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Case Report

Synovial chondromatosis in woman with symptoms mimicking early stages osteoarthritis

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ABSTRACT

Synovial chondromatosis is a case that rarely found epidemiologically. It is a process which is benign in the synovial lining of joints, synovial sheaths, and bursae. It is the metaplastic process of synovium, which converts it into the cartilage and gets detached to become a loose body. Methods of this study are describing a case report of patient of Airlangga University Hospital that has synovial chondromatosis. A 38 years old woman, with a one-year history of pain, edema, and restriction of the left knee joint. Patient symptoms were insidious in onset, which gradually progressed. Decreased range of motion of her knee. The symptoms were mimicking of osteoarthritis. Considering the extensive involvement with multiple nodule masses inside the knee joint, we planned surgical management and open procedure. Total synovectomy was done, synovium and the masses were sent for histopathological examination which confirmed the diagnosis of synovial chondromatosis. In our case, the patient has clinical symptoms mimicking osteoarthritis of genu. Some study reported similar cases. Although synovium osteochondromatosis is a rare case and it should be kept as a differential diagnosis with chronic knee pain with swelling. Synovial chondromatosis is a rare case in the orthopedic patient. Diagnosis of synovial chondromatosis is often made following a thorough history, physical examination, and radiographic examination and histopathologic. In our case report, we present synovial chondromatosis in woman mimicking osteoarthritis. Patient treated by surgical removal of the loose bodies



INTRODUCTION

Synovial chondromatosis is a benign process involving the synovial lining of joints, synovial sheaths, and bursae. Its synovium becomes metaplasia, which changes over it into the cartilage and gets segregated to ended up as a loose body (Ho and Choueka, 2013).

It is found more often in men than women, about two to four times more frequent, happening at any age group, most frequently between the third and fifth decades of life (Wolfgang, 2011). All joint can be affected by synovial chondromatosis, but the knee is the most frequent site to be affected about 50-65% from the total cases, followed by elbow, hips, and shoulder in decreasing order of frequency (Terazaki, 2014). The disease is commonly mono-articular. Pain is usually the main complaint from the patient, followed by swelling, effusion, crepitus, and restriction of movements that were found in physical examination (Mackenzie & Gulati, 2010).

The purpose of this case report is reporting synovial pathology, which followed by early stages OA required total synovectomy and debridement and physiotherapy.

CASE REPORT

A 38 years old woman with a year history of pain, edema, and restriction of the left knee joint. Patient symptoms were insidious in onset, which gradually progressed. There was a history of trauma eight years ago at her left knee, then she felt pain in that time, but the pain is gone not long after the injury. A year ago, the symptom appeared, the pain came when the patient did some activity, especially when she works as a chef at her restaurant which needs a long time standing. The pain subsided when the knee is flexed, and she took a rest. Edema knee sometimes appeared at her knee. It also subsided by taking some rest. In the past few months, the patient said that it

was hard for her to extend her knee. The patient also complained about having a fever for a couple of days since a year ago.

Body mass index of this patient is overweight (BMI=27,3). On Inspection, her left knee was edema, and quadriceps muscle of her left leg was wasted. On palpation, effusion was present and felt warm. There was also crepitus at the anterior of the knee. Multiple mass palpated at the anterior of the knee measured each 0.5 x 0.5 cm. Diffuse tenderness was found all around her knee. Range of motion of her left knee was still normal, but she felt severe pain when we extend the knee. Instability tests were negative, and there was no abnormality upon examination of distal neurovascular status.

Multiple calcifications in suprapatellar, infrapatellar recess and fossa popliteal were found in plain X-ray of the left knee joint. Osteophytes also found in lateral et medial condyles, margo posterosuperior, and inferior patella. CT scan shows multiple intra-articular calcified loose bodies.

Considering the extensive involvement with multiple nodule masses inside the knee joint, we planned surgical management and open procedure. A medial parapatellar incision was done, and the knee joint was exposed. Multiple nodule masses were found inside the joint capsule around 0,5 x 0,5 cm. The masses had an irregular border and cartilaginous consistency. Total synovectomy was done, synovium and the masses were sent for histopathological examination which confirmed the diagnosis of synovial chondromatosis. Postoperatively patient was instructed about knee mobilization and strengthening exercises and followed up at one, three, and six months.



