Open Journal of Orthopedics, 2015, 5, 235-239
Published Online August 2015 in SciRes. http://www.scirp.org/journal/ojo
http://dx.doi.org/10.4236/ojo.2015.58031

Giant Loose Body of Knee Joint Presenting as Accessory Patella

—A Case Report

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Received 10 July 2015; accepted 2 August 2015; published 5 August 2015

Abstract

Loose bodies are freely floating fragments of cartilage or bone inside the knee joint space. This is commonly seen in association with degenerative joint disease (DJD), direct or indirect trauma, synovial chondromatosis, osteochondritis dissecans (OCD) and size of the loose body may vary from few millimeters to few centimeters. Patients with loose bodies in knee joint presented to orthopaedists with knee pain, swelling and restricted movement, with intermittent locking or catching of the joint. This is managed surgically most of the times when it becomes symptomatic. The surgical technique most commonly utilized is arthroscopy. Open arthrotomy should be done when the loose bodies are very large/numerous/located in posterior joint space. In review of literature, we found very few cases of giant loose body in knee joint due to DJD reported in last 70 years. We are hereby reporting our case of 60-year-old male with a giant loose body of same size as of patella in the supra-patellar pouch of left knee joint and managed by arthrotomy to remove the giant loose body. Post-operatively patient recovered significantly over the period of 6-week follow-up. In conclusion, giant loose body should be removed through arthrotomy and all such cases should be thoroughly evaluated to diagnose the cause of giant loose body.

Keywords

Giant, Loose Body, DJD, Knee, Arthrotomy

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How to cite this paper: Pandey, P.K., Pawar, I., Gupta, J. and Verma, R.R. (2015) Giant Loose Body of Knee Joint Presenting as Accessory Patella. *Open Journal of Orthopedics*, **5**, 235-239. http://dx.doi.org/10.4236/ojo.2015.58031

1. Introduction

Loose bodies in the knee joint are small fragments of cartilage or bone that moves freely inside the knee in joint fluid, or synovium. Loose body is formed after injury to cartilage or osteophytes during trauma or sports. Loose body is usually encountered in day-to-day cases of DJD knee. This may also be seen in inflammatory conditions of knee (fibrinous loose body), synovial chondromatosis, OCD, or charcoat's disease [1]. Loose bodies in the knee joint can be small (<3 mm), medium (4 - 10 mm), or large (>11 mm) [2]. They can cause severe pain and hinder the joint movement by getting caught in flexion and extension movements. These loose fragments can lead to severe damage to the articular cartilage, causing advanced osteoarthritis. Loose body is typically diagnosed with the help of radiographs. There are limited options of non-surgical management of a loose body in the knee joint as it mainly leads to mechanical symptoms which are relieved only after removal [1]. The surgical technique commonly used to remove symptomatic loose bodies in the knee joint is utilizing arthroscopy procedure and is reported several times in the literature [3]-[6]. It is minimally invasive and allows surgeon to thoroughly examine the knee for any damage to cartilage and treat the condition accordingly. Open arthrotomy is utilized less commonly nowadays due to the availability of arthroscopy but it can be done when the loose bodies are very large/numerous/located in posterior joint space as done in our case. We have encountered a 60 yrs/male patient who presented with severe pain and restricted joint movement in bilateral knee joints with left side involved more than the right. On examination we found a bony swelling of same size as of patella in supra-patellar region of left knee joint which was freely mobile. Radiographs of left knee joint showed a giant loose body in supra-patellar pouch. In review of literature we found very few cases of giant loose body of knee due to DJD reported in literature in last 70 years [7] [8] which prompts us to report this case.

2. Case Report

A 60-year-old male patient presented to orthopaedics OPD with complaints of severe pain and restricted movement in bilateral knee joints. On examination left knee found to be more involved than the right knee in terms of pain, swelling and range of motion restriction. On palpation, we found a bony swelling in supra-patellar region of same size as of patella in left knee joint which was smooth, hard, non-tender and freely mobile in supra-patellar pouch. Patient advised to undergo radiographs of bilateral knee joints with two orthogonal views. X-ray of left knee joint showed a giant loose body of same size as of patella presenting as double patella in single knee (**Figure 1** and **Figure 2**). Routine blood and urine investigations were within normal limits. We have advised the patient to undergo MRI evaluation which reports as large patella shaped lesion (5 cm × 4 cm) in supra-patellar pouch whose internal matrix is hetero-genous with hyper-intense signal on T2 weighted and hypo-intense signal on T1 weighted sequences, margins were well defined and there's no intra-osseous or intramuscular extension with two more small loose bodies in the same joint. Radiologist reported this as giant intrasynovial

Figure 1. X-ray bilateral knees AP view showing giant loose body in left knee joint.

