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## SYNOVIAL HAEMANGIOMA OF KNEE JOINT - CASE SERIES

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### Abstract

**Back ground:** Haemangioma arising in the knee is a rare cause of knee swelling. The diagnosis frequently is delayed for long.

**Method-** We are presenting the case series of 3 cases of synovial haemangioma of knee joint. All the three case presented to us with pain and swelling in the knee joint.

**Conclusion:** The aim of presenting this case series is to create awareness about the possibility of a haemangioma arising from a joint which although rare should be kept as a differential diagnosis.

**Key Notes-** haemangioma, knee joint, swelling

### Introduction

Haemangioma of synovium is a rare benign tumor that can arise from any surface lined by synovium. Synovial haemangioma is most common in the knee joint. The diagnosis is often difficult as the signs and symptoms are nonspecific. We hereby report a case series of 3 cases of synovial haemangioma of knee joint.

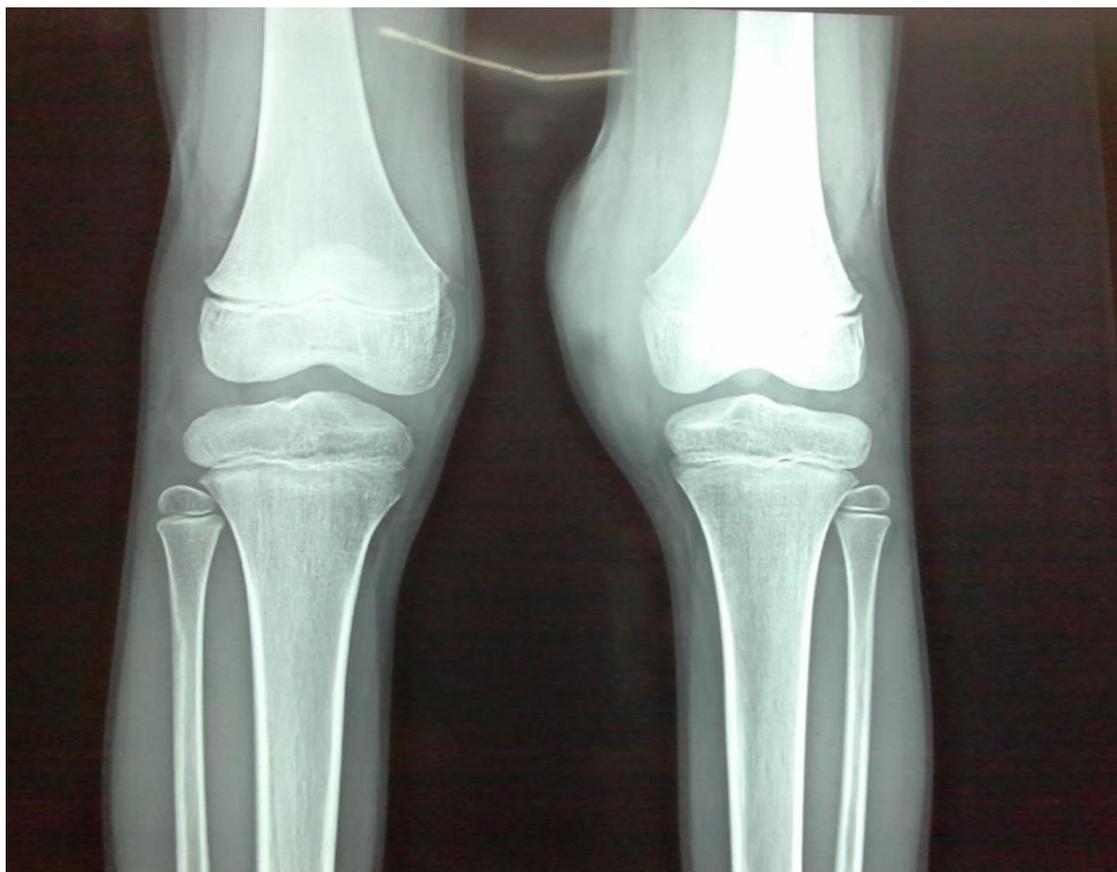
### Case 1

A 12 year old male child who presented to us with a localized swelling over antero-medial aspect of left knee for last 1 year. Patient had no history of trauma or

complaints in any other joint. There were no constitutional symptoms. Pain was moderate and was not bothering. Predominantly it was the swelling for which patient came to the hospital. On examination patient had a well-defined swelling on the antero-medial superior aspect of right knee of about 10 x 7 cm x 4 cm. It was mildly tender, not fixed to the deeper structures, soft in consistency. Overlying skin was normal. The knee had full range of movements without any obvious clinical instability. There was no knee effusion. The muscle power around the knee was normal. The swelling became more prominent with a flexed knee and less with an extended knee. (Figure 1)



