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ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2007, 24(4):399

Endocrinology Quiz - Case 1

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A 42-year old woman presented to our clinic, complained for arthalgias of both knees expanding to the upper one third of left calf. Patient's symptoms started six months ago and were gradually worsened. From her medical history, it is important to mention repeated attacks of nephrolithiasis for which she had undergone 5 sessions of lithotripsy the last 6 years. She reported that kidney stone analysis revealed calcium crystals.

On physical examination there were no significant findings, except for a palpable small goiter with smooth micro nodular texture and bone pain under the pressure of left lower limb (at the region of tibia) and both knees. At the initial presentation the patient was carrying with her a radiograph of left knee which was considered as normal, although a careful examination revealed the presence of a cystic lesion in the left fibula (Figure 1). Additionally, she had undergone Computed tomography (CT), Magnetic Resonance Imaging (MRI) and biopsy of the affected region.

CT (Figure 2) depicted a lytic lesion in the proximal metaphysis of the fibula. The affected bone was expanded, the cortex was thinned and cortical microfractures were observed. No sclerotic rim or periostal reaction was detected. MRI (Figure 3) showed that the lesion had an expansible character throughout its extent, with low signal intensity on T_1W images and high signal intensity on T_2W images and that after IV contrast administration the lesion showed homogeneous enhancement. Bone biopsy (Figure 4) demonstrated numerous giant cells and fibroblastic-type stromal cells and tiny hemorrhagic foci.

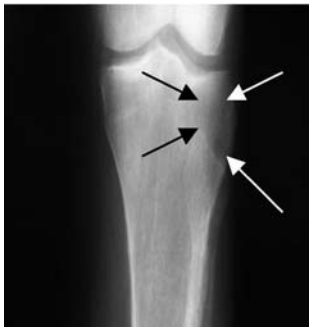

Figure 1. Skeletal x-ray shows an osteolytic lesion without clear margin highlighted by arrows, in the upper third of the left fibula.

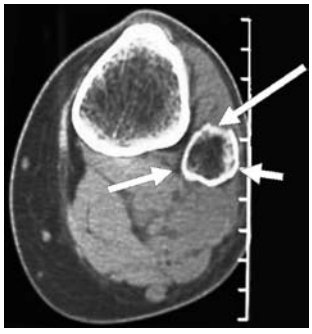

Figure 2. Axial CT scan through the left extremity demonstrating an expansible soft-tissue mass indicated by arrows in the fibula.

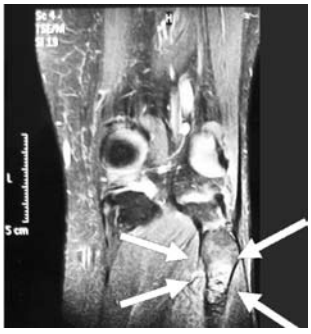

Figure 3. Coronal T_2W MR image through left lower extremity shows the high signal intensity of the tumor (4.4cm) indicated by arrows at fibula.

All these interventions could be avoided if someone from the caring physicians had evaluated correctly her routine biochemical testing which was normal except the following: Serum calcium level was elevated 11 mg/dl (nv:8,4-10,1), with normal albumin levels 3,9 g/dl (nv:3-5), while phosphorus level was borderline low 2,5 mg/dl (nv:2,7-4,5).

Questions: a) which should be the running diagnosis based on patient history, routine biochemical testing and plain radiograph, b) how you can confirm it and c) which is the optimal treatment?

Comment

a) *Running diagnosis: Brown tumor due to hyperparathyroidism, based on history of nephrolithiasis, elevated calcium and suppressed phosphorus levels and the cystic lesion in X-ray.*
b) *The confirmation of primary hyperparathyroidism is based on elevated PTH levels and the presence of calciuria, whereas secondary hyperparathyroidism occurs in renal failure. Brown tumor mimics giant cell tumors of the bone and the diagnosis can not be made from bone biopsy since histologically brown tumors may be indistinguishable from giant cell tumors of the bone. Correlation with clinical and radiographic studies is essential in making the correct diagnosis.*
c) *The optimal treatment depends on the nature of hyperparathyroidism. In the case of parathyroid adenoma successful removal eliminates excessive activation of PTH and usually leads to significant regression of small and medium-sized brown tumors, as in our case.*

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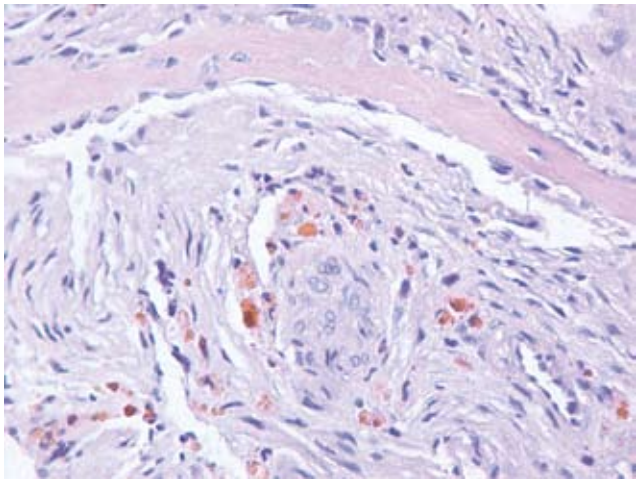

Figure 4. Photomicrograph showing histologic section of the tumor: Numerous giant cells and fibroblastic-type stromal cells and tiny hemorrhagic foci. (hematoxylin & eosin stain, original magnification x 50).

Diagnosis: *Brown tumor due to hyperparathyroidism.*