

May 2011 Radiology Case Study: Synovial Chondromatosis Knee

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History of Present Illness: The patient is a 55 year-old healthy female who presents to the orthopaedic clinic with a 1-2 month history of increasing right knee pain. She was seen recently (approximately 2 months ago) for a left pubic ramus fracture and acetabular fracture sustained when she fell from her bike to avoid a pedestrian (**Figure 1A & B**). These injuries were treated non-operatively and she was sent to physical therapy to regain strength and mobility in the left hip. The hip pain slowly started to improve and she was hoping to return to work (as a personal trainer) on a part-time basis. However, she started to complain of increasing right knee pain, swelling, and stiffness approximately 4-6 weeks after the fall prompting this recent orthopaedic visit. Her pain is worse with prolonged walking, activity, and is also worse at night. She reports occasional giving way of the right knee and has noticed that the knee will have quite a bit of swelling at times. She has had numerous previous orthopaedic surgeries but none on the right knee.

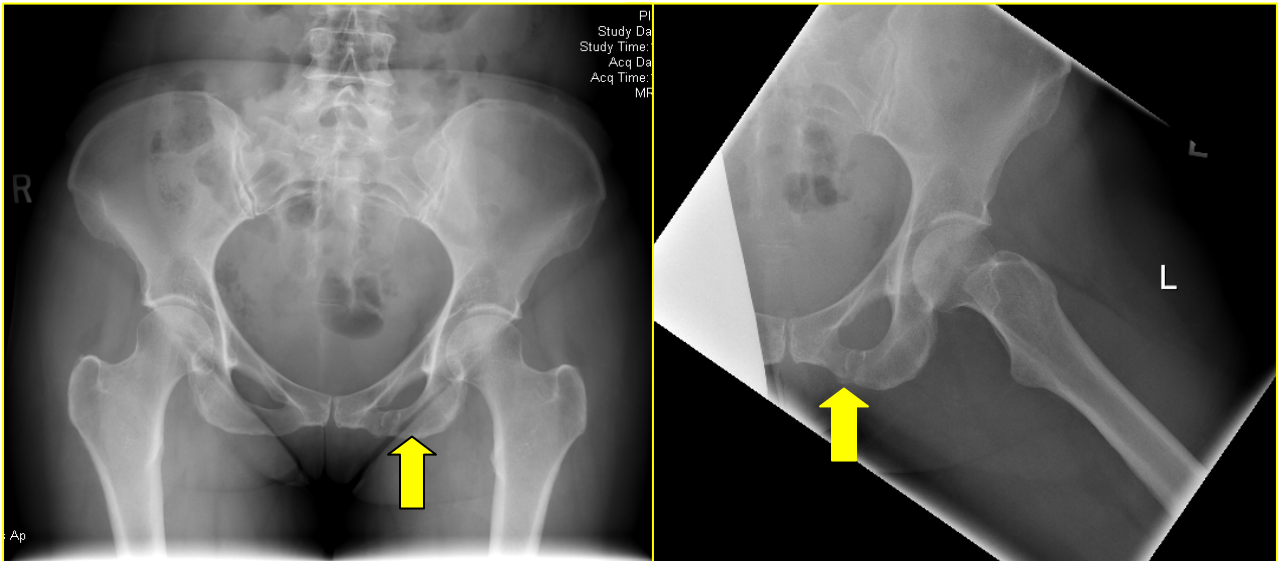


Figure 1A & B: Pelvis and Hip x-rays demonstrate inferior pubic ramus fracture

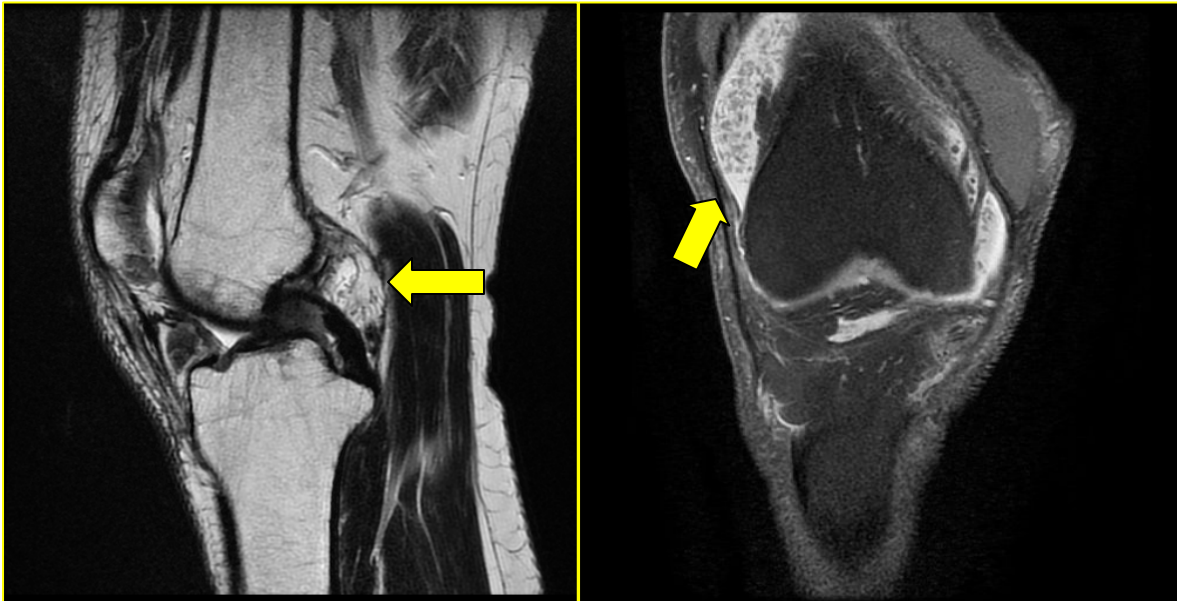
Physical Examination: VSS, NAD, Height 165cm, Weight 125lbs, Patient is alert, conversant, in NAD, Examination of her gait reveals a slightly antalgic gait on the right. She weight bears without assistance and can heel/toe walk without difficulty. There is full passive and active range of motion of both hips. She does report mild-moderate pain with palpation over the left pubic ramus and ischial tuberosity. Examination of the right knee reveals a moderate joint effusion and decreased range of motion. She extends fully but can flex to only 100 degrees and is then limited by pain. She has no ligamentous instability to anterior/posterior drawer or valgus/varus stress to the knee. She does have mild joint line tenderness both medially and laterally. She has diffuse anterior patellofemoral pain and mild patellofemoral crepitus. She is neurovascularly intact, no numbness, weakness, good strength and normal sensation in bilateral lower extremities.