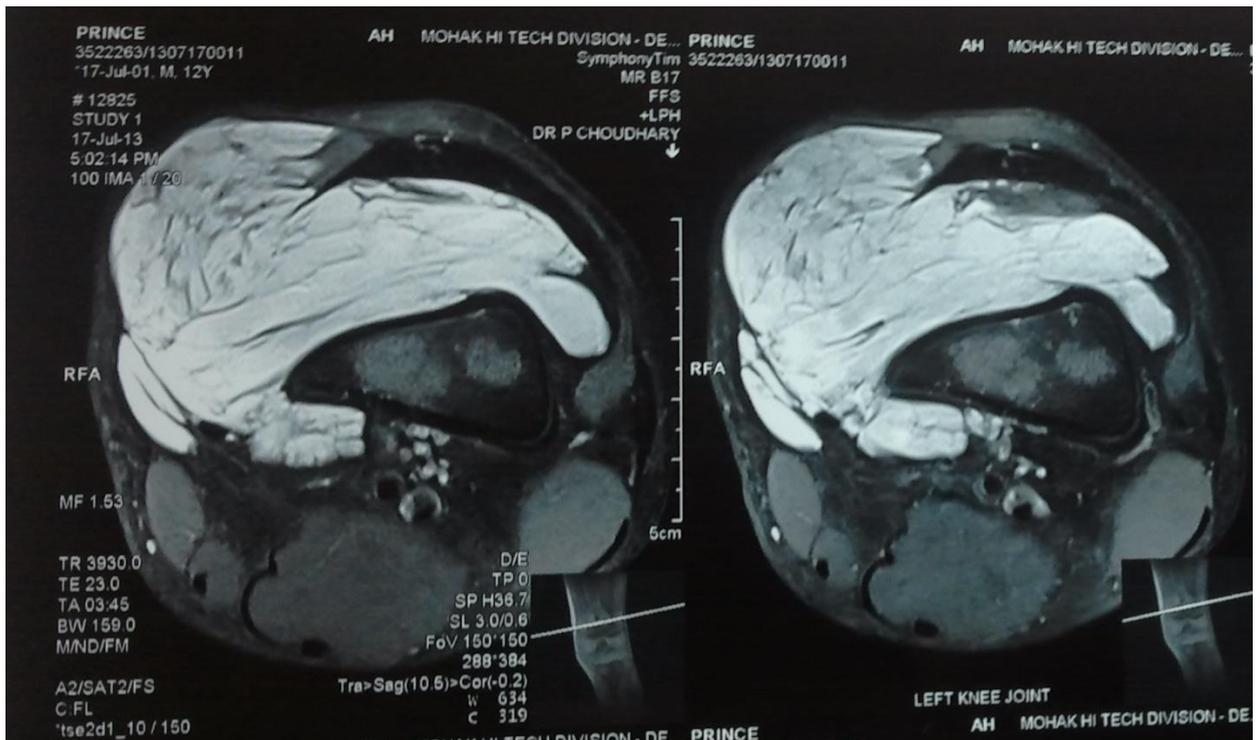
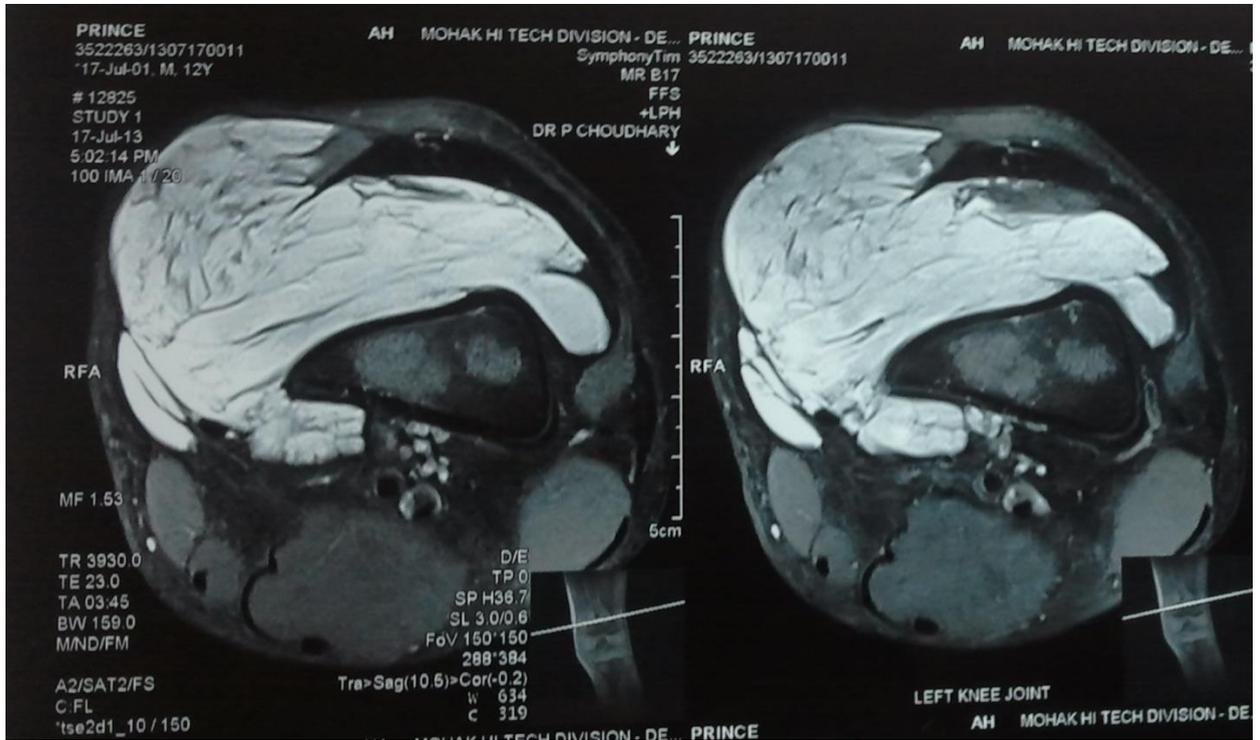
**Figure 1 - Clinical appearance of the lesion**



