

Cases of difficult-to-access benign tumors with the potential risk for bone fracture

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Abstract—During the period from 2022-2023, three patients underwent surgical treatment involving curettage and bone grafting at our clinic (2 females and 1 male) due to hip pain. In two of them, a non-ossifying fibroma of the femoral neck and acetabulum was observed, while in the third patient, a bone cyst in the femoral neck was established. Due to possible fractures in these areas, the patients underwent surgery involving curettage and bone grafting with a synthetic bone substitute. Postoperatively, the patients had no pain and full range of motion.

Keywords—benign bone tumors, curettage, graft, operative treatment.

1 Introduction

Bone lesions of benign origin include a diverse group of pathological conditions^{1,2}. The benign bone lesions may be asymptomatic or being discovered incidentally. When confirming the benign nature of the lesion, surgeons should assess the risk of fracture and determine the appropriate treatment^{1,3}. In patients with benign lesions, pathologic fractures may occur even with minimal trauma^{1,4}. Hence, preventing fractures becomes a priority in the management of these lesions^{1,5,6}. The present strategies for managing benign bone lesions encompass a combination of conservative and surgical approaches, sparking ongoing debates among surgeons regarding the optimal treatment choice^{1,5,6}.

2. Case series

Case 1

An 18-year-old female patient presented to our clinic with pain and an inability to fully support her right lower limb. The complaints gradually developed and progressed

over time. No history of previous trauma existed. Imaging studies (X-ray and CT) revealed disruption of the integrity of the medial contour of the femoral neck due to a non-ossifying fibroma, which was subsequently confirmed histologically (*Fig. 1 and 2*).

With a limited lateral approach to the proximal femur under fluoroscopic control, the bone lesion was identified. Curettage and filling of the formed cavity with a synthetic bone substitute were performed. Postoperatively, the limb was completely non-weight bearing for a period of 3 months, followed by restricted weight bearing for an additional three months. After this period, complete recovery of the bone structure and the absence of pain during physical activity were observed (*Fig.3*).



Figure 1. Preoperative roentgenography

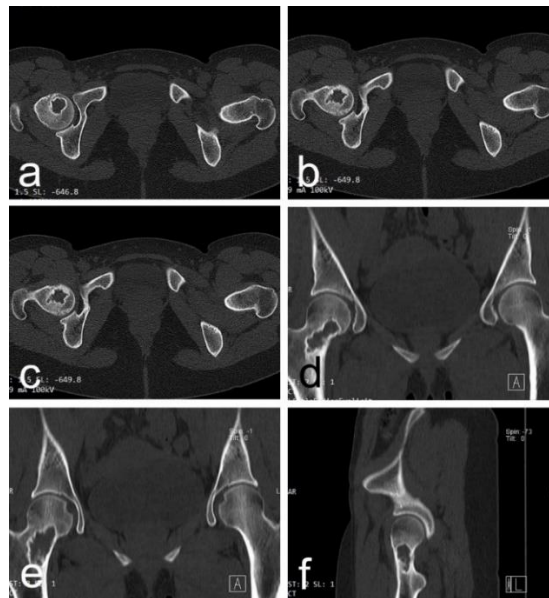


Figure 2. Preoperative CT

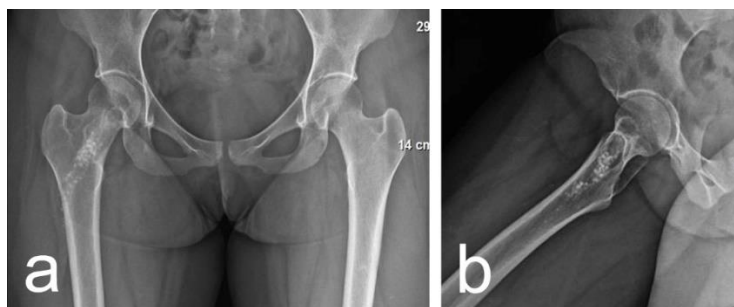


Figure 3. Postoperative roentgenography on the sixth month after operation.

Case 2

A 48-year-old female presented to our clinic with complaints of hip pain during walking, which started approximately two months ago without any preceding trauma. Imaging studies (X-ray and CT) revealed a lesion in the region of the iliac bone involving the anterior-superior border of the acetabulum (*Fig. 4 and 5*). The lesion measured 2.5/1.5 cm in diameter. Using a modified anterior-lateral approach to the left hip joint, the anterior-superior portion of the acetabulum was reached. After opening a window two centimeters above the acetabulum, the bone lesion was accessed and curetted; the resulting cavity was filled with a synthetic bone graft. Histologically, a non-ossifying fibroma was confirmed.

In the postoperative period, the limb was not weight-bearing for 3 months, followed by partial weight-bearing for an additional 2 months; subsequently, full weight-bearing was allowed with complete absence of pain during walking. Radiographically, good incorporation of the bone substitute was observed (*Fig. 6*).



