

CASE IMAGE

An unusual cause of inguinal swelling: Primary synovial osteochondromatosis

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Key Clinical Message

Inguinal swelling should raise suspicion for hip joint osteochondromatosis. Early recognition, accurate diagnosis, and prompt surgical intervention are essential for optimizing patient outcomes.

KEYWORDS

benign tumor, hip joint, hip surgery, inguinal swelling, pathology, synovial osteochondromatosis

1 | CASE DESCRIPTION

A 33-year-old man with no significant past medical history, presented with a chronic 4-year right hip pain. The patient reported a gradual and progressive onset of movement restriction, with increasing difficulties in activities such as sitting cross-legged, squatting, and walking for extended periods exceeding 30 min. The pain intensity, assessed using the visual analog scale, was moderate. Initial treatment provided no relief, leading to a visit to an orthopedic specialist. Physical examination revealed a non-inflammatory fixed swelling in the right inguinal region. The patient exhibited a normal gait and mobilization of the right hip was painless. Various hypotheses were considered for the inguinal swelling, including hernia, lipoma, lymph node enlargement, abscess, cyst, bursa swelling, vein aneurysm, or soft tissue tumor. The pelvic x-ray demonstrated a radio-opaque lesion in the femoral neck (Figure 1A,B). The CT scan (Figure 2A,B) revealed an oval-shaped mass near the right hip joint with regular contours. It displaced adjacent muscles without invading them. Multiple calcifications were observed within the

right hip joint, with the largest measuring 4 mm in diameter. The MRI (Figure 2C,D) revealed multiple nodular formations of varying sizes within the right hip joint, forming a large intra-articular structure. These formations exhibited bone and cartilage signals and measured 126 mm in length and 87 × 46 mm in the axial plane. Notably, geode-like lesions were observed in the subchondral plate on both the femoral and acetabular sides, particularly in the anterointernal region on the right side. These radiologic findings strongly suggested a diagnosis of synovial osteochondromatosis. The patient underwent surgical intervention, which involved a longitudinal anterior incision and a limited anterior arthrotomy of the hip. Multiple nodules, varying in size from 1 to 4.5 cm, were successfully removed during the procedure (Figure 3). They were indurated in consistency and showed cartilaginous areas on their outer surface (Figure 3). Histological examination showed mature hyaline cartilaginous nodules without abnormalities. The nodules consisted of hyaline cartilage and osseous tissue, resembling mature bone (Figure 4A–D). The final pathological diagnosis was primary synovial osteochondromatosis of the right hip joint. The patient

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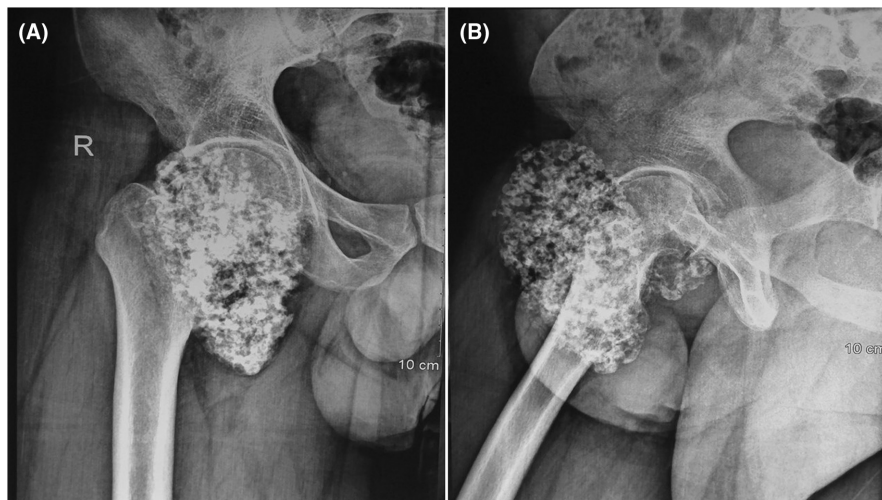


FIGURE 1 (A) Preoperative conventional radiography. The anteroposterior radiograph of the pelvis showing a partially ossified tumor anterior to the right femoral neck, appearing like a chondroid lesion. (B) Preoperative conventional radiography of the right hip depicts juxta-articular calcified and/or ossified bodies.