**Figure 2 -Plain radiographs**



Figure 3 – MRI appearances



Plain radiograph AP and Lateral view of the knee was done which was normal apart from the soft tissue shadow of the lesion seen on AP view (Figure 2). Blood counts and coagulation parameters were also normal. Patient had history of

aspiration once at some other hospital which as per the documents yielded only blood.

An MRI scan of the right knee was done which showed large lobulated altered intensity mass in superomedial region of knee extending into suprapatellar space.

Multiple hypointense septae were seen on T2W images (Figure 3). Appearances suggestive of a benign lesion like haemangioma.

A decision was taken for an excisional biopsy of the lesion. Patient was taken for surgery under spinal anaesthesia. A thigh tourniquet was applied but not inflated. An antero-medial arthrotomy of the knee was done and the lesion was excised carefully using electrocautery and meticulous haemostasis at all stages. The clinical appearance of the lesion was a reddish brown lobulated mass (Figure 4). The mass was carefully excised as a single

piece. Contrary to the expectation, there was not much bleeding even though the tourniquet was not inflated. A compression dressing was given after closure and the excised mass was sent for histopathological examination which confirmed the diagnosis of a cavernous synovial haemangioma. Post-operative period remained uneventful. Knee was kept in a compression dressing for 2 weeks. Knee mobilization exercises were started within 48 hours of the surgery. At 1 month post-operative follow up patient is doing extremely well. There is no evidence of recurrence of the swelling and has full knee range of movement.