Figure 4. Preoperative roentgenography

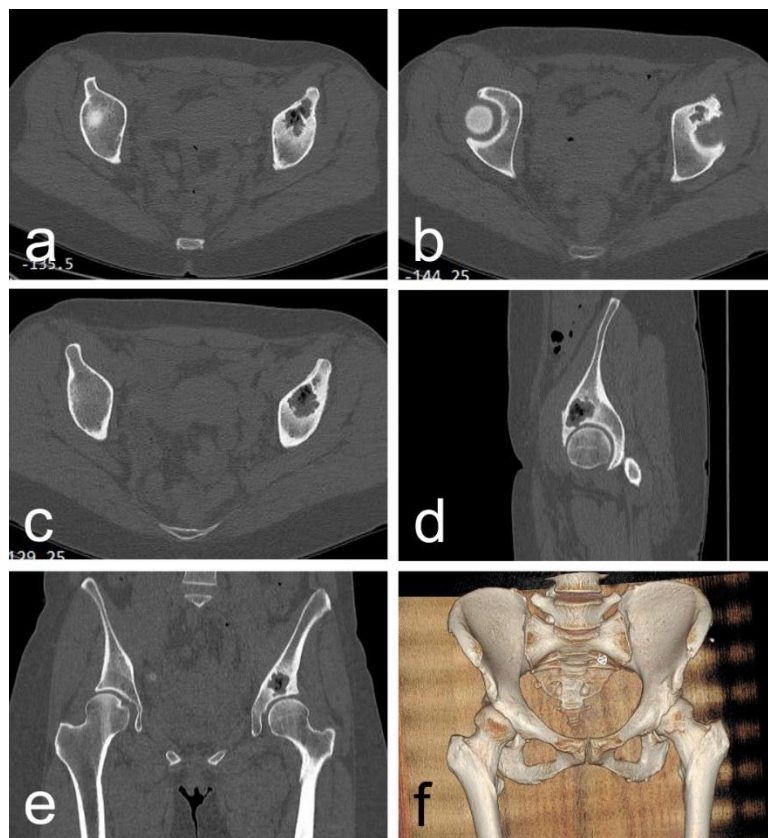


Figure 5. Preoperative CT



Figure 6. Postoperative roentgenography on the third month after operation

Case 3

A 60-year-old male presented to the clinic with pain upon loading in the area of the right hip joint for approximately three months, with no history of trauma in the region. Imaging data (X-ray and CT) revealed the presence of a cystic, rounded lesion with a diameter of approximately 2/2 cm at the base of the right femoral neck (*Fig. 7 and 8*). Using a limited anterior-lateral approach under fluoroscopic control, the bone lesion was reached. After opening a small window at the base of the femoral neck, the bone lesion was accessed and curetted; the resulting cavity was filled with a synthetic bone graft. Histologically, a simple bone cyst was established.

During the postoperative period, the limb was not weight-bearing for 3 months. Subsequently, with full weight-bearing, there was no pain in the area of the right hip joint. Radiographically, partial integration of the bone substitute was observed (*Fig. 9*).



Figure 7. Preoperative roentgenography

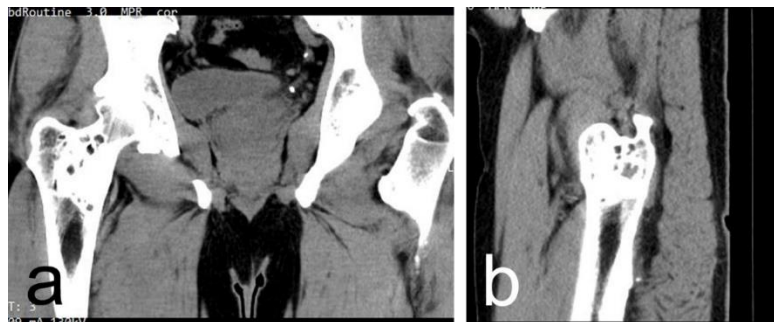


Figure 8. Preoperative CT



Figure 9. Postoperative roentgenography on the third month after operation

3. Discussion and Conclusion

Benign bone tumors, such as non-ossifying fibroma and simple bone cysts, are often discovered incidentally, usually during roentgenography after trauma or due to imaging studies for unclear pain in the affected region. Usually, after incidental discovery, most patients are only observed via periodical roentgenographies; if there are signs of progression of these lesions with potential risk of impending fracture, surgical treatment is indicated.

In the described cases, the presence of osteolysis in the cortex of the femoral neck and the upper edge of the acetabulum, along with pain and a weakened bone structure around the cyst, serves as an indicator of an impending fracture. In such cases, there is an indication for surgical treatment involving curettage of the bone lesions and restoration of the integrity and quality of the affected bone with different bone grafts.

4. References

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