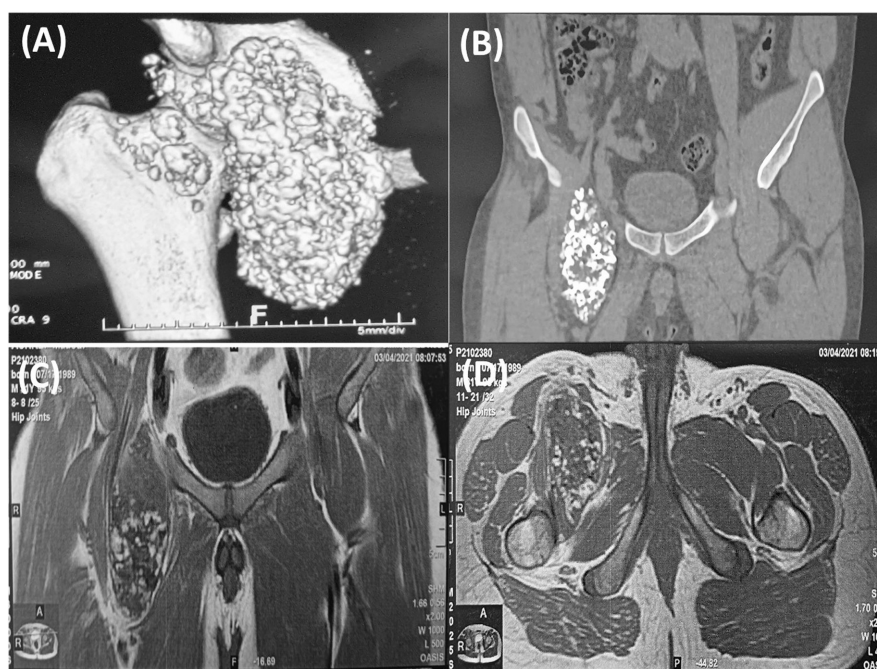


FIGURE 2 (A) Three-dimensional CT showing multiple loose bodies filling the hip joint. (B) The CT scan revealed an oval-shaped mass near the right hip joint with regular contours. It displaced adjacent muscles without invading them. Multiple calcifications were observed within the right hip joint, with the largest measuring 4 mm in diameter. (C and D) The MRI showed multiple adjacent nodular formations of varying sizes, ranging from centimeters to sub-centimeters, with bone and cartilage signals. These formations were located within the right hip joint, forming a large intra-articular structure measuring 126 mm in length and 87 × 46 mm in the axial plane.

underwent postoperative rehabilitation for pain management, hip range of motion, muscle strengthening, and safe return to normal activities.

2 | DISCUSSION

The diagnosis of synovial osteochondromatosis in the hip joint is often missed or delayed due to the absence of specific symptoms and its rarity.¹ Imaging is crucial in diagnosing synovial osteochondromatosis.

Radiographs reveal intra-articular calcifications, while CT scans provide optimal visualization of fragments and bone erosion. MRI findings often show characteristic signal intensities. Synovectomy and loose body removal are recommended treatments for synovial osteochondromatosis, aiming to reduce recurrence and improve outcomes. The recurrence rate of synovial osteochondromatosis in the same hip is estimated to be around 19% in patients. However, patients treated with arthrotomy and dislocation exhibit a lower recurrence rate (0%) compared to those treated with arthroscopy

FIGURE 3 (A) The photograph illustrates the macroscopic appearance of multiple osteochondral loose bodies. The resected osteochondromas exhibit knobby cartilaginous areas on their outer surface. (B) On cut surface, the central portion of the osteochondroma is cancellous bone with a hyaline cap. The hyaline cartilage component of the nodules is white and has a smooth or slightly lobulated surface.