**Figure 4 – Intra-operative photograph**

## Case 2

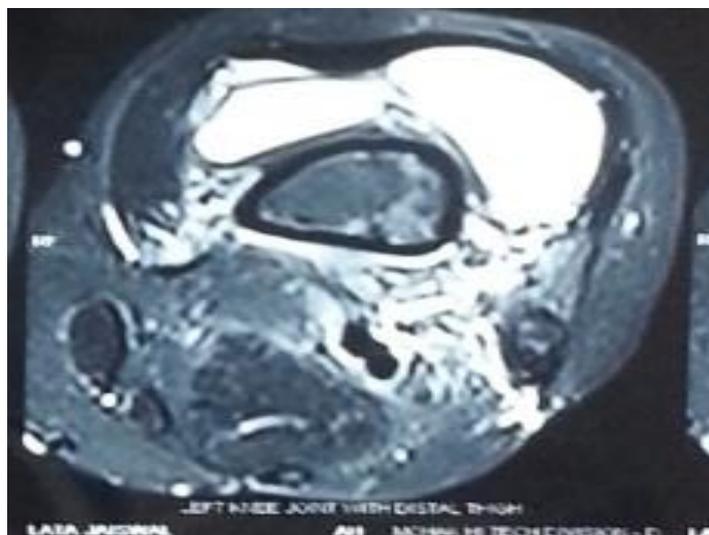
A 45 year old female presented with persistent left knee pain and swelling, while working at home since two years. There was no history of trauma. Her medical history was unremarkable. On examination, there was tenderness over the quadriceps tendon

proximal to the insertion. No signs of effusion or instability. Knee range of motion was from 0° to 120°. After investigations excision was decided where the mass beneath the distal vastus lateralis and rectus femoris was excised and was sent for histopathological examination which revealed haemangioma.

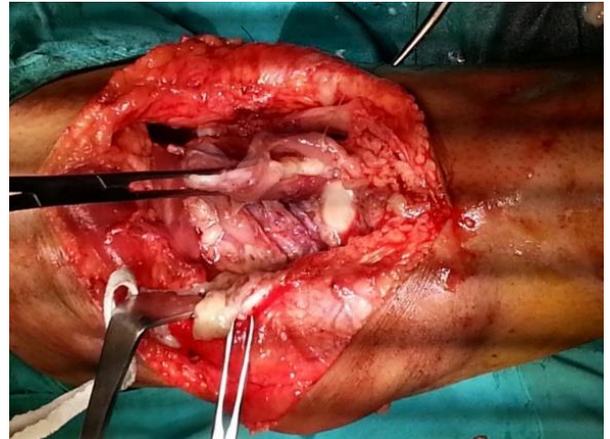
**Case 2 (45 year old female)**



**Figure 1 Preoperative clinical image**



**Figure 2 - MRI appearances**



**Figure 3 – Intra-operative photograph**

Post-operative period remained uneventful. Knee was kept in a compression dressing for 2 weeks. Knee mobilization exercises were started within 48 hours of the surgery. At 1 month post-operative follow up patient is doing extremely well. There is no evidence of recurrence of the swelling and has full knee range of movement.

### **Case 3**

A 20 year old female came with complaints of pain and swelling in left knee since 1 year. She noticed gradual increase in swelling since last 15 days. There was no recent history of trauma or injury. There was no contributory medical history. On examination patient had a tender swelling

present over anterolateral aspect of distal thigh involving left knee joint with negative patellar tap and no signs of effusion, instability or patellofemoral irritability. Knee range of motion was 0° to 120°. After investigations (radiographs, MRI scans) excision biopsy was planned. Excised mass was sent for histopathology examination which revealed haemangioma.

Post-operative period remained uneventful. Knee was kept in a compression dressing for 2 weeks. Knee mobilization exercises were started within 48 hours of the surgery. At 1 month post-operative follow up patient is doing extremely well. There is no evidence of recurrence of the swelling and has full knee range of movement.

