

## Deep Infra Patellar Cyst in Osteoarthritis of Knee Joint

Dr.P.Anil Babu<sup>1</sup>, Dr.G.Vara Prasad<sup>2</sup>

<sup>1</sup>(Assistant Prof. of Orthopaedics, Guntur Medical College / GGH, Guntur, AP, India)

<sup>2</sup>(Associate Prof. of Orthopaedics, Guntur Medical College / GGH, Guntur, AP, India)

---

**Abstract:** The bursa is a fluid filled sac which spans the area of friction between tendon and skin, and between tendon and bone. The bursae are usually not seen, not felt on clinical examination unless there is more amount of fluid collection, inflammatory collection which make them visible and palpable with local signs of inflammation. Some bursae communicate with a joint and contain the fluid collected in the joint space for various responses coming in from the joint. We report a case of a cystic swelling over the antero inferior aspect of the knee joint which developed with an insidious course in a patient having an acquired varus deformity of the knee joint. The cystic swelling was communicating with the knee joint, in which the patient has painful limitation of movements, joint line tenderness and varus deformity. Deep and superficial infra patellar bursae are prone for showing a variety inflammatory and traumatic responses in a variety of conditions. In this case the cystic swelling has occurred due to degenerative changes in the joint with which it is communicating.

**Keywords:** Deep infra patellar cyst, knee joint, osteoarthritis, varus deformity

---

### I. Introduction

The friction occurring between two soft tissue planes is prevented by bursae which are present at various sites. They are present between the skin and tendons, tendons and bones to prevent friction. The bursae are filled with synovial fluid and some of them communicate with adjacent joint. The most common swelling of the bursae are due to trauma. They also respond with more amount of synovial fluid production and hypertrophy of the sac in rheumatoid arthritis, gout, osteoarthritis. The clinical presentation of swelling of the bursa depends on the underlying cause. The swellings may present with local inflammatory changes, translucency, reducible swellings with the contents getting emptied into the joint cavity. But there are other soft tissues which present like bursae with in the vicinity of the joint and should be dealt with a different set of investigations and treatment plan. Arterio venous malformations, neural sheath tumours, ruptured cyst present with a different set of clinical features. Infected bursae present with acute features of pain, swelling, temperature. We present a case of cystic swelling in the antero inferior aspect of the knee joint.

### II. Case Report

A male patient of 65 years of age presented to the OPD with a chief complaint of a swelling in the antero inferior aspect of the left knee joint. There is a single swelling. It started as a small swelling and grown to the size of 15 x 8 cm insidiously. His other complaints were painful limitation of movements at the left knee for the last five years. Patient used to a manual laborer working in agricultural fields with no tasks to kneel down and work. The symptoms were also associated with a gradually increasing varus deformity at the left knee joint "Fig.1". His vital were within normal limits.

On examination the swelling is uniform, extending from the knee joint line to proximal third of the leg on the antero inferior aspect. There were no visible pulsations and scars or sinuses or marks of friction over the skin. There is no local rise of temperature. Swelling is not attached to the skin. Muscle plane could not be checked for involvement because of subcutaneous nature. Trans illumination was positive. The knee joint showed tenderness over joint line and painful limitation of movements restricting the movements to flexion of 70 degrees. There is a varus deformity measuring 20 degrees, with lax medial aspect of the joint. The swelling could be emptied with movements and valgus stress to the joint which are painful to the patient. The swelling has become tense in the recent past for which the patient came for treatment. There were no distal neurovascular deficits and other joints are normal.

### III. Evaluation

The patient has been taken for evaluation with routine blood investigations, radiographs and ultra sound examination of the swelling. The blood investigations ruled out the possibilities of infective, inflammatory and metabolic causes of the swelling. The radiographs of the knee joint "Fig.2" showed changes of osteoarthritis with grossly decreased medial joint space, multiple osteophytes, loose bodies and varus deformity. The ultra sound scan revealed a swelling of uniform thickness, because of fluid collection and extension under the patella under infra patellar fat pad. The patient is counseled about the gross degenerative

changes and pain free improvement of movements with joint replacement. The present complaint of tense cystic swelling has been the prime concern to the patient and opted for treatment for the swelling. Patient was prepared for the surgery to excise the swelling to give relief from the tense swelling causing painful limitation of movements.

#### **IV. Treatment**

The swelling has been taken up for excision with a parapatellar incision. The swelling has been carefully isolated from the surrounding soft tissues on the antero inferior aspect "Fig.3". On further dissection posteriorly it is observed that the swelling is communicating with the knee joint under the patella and below the patellar fat pad which presented the usual communication of deep infra patellar bursa. . The cyst has been excised with a sufficient stalk to close the communication with the joint cavity "Fig.4". Perfect haemostasis is achieved and wound is closed in layers and dressed with compression bandage. The specimen is sent for histopathology examination which ruled out any inflammatory changes and infections. The patient is allowed to weight bear on suture removal on tenth post operative day with improvement.

