

# Not all knee swelling is due to an effusion

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## HISTORY OF PRESENT ILLNESS

- A 71-year-old female presented to our tertiary Sports Medicine Clinic for evaluation of insidious onset of diffuse right knee pain and swelling that began two years prior.
- Pain was described as dull/aching, rated as 5-8/10, worsened with ambulation and stairs.
- She denied pain radiation, numbness, and tingling.
- She had 2 corticosteroid injections in the past, each offering about 2 months of relief. Lidocaine patches and a compression sleeve helped minimally. She had not tried physical therapy.

## PHYSICAL EXAMINATION / WORKUP

- Physical examination was notable for limited range of motion with knee flexion (to 100 degrees), significant fullness of the suprapatellar recess with negative ballottment and fluid wave, and medial joint line tenderness. There was no ligamentous laxity and McMurray's was negative. She had an antalgic gait with slow gait speed.
- Plain films demonstrated tricompartmental knee osteoarthritis (Figure 1).
- Due to significant fullness of the suprapatellar recess without other definitive evidence of an effusion, MRI was obtained to rule out a synovial process (Figure 2). This demonstrated extensive synovitis with lipoma arborescens within the suprapatellar recess, and no evidence of pigmented villonodular synovitis (PVNS).

## TREATMENT / FOLLOW-UP

- The patient was offered a surgical consult, but declined.
- She was treated with physical therapy and an ultrasound-guided viscosupplementation injection (Figure 3), resulting in improvement.

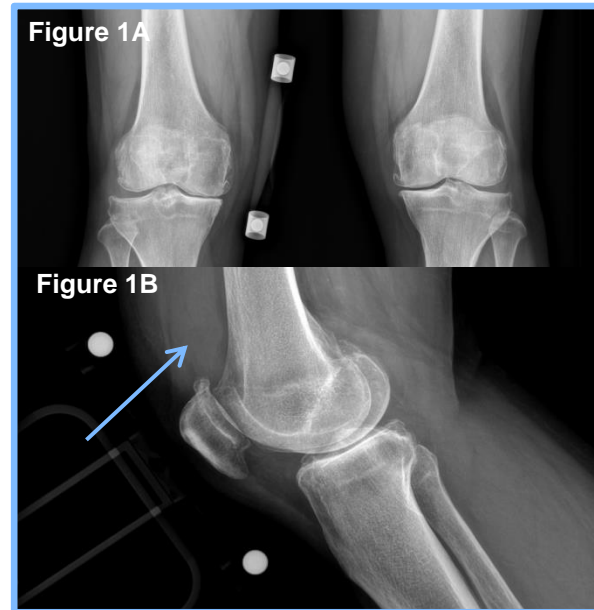


Figure 1: AP (A) and lateral (B) radiographs of the right knee demonstrating tricompartmental knee osteoarthritis and large joint effusion / synovitis (arrow).

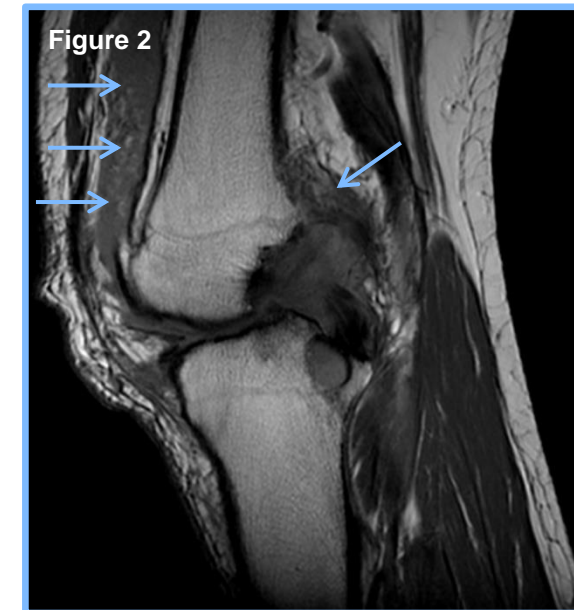


Figure 2: MRI proton density, sagittal oblique view of the right knee demonstrating extensive synovitis about the joint with lipoma arborescens primarily within the suprapatellar recess, and no evidence of PVNS.