### **Case 3 (20 year old female)**



**Figure 1 – Clinical appearance of the lesion**

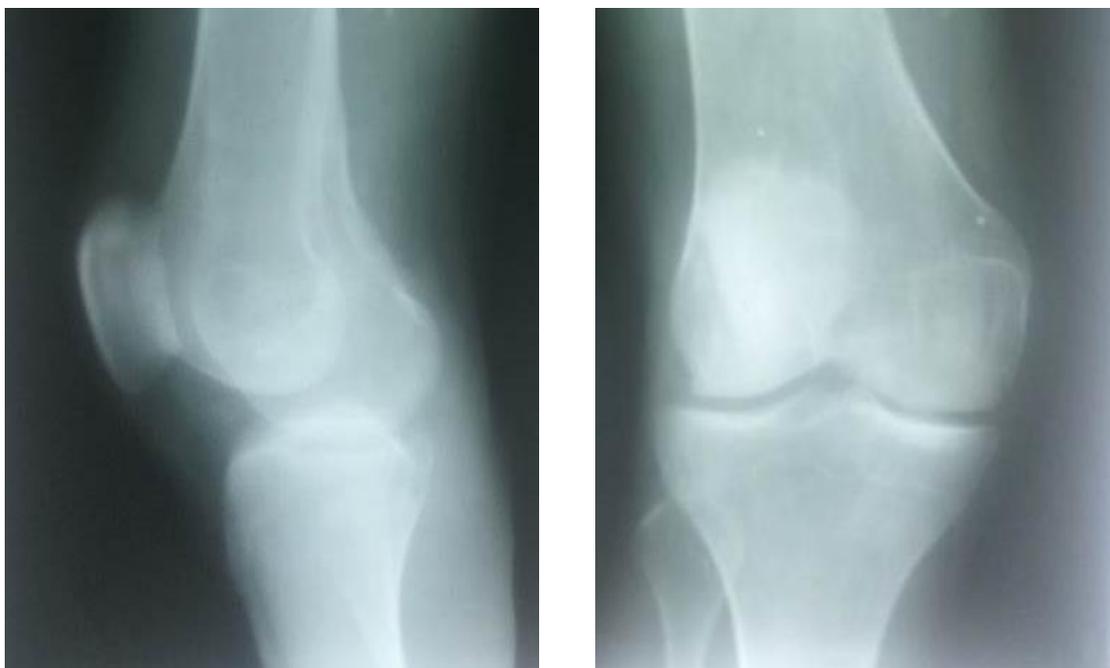
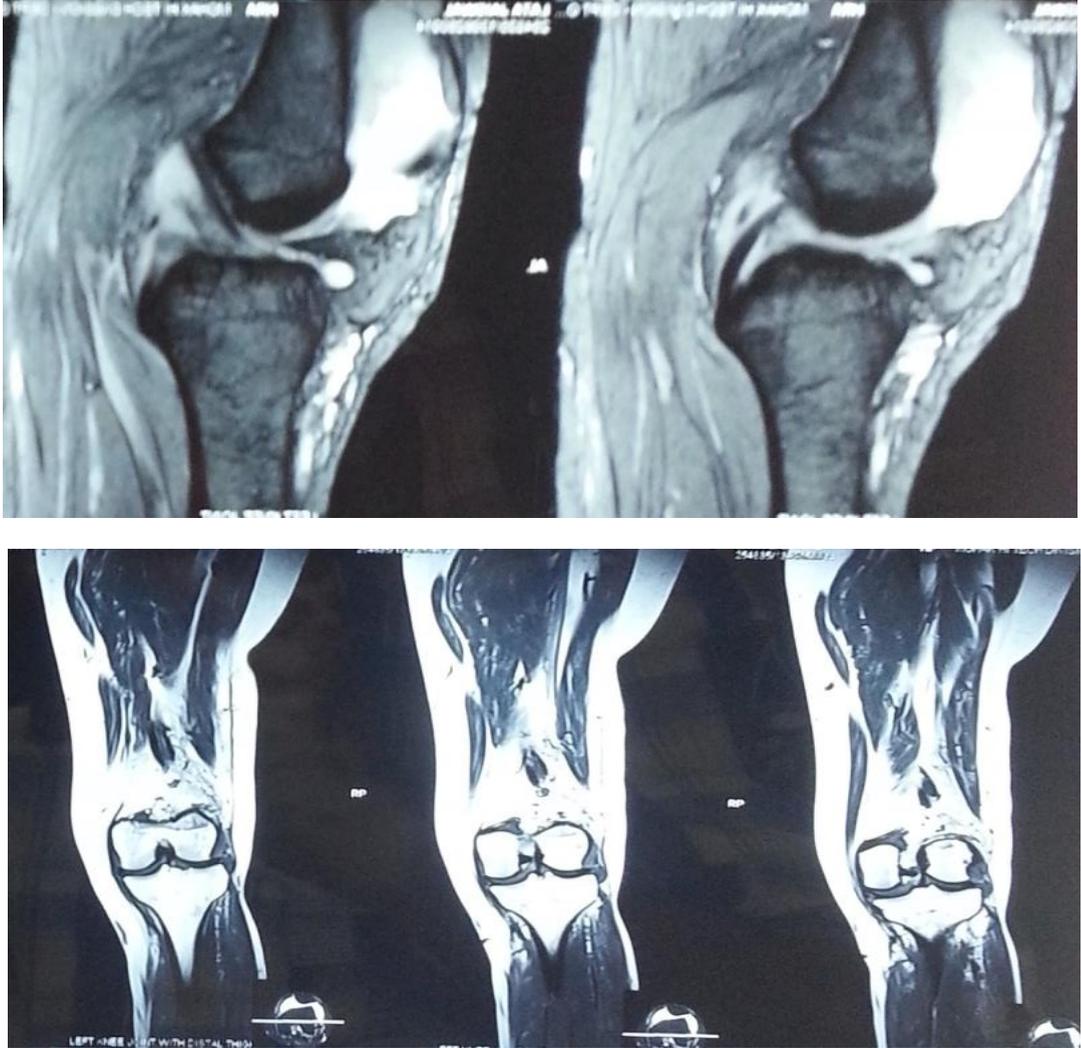