Initial Radiographs of the Knee were obtained (Figure 2)



Lateral x-ray of the knee demonstrated several calcified loose bodies in the posterior joint and popliteal space

An MRI scan was ordered for further evaluation of the loose body calcifications seen on plain x-rays.



Impression/Plan: The patient is a 55 year old female who initially presented with an obvious pelvic (pubic ramus) fracture. However, further investigation of unrelated knee pain

revealed loose bodies both on plain x-ray and confirmed with MRI. The most likely diagnosis given the patient's age, history, and physical exam findings is synovial chondromatosis. Synovial chondromatosis is a rare disease affecting the synovium, the thin flexible membrane around a joint. Synovial chondromatosis creates a benign change or proliferation in the synovium, which changes to form bone-forming cartilage. In most occurrences, there is only one joint affected, most often the knee, the hip, or the elbow. Sizes range from several millimeters to several centimeters in diameter. Asymptomatic patients do not require therapy. Symptomatic patients should undergo arthroscopic or surgical removal of intra-articular bodies. Patients who have recurrent intra-articular bodies or in whom the entire synovial lining is metaplastic may require total synovectomy. Given her current symptoms and job requirements as a personal trainer, the patient was inclined to proceed with arthroscopic removal of the synovial chondromatosis. She tolerated the procedure well and initiated physical therapy at two weeks post-op. Recurrence of the synovial chondromatosis is unfortunately quite common, with some reports of an overall 30-35% recurrence rate.