year-old female with osteogenesis imperfecta experienced LBP after delivery. This LBP was assessed at several hospitals during a three-month period; however, the cause of the pain was not identified. The authors' intentional examinations revealed that her LBP was caused by five vertebral fractures of Th11, Th12, L1, L2, and L3. The patient stopped breast-feeding and started taking anti-inflammatory drugs, bisphosphonate, calcium, and vitamin D. The LBP was alleviated after six months. *Conclusion:* Appropriate assessment of LBP is important to prevent disease progression, as potential causes include postpartum vertebral compression fractures.

Key words: Breast feeding; Lower back pain; Osteogenesis imperfecta; Postpartum; Vertebral fractures.

Introduction

Lower back pain (LBP) is most likely to occur in those aged 30 to 50 years, and is frequently caused by muscles, nerves, joints, and bone disorders. In particular, LBP is experienced by about 70% of maternal or postpartum females [1]. The etiology of maternal/postpartum LBP is still unclarified, although it is considered to be frequently caused by increased bodyweight [2]. Because of the high rate occurrence, physicians tend to pay limited attention to the symptoms and its etiologies. However, the present authors experienced a case of postpartum multiple vertebral fractures in a patient with osteogenesis imperfecta. Since osteogenesis imperfecta is associated with several complications, the current case clearly indicated the clinical significance of closely and carefully follow up in maternal/postpartum term in similar cases.

Case Report

A 32-year-old null gravida female with blue sclera presented at this hospital for routine pregnancy monitoring. She had experienced seven fractures during childhood, and had been diagnosed with osteogenesis imperfecta. The patient's height, bodyweight, and body mass index were 157 cm, 44 kg, and 17.9 kg/m^2, respectively. She reported no history of smoking, alcohol consump-tion, or steroid drug use. The clinical course during pregnancy was almost normal, although the fetus was in breech presentation and was therefore delivered via cesarean section. Then the patient began breast-feeding. Two months after the birth, the patient felt lower back pain (LBP). This LBP was assessed at several hospitals during a three-month period; however, the cause of the pain was not identified. The patient then returned to this hospital. The authors performed magnetic resonance imaging, which detected five vertebral fractures (Th11, Th12, L1, L2, and L3; Figure 1A). They also investigated the potential causes of the fractures. Ultrasonography confirmed that the thyroid and parathyroid were normally sized. Blood tests confirmed normal serum levels of PTH-C, intact PTH, TSH, free T4, vitamin D, and calcium. Bone scintigraphy showed no other abnormal fractures aside from the aforementioned multiple vertebral fractures (Figure 1B). Dual energy X-ray absorptiometry revealed that the patient's bone mineral density (BMD) was only 52% (the normal range for her age is above 80%). The authors concluded that the multiple vertebral compression fractures were caused by osteoporosis. The patient stopped breast-feeding and began taking anti-inflammatory drugs, bisphosphonate, calcium, and vitamin D. The LBP was alleviated after six months.

Discussion

Postpartum vertebral compression fracture is a rare condition. To the best of the authors' knowledge, this condition has been shown in limited number of reports, especially regarding a case with osteogenesis imperfecta [3].

Prevalence of deliveries in patients with osteogenesis imperfecta accounts for one in 25,000 deliveries, and they are more likely to be complicated by antepartum hemorrhage, placenta abruption, intrauterine growth restriction, small for gestation age, congenital malformation, uterine rapture, and preterm birth; however, no significant difference was found in stress fractures [4, 5]. Therefore, maternal/post-