Figure 2 –Plain radiographs





**Figure 3 – MRI appearances**



**Figure 4 – Intra-operative photograph**

## Discussion

Synovial haemangioma, a rare benign vascular tumor, was first described by Bouchut in 1856<sup>1</sup>. By 2007, not more than 250 cases were reported in literature<sup>2</sup>. It occurs most frequently around the knee but have also been reported in other joints such as elbow, wrist and ankle<sup>1</sup>. Average age of onset is early adolescence. Males are affected more frequently than females. Clinical presentation of synovial haemangiomas may be variable - pain and swelling (31%), pain alone (31%), painless mass (31%) and recurrent intra-articular haemorrhage (5%)<sup>3</sup>. On clinical examination, mass of soft to firm consistency is often palpable, with or without limitation in range of motion<sup>1</sup>. Delay in diagnosis of many years often occurs as nonspecific presentations are common.<sup>1, 4</sup>

Anatomically, the haemangioma have been described as synovial, juxta-articular and intermediate. It may be pedunculated or diffuse.<sup>5</sup> Histopathologically, it has been categorized as capillary, cavernous or mixed.<sup>6</sup> The differential diagnosis include pigmented villonodular synovitis, synovial chondromatosis, haemophilic arthropathy, non-specific synovitis, bursitis, organizing haemorrhage and angiomatosis.<sup>3,4,6</sup>

Conventional diagnostic modalities like roentgenograms are of poor diagnostic value and in majority of cases is either normal or suggestive of joint effusion.<sup>4,7-9</sup>As synovial haemangioma is a soft tissue tumor, computed tomography (CT) has limited value in characterization of the soft tissue mass.<sup>10</sup>Magnetic resonance imaging (MRI) is often diagnostic investigative modality of choice for imaging of synovial

haemangiomas because of its ability to demarcate the extent of lesion and define the relationship of mass to the adjacent structures.<sup>1,7,8,10,11</sup> Diagnostic approach must involve angiography too as it not only recognizes the feeder vessels of the haemangioma mass but also offers the option of embolization in the same setting.<sup>4</sup>

Treatment of synovial haemangioma needs to be administered as early as possible in order to prevent arthropathy resulting from recurrent episode of intra-articular bleeding. Various treatment modalities have been tried, namely - radiotherapy, open surgical resection, arthroscopic excision, radiofrequency thermal coagulation, ablation using holmium, embolization and sclerosing agents.<sup>7</sup>

However, in our opinion treatment of choice is surgical excision. In case of intra-articular and pedunculated mass, arthroscopy is the preferred treatment modality. If the lesion is of intermediate type lesion, arthrotomy should be performed.

## Conclusion

Synovial haemangioma arising in a joint is rare. Knee is the joint most commonly affected. Recurrent episodes of non-traumatic haemarthrosis along with normal coagulation parameters should raise the possibility of synovial haemangioma. Plain radiographs are of limited help and MRI scan of the knee is the investigation of choice for confirming the diagnosis. Angiography has got value but is invasive and not available at all centres. Once the diagnosis is confirmed, early treatment should be instituted to reduce the risk of arthropathy.

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