

Case Report

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Isolated Fracture of the Lesser Trochanter- An Indicator of Malignancy at Proximal Femoral Head: A Case Report



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Abstract

Isolated fracture of lesser trochanter is a rare type of fracture. It is noted occasionally by case reports and most of them are known as manifestation of malignancy at proximal femoral head. We report a case of isolated fracture of Right lesser trochanter secondary to a nasopharyngeal cancer metastasis. A 58 years old male patient came to the emergency room because of an acute (R) hip pain and low back pain after having fallen down on the buttock. 1 year ago, he had a nasopharyngeal cancer and received a full radiotherapy. Physical examination revealed a decrease of ROM of (R) hip joint and a firm and painful (R) Scarpa's triangle. Plain pelvic X-ray showed an isolated avulsion of (R) lesser trochanter. CT scan found an osteolysis at proximal femoral head. MRI showed a widely spreading metastasis at lumbar spine, pelvic ring and both of proximal femoral heads, with infiltration of soft tissue and numerous hypertrophic aortic ganglions. The biopsy of (R) proximal femoral head showed a non-differentiated carcinoma. Due to the financial condition, our patient refused further treatment and has been discharged. Isolated fracture of lesser trochanter in adults, traumatic or not, should be seen as a sign of malignancy until proven otherwise.

Keywords: Isolated fracture of lesser trochanter in adults; Pathognomonic sign

Abbreviations: MRI: Magnetic Resonance Imaging; ROM: Range of Motion; AP: Anteroposterior; ENT: Ear, Nose and Throat; (R): Right Hand Side

Introduction

Isolated lesser trochanter fracture is a rare type of fractures. Most of reported cases are found in athletic adolescent population [1-5]. The mechanism is usually indirect, due to repetitive contractions of the psoas muscle that lead to epiphyseal avulsion of the lesser trochanter. Isolated lesser trochanter avulsions in adults are even more seldom. They were presented in the English literature by case reports and most of them had malignant origine [6-12].

Case Report

A 58 years old male patient came to the emergency department of our hospital because of an acute (R) hip pain after having fallen on the buttock 2 days before. He felt an increasing hip pain overtime, which made him difficult to ambulate. On further history, he has been diagnosed with nasopharyngeal cancer and received full radiotherapy one

year ago. ENT examination revealed no sign of nasopharyngeal tumor. Orthopedic examination found a remarkable decrease of (R) hip ROM in all directions due to pain. Palpation revealed a firm and painfull (R) Scarpa's triangle. We also noticed a dull pain at the lumbar sacral junction, with a mild contracture of the paravertebral muscles.

The patient was then indicated to have a plain pelvic Xray. On the AP view pelvic Xray, we found an isolated (R) lesser trochanter fracture (Figures 1a & 1b). On the CT scan, beside the frature of the (R) lesser trochanter, we found osteolytic lesions at the (R) proximal femoral head, likely secondary to metastasis (Figure 2). MRI of the patient showed a wide spread of metastatic lesions at the pelvic ring and both of proximal femoral heads, with infiltration of soft tissue (Figure 3). The biopsy result was non-differentiated carcinoma. Due to financial reason, the patient refused further treatment and was discharged from the hospital.

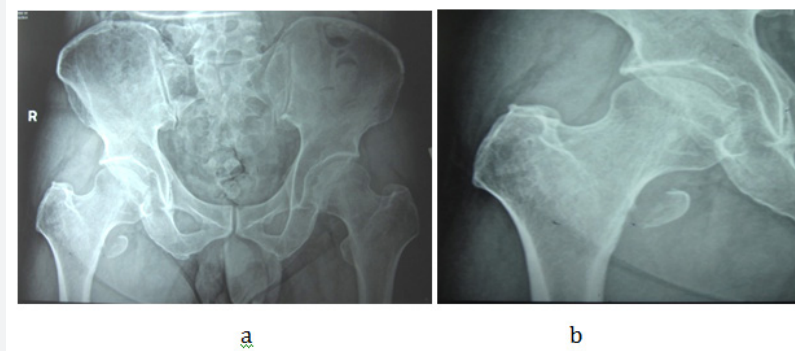


Figure 1: Xray of the pelvis.

- a. (R) Hip joint.
- b. Showed an isolated avulsion of the (R) lesser trochanter.

