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An Isolated Lytic Bone Image with Initial Normocalcemia Revealing Hyperparathyroidism

Ines Kechaou*, Imene Boukhris, Mohamed Salah Hamdi, Eya Cherif, Lamia Ben Hassine, Narjess Khalfallah

Department B of Internal Medicine, Hospital of Charles Nicolle, University of Tunis El Manar, Tunis, Tunisia
*Corresponding author: kechaou.ines@topnet.tn

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Abstract Brown tumors are rarely the presenting feature of the hyperparathyroidism and are usually accompanied by a disturbance of the calcium-phosphate balance. We report the case of a 46-year-old patient with no medical history, presenting a solitary bone lytic lesion linked to primary hyperparathyroidism. Phosphate and calcium balance was within normal range initially thus resulting in delayed diagnosis. Bone lesion has subsequently been confirmed to be a brown tumor. In front of solitary lytic bone lesion and even if phosphate and calcium balance was normal; the dosage of parathyroid hormone must be performed.

Keywords: *brown tumor, hyperparathyroidism, normocalcemia, hypercalcemia*

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1. Introduction

Brown tumors are rare manifestations which can be observed in hyperparathyroidism. It can be observed in 2 to 3% of cases [1]. These bone lesions arise in the setting of excessive osteoclastic activity [2]. They can affect the entire skeleton with predilection for the pelvis, sternum, ribs, femurs and mandibles [2]. They are rarely the presenting feature of the hyperparathyroidism and are usually accompanied by a disturbance of the calcium-phosphate balance [3]. We herein present a new observation of brown tumor mimicking a bone metastasis but in a patient with initially normal calcium phosphate balance.

2. Case Report

A 46-year-old woman with no medical history was admitted in our internal medicine department for three months history of inguinal pain. Clinical examination was without abnormalities expect for hip pain at movement. Initial laboratory assessment was without abnormalities. No laboratory evidences of inflammation were noted. Full blood count was normal. Repeated phosphate and calcium balance tests as well as serum protein electrophoresis were within normal range. Pelvic X-ray showed well-defined lytic erosion at the right superior pubic ramus that may suggest bone metastasis (Figure 1). Computed tomography of the pelvis confirmed this lytic lesion. CT-guided bone biopsy was performed. Histological examination was suggestive of a benign tumor. Immunochemistry excluded the presence of malignant disease.

Phosphate and calcium balance control after one month showed hypercalcemia at 3.09 mmol/L, hypo phosphatemia at 0.6 mmol/L and elevated alkaline phosphatase at 368 IU/L. Para thyroid hormone serum level was high at 1029 pg/mL. Cervical ultrasound highlighted the presence of a nodule of 41x14 mm involving the lower left parathyroid gland. Thus, diagnosis of primary hyperparathyroidism with brown tumor of the pelvis as the presenting feature was retained. The remainder of the radiological assessment including radiography of the skull, hands and long bones did not show any other bone involvement. Patient had surgical excision of the parathyroid nodule with simple operative follow-up.

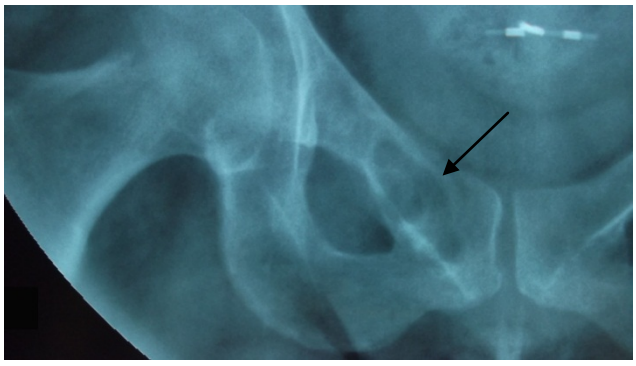

Figure 1. Pelvis X-ray showing well-defined image at the superior pelvic ramus

3. Discussion

We presented a case of a brown tumor that revealed primary hyperparathyroidism with initial normal

calcium and phosphate balance. Normocalcemic primary hyperparathyroidism is an entity that is still relatively new. It is characterized by an elevation of PTH with normal calcemia and exclusion of vitamin D deficiency or chronic renal failure [4]. In this particular clinical form, hyper-calcemia usually appears at a later stage of the disease [4]. This would explain calcium and phosphate test being initially within normal range in our patient. This condition mostly affects the menopausal woman [4,5,6,7]. Onset of hyper-calcemia during follow-up is variable, ranging from one year to a dozen years in the absence of other manifestations of hyperparathyroidism [4,5,6]. Our patient was relatively young and the relatively quick onset of hyper-calcemia was probably related to the existence of a bone lytic lesion.

As such, when confronted with an isolated lytic bone lesion, hyperparathyroidism must be considered, even with initially normal phosphate and calcium balance. Parathyroid hormone dosage remains the definite method to confirm diagnosis. In fact, diagnosis of primary hyperparathyroidism could have been made earlier in our patient with no need for bone biopsy had parathyroid hormone dosage been requested earlier.

4. Conclusion

In the presence of lytic bone lesion, physicians must consider the possibility of brown tumor even with normal phosphate and calcium balance and need to request dosage of parathyroid hormone to avoid delays in diagnostics and useless invasive procedures.

Conflict of Interest

No conflict of interest.

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