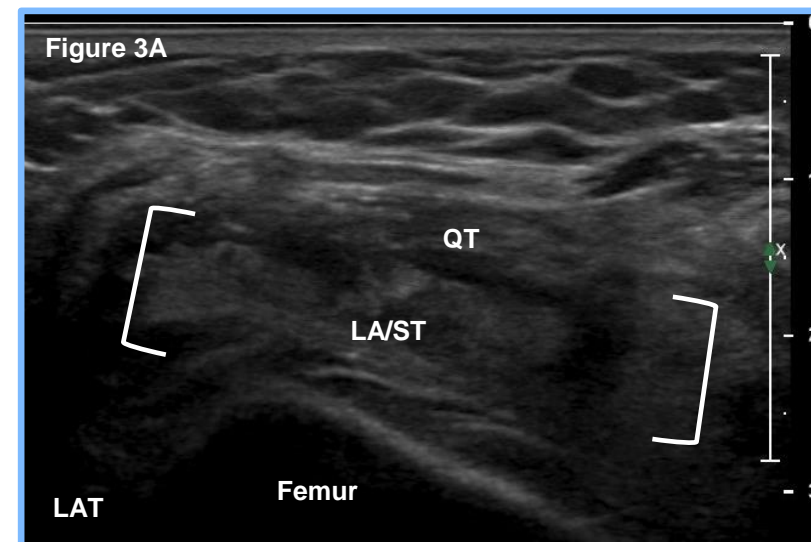


Figure 3A: Sonographic anatomic transverse view of the suprapatellar recess deep to the quadriceps tendon (QT) and superficial to the femur. Note the presence of lipoma arborescens / synovial tissue (LA/ST, in brackets).

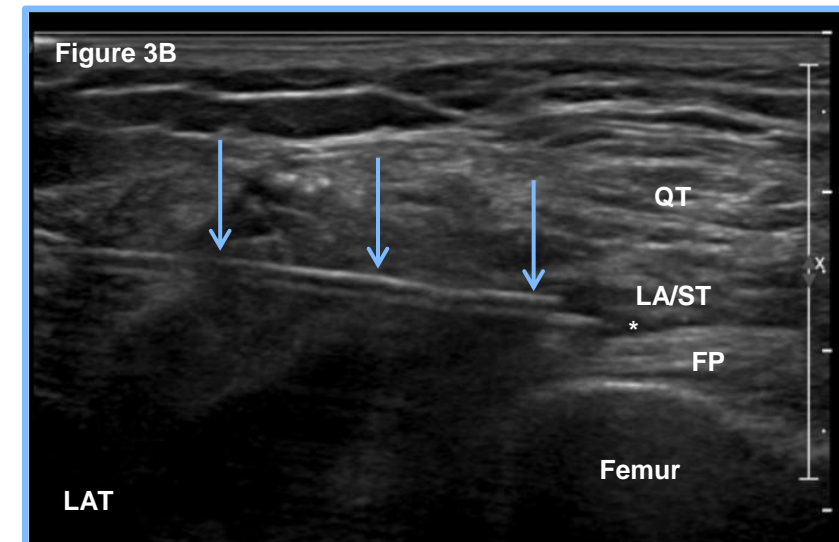


Figure 3B: Ultrasound-guided viscosupplementation injection of the right knee. The needle (arrows) tip is within the joint space (\*), which is superficial to the prefemoral fat pad (FP) and deep to the lipoma arborescens / synovial tissue (LA/ST) and quadriceps tendon (QT). LAT=lateral.

## DISCUSSION

- Lipoma arborescens is a rare, benign lesion characterized by villous proliferation of synovium with replacement of subsynovial tissue by mature fat cells<sup>1-4</sup>.
- This most commonly affects the suprapatellar pouch of the knee<sup>1,2</sup>. It may cause suprapatellar synovial hypertrophy, which should be differentiated from an effusion as treatments such as a palpation guided aspiration may not be effective<sup>1</sup>.
- When suspected, advanced imaging should be considered to rule out a concerning synovial hypertrophic process, such as PVNS<sup>3</sup>.
- Definitive treatment is surgical intervention, with arthroscopic synovectomy demonstrating a success rate over 95%<sup>2</sup>.
- These benign tumors have implications for treatment considerations, as all visible swelling is not an effusion or amenable to aspiration. Ultrasound-guided procedures provide utility with identification of synovial hypertrophy, assistance with decision to aspirate, and ability to avoid the tumor if deciding to perform an injection.
- In the setting of knee osteoarthritis, the proposed anabolic effects of regenerative medicine treatment options<sup>5</sup> may theoretically worsen the synovial hypertrophic process. Therefore, regenerative medicine treatment options, such as platelet rich plasma, should be considered with caution in patients with lipoma arborescens.

## CONCLUSIONS

- Lipoma arborescens is a rare, benign lesion that carries implications for diagnosis, workup, and treatment of knee pain.
- This case emphasizes the importance of physical examination as well as the consideration of a broad differential diagnosis.

## REFERENCES

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