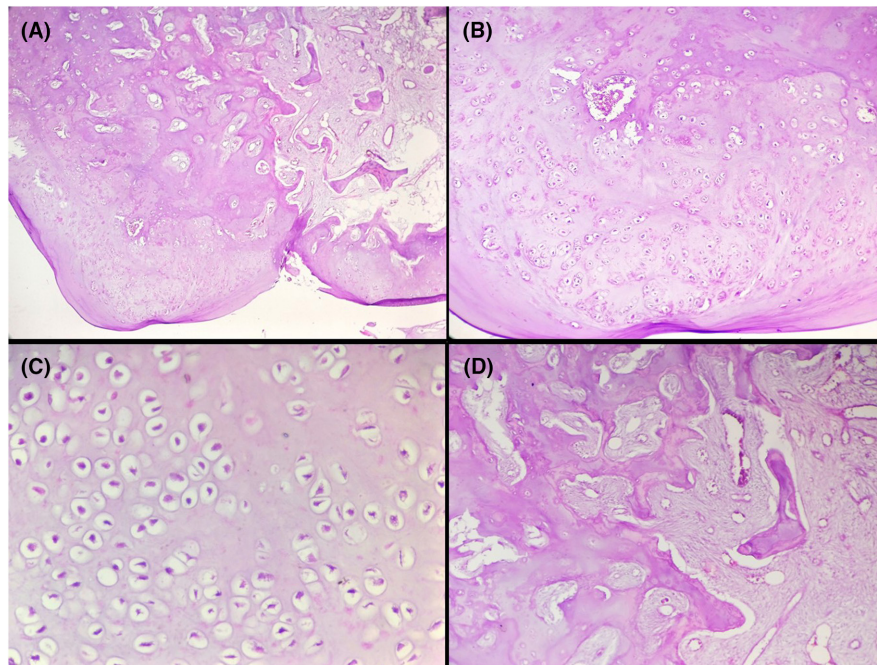
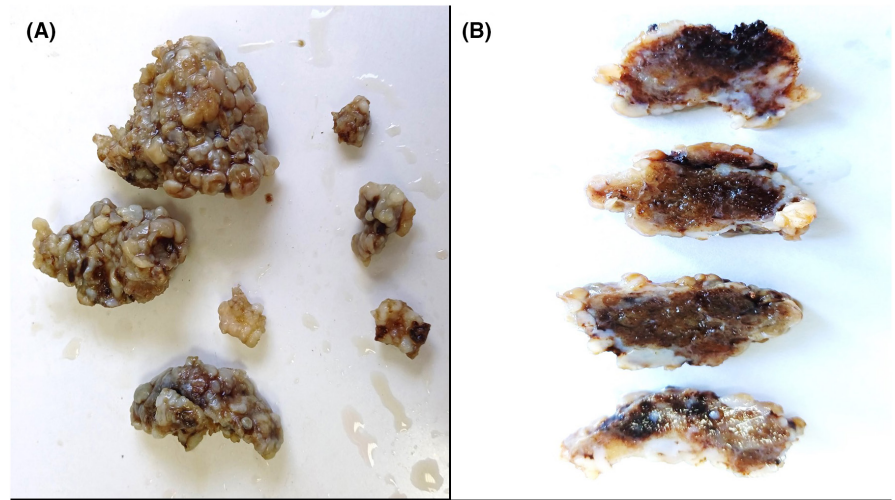


FIGURE 4 (A) Low power view of osteochondromatosis with cartilaginous nodule composed of hyaline cartilage and osseous tissue (Hematoxylin and eosin staining, magnification $\times 40$). (B) Cap composed of mature hyaline cartilage with overlying fibrous perichondrium. Note the transition between bone and cartilage cap that resembles growth plate, showing endochondral ossification into mature bone (Hematoxylin and eosin, magnification $\times 100$). (C) The hyaline cartilage component exhibits chondrocytes arranged in lacunae without cellular atypia or mitotic figures (Hematoxylin and eosin, magnification $\times 400$). (D) Endochondral ossification characterized by the presence of trabecular bone formation and osteocytes within lacunae. (Hematoxylin and eosin, magnification $\times 100$).

(23%).¹⁻³ Although rare, synovial osteochondromatosis can transform into chondrosarcoma, posing diagnostic challenges.¹⁻³

AUTHOR CONTRIBUTIONS

Dr. Faten Limaïem: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; resources; software; supervision; validation; writing – original draft; writing – review and editing.

Dr. Mohamed Amine Gharbi: Data curation; formal analysis; investigation; methodology; resources; supervision; validation; visualization. **Pr. Ramzi BOUZIDI:** Conceptualization; data curation; formal analysis; investigation; methodology; resources; supervision; validation; visualization.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

All procedures performed were in accordance with the ethical standards. The examination was made in accordance with the approved principles.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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