Acute Calcific Epicondylitis Associated with Primary Hypoparathyroidism:

A Paradox Effect or an Adverse Event

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**Key message**: Hypoparathyroidism could induce calcific epicondylitis in young people.

We highlight the pathophysiology of calcific tendonitis.

Dear Editor,

Calcific tendonitis is characterized by the accumulation of basic calcium-phosphate hydroxyapatite crystals within the tendon. The supraspinatus tendon is the most commonly affected [1]. Calcific epicondylitis has rarely been reported as a cause of acute elbow pain [2]. Calcific tendonitis is mainly idiopathic, but it can be associated with other diseases [3,4]. We describe a previously unreported case of calcific epicondylitis in a patient with primary hypoparathyroidism on a high dose of calcium supplement with literature review for calcific tendonitis and its proposed pathogenesis.

A 33-years-old man presented with acute left elbow pain and swelling. His elbow x-ray showed: two hyperdense calcifications at the lateral epicondyle. The ultrasound revealed localized hyperechoic deposits over the lateral epicondyle with significantly increased Doppler activity, confirming the clinical diagnosis of acute lateral calcific epicondylitis (figure 1). The workup for inflammatory arthritis was unremarkable. He has been treated with Celecoxib 200 mg daily for five days with a good response. Just before that, he complained of foreign body sensation while swallowing, and CT neck revealed a tiny calcific hyper-density along the posterior surface of the soft palate adjacent to the left vallecula.

Upon reviewing his file, he was found to have primary hypoparathyroidism since 2015. Before this diagnosis, he was seen a few times because of nonspecific symptoms of

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irritability, generalized weakness and numbness. His investigation revealed hypocalcemia of less than 1.5 mmol/l with a low PTH 3 pg/ml (normal 15-65 pg/ml), with unremarkable ECG. His serum calcium was corrected to the lower normal level, which required high intake of daily calcium carbonate 1250 mg (500 mg Ca) three tablets three times daily and calcitriol one mcg/d, his 24-hour urine Ca was high at 11.8 mmol/24 hours (normal range is 2.5-7.5 mmol/24 hours). He has been referred to Endocrinologist to consider PTH replacement therapy to optimize his management.

Calcific tendonitis is largely idiopathic and can be associated with trauma and tissue hypoxia in up to one-third of the patients [3]. There are two proposed mechanisms for calcific tendonitis: degenerative and reactive [4]. Degenerative calcification theory proposes that dystrophic calcification of the tendon follows a necrotic phase, secondary to ageing wear-and-tear. This is supported by observation, that calcific tendonitis seldom affects people before the fourth decade [5]. On the other hand, Reactive calcification theory involves four phases: pre-calcific, formative, resorptive and healing and is supported by a variety of imaging studies demonstrating a complete resolution of the calcium deposits [4,5]. However, calcific tendonitis has been reported in association with hypothyroidism, type-I DM and hyperparathyroidism [1,6]. Hypoparathyroidism has been reported as a cause of rotator cuff tendonitis, but not in epicondyle area as in our case [7].

In our case, the absence of trauma or any other predisposing factors and given his young age, the calcific tendonitis is most likely secondary to the underlying
hypoparathyroidism. However, it is not clear whether his calcific tendonitis is due to his primary disease or due to the high calcium replacement, which was evident by hypercalciuria. Ca-phosphorus imbalance (low Ca 1.32 and high phosphorous 1.95 mmol/L) or hyperphosphatemia is the proposed mechanism involved. High Ca supplements are also known to cause soft tissue calcifications (cardiovascular and kidneys). It is well known that Primary hypoparathyroidism in association with basal ganglia calcification both before and after initiation of proper treatment [8,9].

A better understanding of the pathophysiology of calcific tendonitis is vital in the prevention and management of such condition. In young patients with calcific tendonitis, hypoparathyroidism should be considered as a causative factor.

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**Figure Legends:**

**Figure 1: Left elbow X-ray and ultrasound: calcification and hyperaemia at the common extensor tendon.** AP X-ray of the left elbow shows two amorphous calcifications (arrows) at the lateral epicondyle of the left humerus and Ultrasound image of the common extensor tendon and the calcification (star) and hyperemia (arrow) on colour Doppler around the calcification.
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