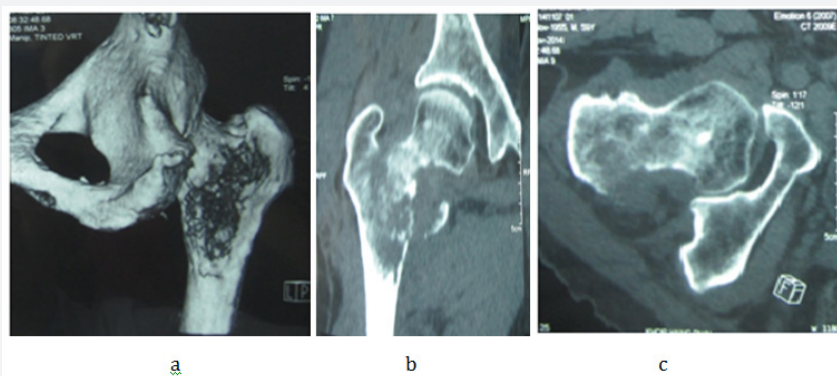


Figure 2: CT scan reconstructive in 3D.

- a. Frontal view.
- b. Axial view.
- c. Diffused osteolytic lesions of the femoral head with high possibility of malignant origine.

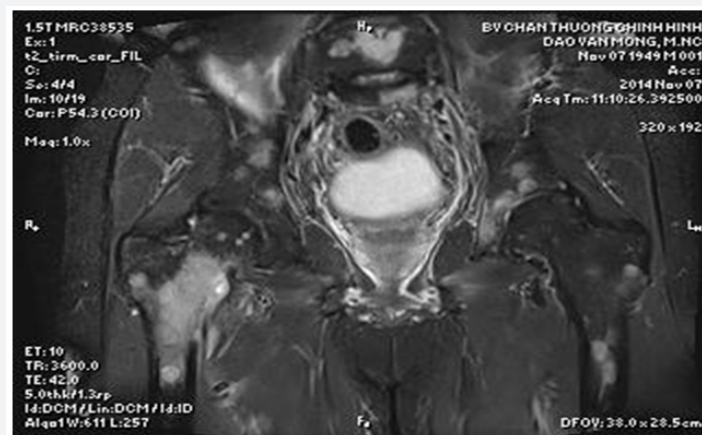


Figure 3: T2 weighted with fat suppression MRI showed diffused and infiltrated metastatic lesions at bilateral iliac bones and femoral heads.

Discussion

Isolated lesser trochanter fracture in adults is a rare type of fractures, occasionally reported in the English literature [6-12]. According to Rouvelain [12], until 2011, there were only 33 cases of this type of fractures and all of them came from malignant origine. 70% of those cases were secondary to metastasis and the 30% left were pathological fractures due to primary bone tumors.

- i. Bertin [9] reported 4 cases of metastasis (thyroid, pancreas, prostate, unidentified origine).
- ii. Phillips [7] reported 4 cases, 3 cases secondary to metastasis (colon, prostate, lung) and 1 case of non hogkin lymphoma.
- iii. Afra [8] reported 4 cases of primary tumor (2 cases of chondrosarcoma, 1 Ewing sarcoma and 1 myeloma)

- iv. James [6] studied 295 cases of metastasis at proximal femoral head and found 15 cases (5%) of isolated lesser trochanter fractures.
- v. Jake [10] reported 1 cases of leukemia.
- vi. Rouvillain [12] reported 1 case of lung cancer.
- vii. Fox [13] reported 1 case of renal cell carcinoma.

Most of the reported cases were non traumatic and accidentally discovered by taking pelvic Xray. Xrays were usually benign, without obvious signs of malignancy. This could mask the real devastatic etiology. Even the CT scan could miss the lesions, and Jake [10] recommended routine MRI for this type of fracture to detect the soft tissue invasiveness. Our patient had a fall prior to admission; however this was a mild trauma and could not lead to an avulsion of the lesser trochanter if the bone condition was normal.

The treatment for this type of fracture remains challenging as the disease is usually discovered at final stage. In case of primary tumors with clear border, en bloc excision and arthroplasty is indicated. The radiotherapy and chemotherapy can be incorporated. If it is impossible to have a radical excision (final stage of metastatic tumor with high soft tissue infiltration), the surgical treatment goal is mainly to prevent pathologic fracture of the proximal femoral head (by using gamma nail, dynamic hip screw...), with analgesic treatment and palliative care. The prognosis of the disease is generally poor.

In conclusion, isolated fracture of lesser trochanter in adults is a rare disease and usually linked to neoplastic origine. This type of fracture, once detected on X-ray, should be considered as sign of malignancy until proven otherwise.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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