#### **V. Figures**



**Fig.1** : Clinical photograph with swelling and deformity



**Fig.2** : Radiographs of the Knee joint.



**Fig.3** : Swelling in the antero inferior aspect of Knee joint.



**Fig.4** : Communication with the Knee joint.

## VI. Discussion

An ultra sound examination included in the evaluation of the swelling around a joint helps in arriving at a possibility when a variety of conditions mimic a cystic swelling which may pose a risk in performing surgery[1]. The possible conditions like arterio venous malformations, neural sheath tumors, synovial proliferations can be easily ruled out with reliability. In case with acute presentations like a ruptured cyst or deep vein thrombosis a clear protocol should be followed avoid morbidity associated with acute cases [2].it is important to include ultra sound examination to evaluate the swelling to know the extent and nature of the covering and content of the swelling[3].inflammatory and infective conditions also present like cystic swellings around the knee joint , making it to include them in the differential diagnosis[4]. Even when there are no signs of inflammation or infections swellings can occur in the peri articular soft tissues. The ultra sound scan can rule out the extension into the joint or an entirely pathological conditions out side the joint[5]. Knee bursitis is a common condition in manual laborers working with lot of friction at the knee surfaces and may not be associated with joint pathology[6]. Acute exacerbations of a chronic condition may occur due to trivial trauma triggering synovial effusion and present with bursitis as cystic swelling[7].Cases with non traumatic conditions presenting with acute features need to be evaluated for infections and gout which present with local rise of temperature, fever and swelling[8]. Paediatric cases may present with infra patellar bursitis in juvenile rheumatoid arthritis with cystic swellings involving the infra patellar bursa which needs to be considered for knee joint pain in paediatric age group[9].

## VII. Conclusion

A bursa communicating with the joint responds to the various pathologies occurring in the joint including the inflammations, infections, metabolic disorders, degenerative disorders etc,. In the case we reported the deep infra patellar bursa with its communication to the knee joint has accommodated the increased synovial fluid collected because of degenerative osteoarthritis of the knee joint. The other possible conditions affecting the peri articular soft tissues are ruled out in the evaluation by subjecting the patient to the radiographs and ultra sound scans. The necessary evaluation has ruled out both acutely occurring and chronic conditions with acute exacerbations.

## References

- [1]. Bevers K, Zweers MC, van den Ende CH, Martens HA, Mahler E, Bijlsma JW, Wakefield RJ, van den Hoogen FH, den Broeder AA. Ultrasonographic analysis in knee osteoarthritis: evaluation of inter-observer reliability.Clin Exp Rheumatol. 2012 Sep-Oct;30(5):673-8. Epub 2012 Oct 17.
- [2]. Hoffmann R, Brunner U.Imitation of acute, deep venous thrombosis of the lower leg by a ruptured Baker's cyst. Vasa. 1989;18(1):74-7.
- [3]. Bevers K, Bijlsma JW, Vriezekolk JE, van den Ende CH, den Broeder AA. Ultrasonographic features in symptomatic osteoarthritis of the knee and relation with pain. Rheumatology (Oxford). 2014 Sep;53(9):1625-9. doi: 10.1093/rheumatology/keu030. Epub 2014 Apr
- [4]. Leth S, Jensen-Fangel S. Infrapatellar bursitis with Mycobacterium malmoense related to immune reconstitution inflammatory syndrome in an HIV-positive patient.BMJ Case Rep. 2012 Nov 27;2012. pii: bcr2012007459. doi: 10.1136/bcr-2012-007459.
- [5]. Iagnocco A<sup>1</sup>, Vavala C, Scirocco C, Rutigliano IM, Gattamelata A, Valesini G. Unilateral painful, swollen and erythematous knee. Case report.Med Ultrason. 2012 Sep;14(3):251-3.
- [6]. Le Manac'h AP<sup>1</sup>, Ha C, Descatha A, Imbernon E, Roquelaure Y. Prevalence of knee bursitis in the workforce. Occup Med (Lond). 2012 Dec;62(8):658-60. doi: 10.1093/occmed/kqs113. Epub 2012 Jul 9.
- [7]. Eşen S, Akarırmak U, Aydın FY, Unalan H. Clinical evaluation during the acute exacerbation of knee osteoarthritis: the impact of diagnostic ultrasonography. Rheumatol Int. 2013 Mar;33(3):711-7. doi: 10.1007/s00296-012-2441-1. Epub 2012 May 5.
- [8]. Reed MJ<sup>1</sup>, Carachi A. Eur J Emerg Med. Management of the nontraumatic hot swollen joint.2012 Apr;19(2):103-7. doi: 10.1097/MEJ.0b013e328348d8f8.
- [9]. Alqanatis JT<sup>1</sup>, Petty RE, Houghton KM, Guzman J, Tucker LB, Cabral DA, Cairns RA. Clin Rheumatol. Infrapatellar bursitis in children with juvenile idiopathic arthritis: a case series.2011 Feb;30(2):263-7. doi: 10.1007/s10067-010-1620-2. Epub 2010 Nov 19.