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Coexistence of Heterotopic Ossification of the Elbow and Vitamin D Deficiency following Stroke: Can Calcium and Vitamin D Treatment Aggravate Ossification?

The Editor,

Sir,

A 44-year old woman with bilateral hemiplegia was transferred to our clinic for the rehabilitation programme. In her medical history, she had suffered a stroke three months ago and had been followed-up in the intensive care unit for about 30 days. On physical examination, she was cachectic. The Brunnstrom's stages of the upper and lower limbs and hand were 1 on the right side, and those of left upper extremity, hand and lower extremity were 5, 5, 3, respectively. She had motor aphasia as well. Range of motion of both hip joints was painful. She also had limited range of motion in her right elbow joint. The patient was completely dependent according to Barthel Index. Elbow radiograph demonstrated heterotopic ossification (HO) around the right elbow joint and anterior-posterior radiograph of the pelvis showed looser zone [Milkman's pseudofracture] (Figure). Left hand radiograph was also consistent with regional osteoporosis indicating complex regional pain syndrome. Vitamin D level (19.17 ng/mL) and other laboratory data of the patient are shown in the Table. Overall, the patient was diagnosed with vitamin D deficiency (1), HO and complex regional pain syndrome. After 25-OH vitamin D supplementation, she was treated with calcitonin nasal spray 200 IU/d and calcium 1000 mg plus vitamin D 800 IU/d.

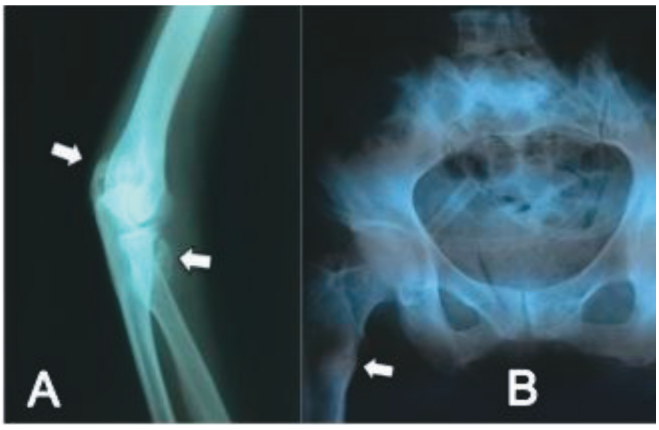

Figure: Lateral radiograph of the right elbow showing heterotopic ossification **(A)** and anterior-posterior pelvis radiograph designating the looser zone (Milkman's pseudofracture) of bilateral femoral necks **(B).**

Table: Some of the laboratory test results of the patient

Laboratory investigation	Patient's data	Normal range
Intact PTH, pg/mL	28.59	15–65
ESR, mm/h	49	0–20
Serum calcium, mg/dL	9.1	8.5–10.5
Total albumin-corrected calcium, mg/dL	10.1	8.2–10.6
Phosphorus, mg/dL	3.6	2.5–5.0
Alkaline phosphatase, U/L	131	30–120
24-hour urinary calcium, mg/day	19.02	100–300
Urinary calcium in spot urine, mg/dL	1.3	7–21
Urinary creatinine in spot urine, mg/dL	18	30–225
Total protein, g/dL	5.9	6.6–8.7
Albumin, g/dL	3	3.5–5.2
Collagen Type 1 CICP, pg/mL	2678	< 570
Osteocalcin, ng/mL	85.39	11–43

ESR: erythrocyte sedimentation rate; PTH: parathyroid hormone

Neurogenic HO after stroke is a rare condition with an incidence of 0.5–2%. In the hitherto literature, there is a limited number of reports with respect to HO after stroke, and the hip is the most commonly involved joint. In general, HO has been reported on the paretic side and rarely on the non-paretic side (2, 3). To the best of our knowledge, HO around the elbow joint after stroke is quite a rare condition. Presentation of our case is two-fold. First, we would like to exemplify a rare condition of HO after stroke and caution clinicians that the elbow should also be taken into account regarding HO development. Second, coexistence of HO and Milkman's pseudofracture has not been documented before. In our case, Milkman's pseudofracture made the clinical condition more challenging. As per the treatment of metabolic bone diseases (*eg* osteomalacia and osteoporosis), when they coexist with HO, there is lack of sufficient data in the current literature. Calcium-vitamin D treatment for metabolic bone diseases can aggravate HO during the immature period. On the other hand, osteoporosis/osteomalacia without intervention can result in severe disabilities such as fractures. Further studies considering the treatment of metabolic bone diseases in patients with HO are needed.

T Ekiz, S Özbudak Demir, A Doğan, N Özgirgin
From: Ankara Physical Medicine and Rehabilitation Training and Research Hospital, Department of Physical Medicine and Rehabilitation, Ankara, Turkey.

Correspondence: Dr T Ekiz, Ankara Fizik Tedavi ve Rehabilitasyon Eğitim ve Araştırma Hastanesi, Turkocagi Sok No. 3, Ankara, Turkey. Fax: +90 312 311 80 54, e-mail: timurekiz@gmail.com

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