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Bone fragility of a school child during COVID-19

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Abbreviation:
MRI: magnetic resonance imaging

Osteoporosis and fragility fractures in the elderly pose a serious challenge to proper diagnosis and management during the COVID-19 outbreak.[1] Therefore, it is important to advocate the care and prevention of acute and long-term fragility fractures by governments and national health service providers.[2] Regarding children, acute fracture incidence has decreased during the COVID-19 pandemic, partially because of cessation of organized sports and decreased playground use.[3] However, under the influence of COVID-19, there is a need to warn that children's bones might be weakened due to less sporting opportunities and less sun exposure.

A 13-year-old school child was referred to our hospital from a nearby general hospital with a chief complaint of bilateral distal thigh pain of 4 weeks' duration. He had no history of systemic steroid administration for diseases. He had no history of trauma before the bilateral distal thigh pain appeared either. On the other hand, due to COVID-19, his junior high school had been closed for 3 months, with the bilateral thigh pain appearing immediately after re-starting school. At that time, he walked for about 1km to school for the first time in the three months. A magnetic resonance imaging (MRI) T2-weighted image at the time of referral to our hospital showed fractures of the distal metaphyses of the bilateral femurs. Fractures were recognized also on plain X-ray (Figure 1). The bone mineral density was decreased to 86% of the average value for the same age group, and serum 25(OH)D level was relatively low at 25 ng/ml. He had stayed indoors and been barely exposed to sunlight during the three-month closure of his school. He did not play sports when his school re-started. He was diagnosed with bilateral femoral fragility fractures possibly due to immobility and indoor life under the influence of COVID-19. He wore orthotics, performing weighted walking training, and sunbathing. In 3 months, the fractures healed, and he went to school on a full load walk.

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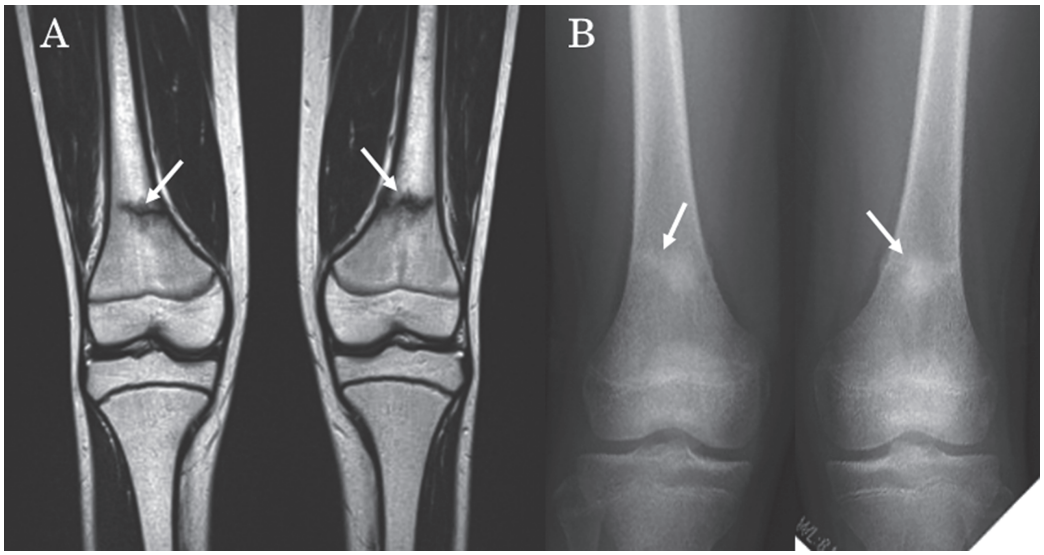

Fig. 1 Imaging findings of bilateral femoral fragility fractures of a school child
Fig. 1A: MRI T2-weighted image shows bilateral distal femoral metaphyseal fracture lines (white arrows) in a 13-year-old school child.
Fig. 1B: Plain x-ray shows bilateral distal femoral metaphyseal fractures (white arrows) and reactive bone formation.

Thus, under the influence of COVID-19, school children who lack exercise or sunbathing need guidance to prevent bone fragility.

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CONFLICT OF INTEREST

Nothing to declare.

REFERENCES

1 Upadhyaya GK, Iyengar K, Jain VK, Vaishya R. Challenges and strategies in management of osteoporosis and fragility fracture care during COVID-19 pandemic. *J Orthop*. 2020;21:287–290. doi:10.1016/j.jor.2020.06.001.
2 Napoli N, Elderkin AL, Kiel DP, Khosla S. Managing fragility fractures during the COVID-19 pandemic. *Nat Rev Endocrinol*. 2020;16(9):467–468. doi:10.1038/s41574-020-0379-z.
3 Bram JT, Johnson MA, Magee LC, et al. Where Have All the Fractures Gone? The Epidemiology of Pediatric Fractures During the COVID-19 Pandemic. *J Pediatr Orthop*. 2020;40(8):373–379.doi:10.1097/BPO.0000000000001600.