Figure 1. X-ray of left genu

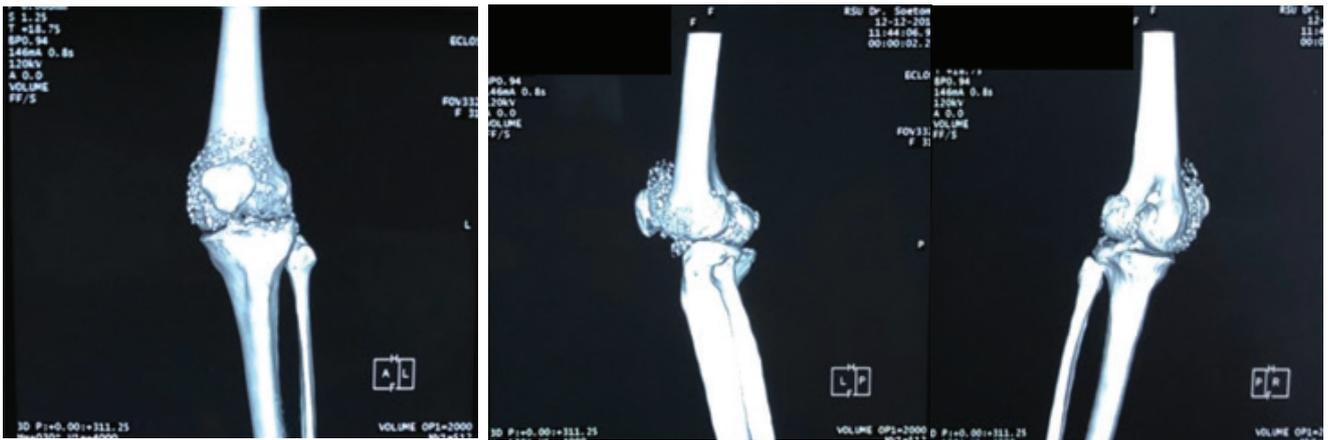


Figure 2. CT-scan of left genu



Figure 3. Synovial chondromatosis durante op



DISCUSSION

Synovial chondromatosis is a metaplasia process involving the synovial lining of joints, synovial sheaths, and bursae which can occur with trauma or without trauma. It can be divided into two forms, primary and secondary forms; the primary form is uncommon, has unknown causes, and generally monoarticular (Wolfgang, 2011). Synovial chondromatosis can affect all joints, but the knee is the most frequent site to be affected (Terazaki, 2014). The secondary form is a more common condition caused by mechanical injury of the intraarticular hyaline cartilage triggered by joint anomalies such as osteoarthritis, osteonecrosis, osteochondritis dissecans, neuropathic osteoarthropathy, trauma, and rheumatoid arthritis. When found in elderly patients, it generally involves multiple joints and may be related to degenerative joint disease, more frequently in the knees, hips, and shoulders (Shaaibu et al., 2018).

Synovial chondromatosis presents with decreased range of motion, palpable swelling, effusion, crepitus, and locking of joints. The disease can be intra-articular and extra-articular; the form which involves bursae, tendinous sheath, and surrounding soft tissues are rare (Sarangi and Kumar, 2017).

The main cause of this disease is unknown, but the pathophysiology is cells in the synovial membrane become metaplasia, they become look like chondroblast and produce a deposit of cartilage tissue within the membrane. Cartilaginous deposit become vascularized and then become ossified. While osteochondral grows, it becomes pedunculated, and loose from the synovial membrane to be free bodies in the synovial cavity and becomes osteochondral loose bodies. The ossified nucleus has been died because of losing its blood supply but remains

in its coffin of cartilage. The cartilaginous being nourished by synovial fluid, then it survives and grows (Salter, 1999).

History taking, physical examination, and radiographic examination are very important to make the diagnosis of this disease. Many conditions can mimic synovial chondromatosis like Pigmented villonodular synovitis, synovial hemangioma, and lipoma arborescent (Shearer, 2007). It can be differentiated between them with radiological and pathological examination. Characteristically, radiographs show evenly distributed innumerable intra-articular calcifications of similar shape and texture throughout the joint space. Typical “dot-and-comma/ring-and-arc,” “popcorn-like” pattern of mineralization is common signifying chondroid origin. On ultrasonography, synovial chondromatosis shows heterogeneous mass containing foci of hyperechogenicity with or without posterior acoustic shadowing depending on the mineralization or endochondral bone formation. CT scan is the optimal imaging modality for detection and characterization of calcification and extrinsic erosion of bone. Histological examination of the synovial tissue is the definitive diagnosis (Sarangi, 2017).