Figure 2. X-ray left knee lateral view showing giant loose body.

loose body in supra-patellar pouch of the knee and excluded all other causes such as synovial chondromatosis, OCD, or charcoat's disease. Patient was planned for removal of giant loose body through open arthrotomy as the size of loose body was very large. Gross examination of the loose body after removal showed a circular fragment which measured 5 cm × 4 cm × 3 cm with a centre of healthy vascular cancellous bone with surrounding cartilage. Patient kept in knee immobilizer for a week and then started with physiotherapy regimen for degenerative osteoarthritis knee. Pain and range of motion of left knee joint improved post-operatively. Patient advised to undergo quadriceps strengthening exercises and physiotherapy of bilateral knees. Two months post-operatively patient improved significantly in terms of pain, restricted movements and locking of left knee joint.

3. Discussion

Loose bodies are fragments of cartilage or bone that freely floats inside the knee joint space. They can be the result of an injury or from generalized wear and tear over time as seen in DJD. Depending on the severity of the condition, there can be one or many loose bodies inside the joint. Loose bodies in knee joint are very common and affect men and women equally. They can be stable or unstable. Stable loose bodies are in a fixed position and are generally well tolerated by the individual. Unstable loose bodies are free to move about the joint and cause symptoms as seen in our case. These are most commonly seen in patients with DJD which is the diagnosis in our case too.

Loose bodies are classified into three types: fibrinous, cartilaginous, and osteo-cartilaginous. Fibrinous loose bodies result from bleeding within the joint or from the death of the tissue lining of joints (synovial membrane) associated with tuberculosis, DJD, and rheumatoid arthritis. Cartilaginous loose bodies are fragments of cartilage and are caused by injury to the joint and DJD. Osteo-cartilaginous loose bodies are fragments of cartilage and bone caused by fractures, OCD, DJD and synovial chondromatosis [9]. Cartilage is nourished by the fluid within the joint (synovial fluid) so loose bodies often increase in size and become smoother over time. Individuals with DJD are more likely to develop loose bodies in the knee. In our case, loose body is found to be of osteo-cartilaginous type due to DJD left knee joint.

The most common symptoms of loose bodies include knee pain, swelling and restricted movement, with intermittent locking or catching of the joint. The locking disappears spontaneously, only to recur. Individuals may report hearing a grating sound (crepitus) with joint movement. Any history of osteoarthritis or injury should be taken into consideration while making a diagnosis.

To encourage the best possible management, whenever possible the underlying cause of loose bodies should be identified. For small loose bodies, treatment may be directed at relief of symptoms. If pain and swelling are present, analgesics may be prescribed. Individuals with loose body in the knee joint are predisposed to develop advanced osteoarthritis in the affected joint. In general, any loose body that is causing symptoms should be

removed. Most individuals who undergo any surgical procedure such as arthroscopy, arthrotomy, synovectomy, or loose body pulverization to treat loose bodies recover with good early results. Large loose bodies and those located in the back of the knee needs to be removed by arthrotomy. In some cases, such as synovial chondromatosis, partial synovectomy should be done [8]. We have done arthrotomy for our case as the loose body was giant in size and patient recovered uneventfully.

The rehabilitation program depends upon whether or not the individual has had surgery or has plans for surgery. The first goal is to start gait training with an assistive device as needed for independent ambulation. Prolonged immobilization should be avoided for non-surgical cases [10]. In postoperative period, patient should undergo a heat treatment before exercise (to relax the tissues around the knee) and a cold treatment after exercise (to control the pain and swelling). The next goal is to restore motion and strength to the affected knee. Postoperatively, full range of motion should be expected. Therapy should progress to strengthening exercises as tolerated. It may also be necessary to strengthen the muscles supporting the adjacent joints at the hip and ankle. Therapy should include flexibility exercises throughout the period of strengthening. Generally, both open and closed kinetic chain exercises are emphasized [11]. When full, pain-free motion is regained and the individual has sufficient strength for all activities of daily living, therapy may progress to balance and proprioceptive exercises. Individuals should be instructed a home exercise program to complement the supervised exercise regimen. We have followed the same postoperative therapy regimen as mentioned above and our patient improved significantly over the period of 6 weeks follow-up.

In review of literature, we found very few cases of giant loose body in the knee joint due to DJD [7] [8]. But we didn't find a single case reported in literature with giant loose body in supra-patellar pouch of same size as of patella presenting as double patella in knee joint due to DJD which prompts us to report this case.

4. Conclusion

In conclusion, such a giant loose body in knee joint should be removed through arthrotomy and should always undergo detailed workup to find out the diagnosis for correct management of the patient.

Consent

The patient gave the informed consent to the publication of the case study.

Conflict of Interests

There is no conflict of interest for this case report.

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