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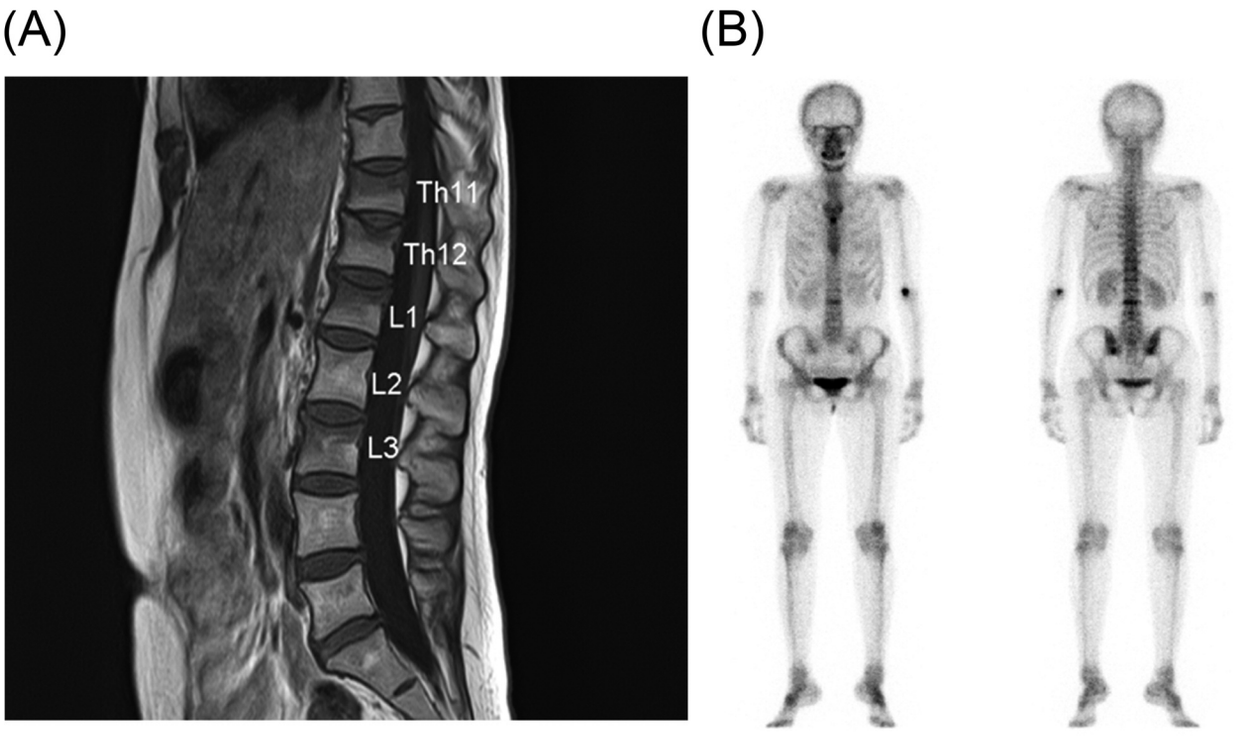

Figure 1. — Imaging of the vertebral fractures. (A) T1-weighted magnetic resonance imaging showing the presence of compression fractures at Th11, Th12, L1, L2, and L3. (B) Bone scintigram showing the multiple abnormal fractures in the vertebral columns.

partum women with osteogenesis imperfecta are recommended to be closely and carefully monitored by a multidisciplinary approach [6]. In the present case, osteoporosis was considered to be promoted by multiple factors. Prevalence of osteoporosis is increased by cigarette smoking, low bodyweight, preexisting conditions such as parathyroid dysfunction, Cushing syndrome, and osteogenesis imperfecta [6-8]. Furthermore, osteoporosis has worsened by breast-feeding after delivery [9]. Since the present case had a relatively low body weight, an osteogenesis imperfecta, and experienced breast-feeding after delivery, these multiple factors can be considered as causes of multiple vertebral fractures.

In the present case, the non-diagnosed period for three months may have made the disease status and symptoms worsen. Recognizing the risk of postpartum osteoporosis would promote early diagnosis and treatment, which could prevent 'multiple' fractures. In addition, breast-feeding should have been completely abandoned after birth, and also appropriate evaluation of BMD should have been evaluated at the maternal term. Early diagnosis and treatment may rapidly improve a transient osteoporosis in pregnant woman by using prostaglandin I analog, bisphosphonate, calcium, and vitamin D supplementation [10].

In conclusion, appropriate assessment of maternal/postpartum LBP is important because potential causes include postpartum vertebral compression fractures. The risk of osteogenesis imperfecta during and after pregnancy should be recognized and treated appropriately.

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