The extent of the disease and the presence of osteoarthritis also presented a challenging management problem. The combination of synovial chondromatosis and degenerative arthritis is a common finding in the advanced stage of the disease. Primary synovial chondromatosis over time can lead to cartilage degeneration by mechanical wear via the loose bodies and through nutrient deprivation to the articular cartilage. However, degenerative arthritis can lead to secondary synovial chondromatosis (Ackerman, 2007).

Surgical management is the main treatment for synovial chondromatosis. Open and arthroscopic procedures can be used to treat this condition. Synovectomy gives better results as



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compared to loose body removal alone. Total knee arthroplasty is also an option if synovial chondromatosis is coexistent with osteoarthritis. Complications of synovial chondromatosis can be secondary osteoarthritis, malignant transformation, and recurrence (Kukreja, 2013).

In our case, the patient has symptoms mimicking osteoarthritis of genu. Pain increases while she is inactivity when flexed and extend the knee. There is also edema sometimes. Her BMI is overweight, and from radiograph also found narrowing joint space. There is also a case reported with similar symptoms by Shaaibu A et al. in 2018. The pain also aggravated with weight-bearing activity, long-distance walking. But from radiograph, they found not only joint space narrowing but also multiple ossified loose bodies. In their case, the patient also treated by surgery. Grace M. et al., 2018 also reported a similar case. At this point, the clinical message that we can get is before we diagnose a patient, osteoarthritis in our case, we have to think about any other cause and also the epidemiology. Although synovium osteochondromatosis is a rare case, it should be kept as a differential diagnosis with chronic knee pain with swelling.

CONCLUSION

Synovial chondromatosis is a rare case in the orthopedic patient. Diagnosis of synovial chondromatosis is often made following a thorough history, physical examination, and radiographic examination and histopathologic. In our case report, we present synovial chondromatosis in woman mimicking osteoarthritis. Patient treated by surgical removal of the loose bodies followed by total synovectomy.

REFERENCES

- Ackerman D, Lett P, Galat DD, Parvizi J, Stuart MJ. (2008). Results of total hip and total knee arthroplasties in patients with synovial chondromatosis. *Journal Arthroplasty.*, 23 (3): 395-400. 10.1016/j.arth.2007.06.014.
- Grace M et al., (2018). Synovial Chondromatosis: An Unusual Case of Knee Pain and Swelling. *Fed Pract*, 35(4):45-48. Available at: <https://www.mdedge.com/fedprac/article/162388/pain/synovial-chondromatosis-unusual-case-knee-pain-and-swelling/page/0/1>
- Ho YY, Choueka J. (2013) Synovial chondromatosis of the upper extremity. *The Journal of hand surgery.* 30;38(4):804-10.
- Kukreja, S., (2013). A Case Report of Synovial Chondromatosis of the Knee Joint arising from the Marginal Synovium. *Journal of orthopedic case reports*, 3(1), pp. 7–10. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/27298888> <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC4719233>.
- Paraschau S, Anastasopoulos H, Flegas P, Karanikolas A. (2008). Synovial chondromatosis: A case report of 9 patients. *E E X O T*; 59 (3): 165-9.
- Salter, R. B., (1999). Neoplasms of Muscular Tissues, in Johnson, E. P. (ed.) *Textbook of Disorder and Injuries of The Musculoskeletal System*. 3rd edn. Baltimore: Lippincott Williams and wilkins.
- Sarangi, P. K., and Kumar, T. seetam. (2017). Primary Synovial Chondromatosis of Knee with both Intra-articular and Extra-articular Involvement: A Case Report with Delayed Diagnosis.



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Oncology Journal of India. 1(2), pp. 46–48.

DOI: 10.4103/oji.oji_17_17.

Shaaibu, AS *et al.*, (2018). Post Traumatic Synovial Chondromatosis Masquerading as Chronic Osteoarthritis of The Knee. Case Report. *Indian Journal of Applied Research*. 8(11), pp. 37–38.

Shearer H, Stern P, Brubacher A, et al. (2007). A case report of bilateral synovial chondromatosis of the ankle. *Chiropractic & Manual Therapies*. 24;15(1):18.5

Terazaki CR, Trippia CR, Trippia CH, et al. (2014). Synovial chondromatosis of the shoulder: imaging findings. *Radiol Bras Sao Paulo*; 47(1): 38-42

Wolfgang D (ed). (2011). Bone and Soft Tissue Disorders. *In Radiology Review Manual 7th Edition*. Lippincott Williams & Wilkins; 170.