

An Atypical Complication of Osteoarthritis Knee — Non Traumatic Recurrent Haemarthrosis Knee

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Abstract

Recurrent synovitis is a known presentation of osteoarthritis but at times the synovium may become very vascular and patient may present with recurrent haemarthrosis. We present a case of recurrent haemarthrosis in an elderly osteoarthritis patient

Case Report: A 72 year old male with tricompartmental osteoarthritis presented four episodes of recurrent haemarthrosis within a span of 2 months. He had recently undergone angioplasty and was on anticoagulants which were stopped in consultant of cardiologist. On recurrence of haemarthrosis, an arthroscopic debridement and synovectomy was done. LOOSE PIECES OF meniscus were also removed but no bleeder was identified. Two days after arthroscopy he again developed haemarthrosis and a digital subtraction angiography was done to identify the feeder vessel. This showed moderate vascular blush around the knee with supply from both genicular branches. Trans Arterial Embolization using polyvinyl alcohol particles was done for both feeder vessels. Patient had not further episodes or haemarthrosis and continues on conservative management of osteoarthritis

Conclusion: Osteoarthritis may lead to severe vascularization of synovium which may present as recurrent haemarthrosis. Finding the cause of haemarthrosis and managing it would relieve the symptoms

Keywords: recurrent haemarthrosis, osteoarthritis, synovectomy, embolization

Background

Recurrent haemarthrosis in cases of osteoarthritis is an uncommon presentation. Two main pathologies are held responsible for this occurrence, synovial hypertrophy [1] and bleeding from peripheral meniscus tears [2]. Aspiration and rest to the part was suggested by Morai et al [3] but recent years arthroscopic meniscectomy and electrocoagulation of the bleeding area is recommended method [2,4]. We present a case with recurrent haemarthrosis in osteoarthritic knee which continued to bleed even after arthroscopic debridement.

Case Report: A 72 year old male with tricompartmental osteoarthritis presented to us with haemarthrosis. He was a physically active and healthy person, an active Badminton player at national and international level competing for veteran

championships. Radiographs (Fig. 1) and MRI findings of the knee showed reduced joint space, thinning of articular cartilage, subarticular erosion and osteophytes formation, loose bodies, partial thickness loss of articular cartilage in the medial femoral condyle. Radiograph selectively showed severe involvement of the patellofemoral joint with osteophytes extending upwards from the superior border of patella

He presented with recurrent right knee swelling and pain without any injury. In this period he was not playing badminton. He had history of coronary artery disease and Angiography and angioplasty was done for him. Within 2 months of this procedure, he developed huge swelling in the knee which was due to internal bleeding in the joint causing haemarthrosis. This was immediately aspirated but in developed two further such episodes in next two months. Laboratory data showed normal bleeding and clotting time and INR report was normal. Cardiologist was consulted who asked him to stop tab. Ticagrelor and start tab Clopidogrel which is considered to have lower risk of bleeding [5]. However he again developed

haemarthrosis a three weeks later. An arthroscopic debridement was done at this time. Loose bodies were removed and synovectomy of hypertrophic synovium was done. No meniscal tear was detected and no active bleeders were noted during arthroscopy. However within two days post arthroscopy, the patient again developed haemarthrosis. We realized that there is a active bleeder in the joint and Digital subtraction Angiography (DSA) was planned to identify it. DSA was done by interventional radiologist under local anesthesia through right femoral artery access. This showed moderate vascular blush around the knee with supply from both Genicular Branches. The vascularity was more concentrated in theanteriosuperior part of the capsule near the patellofemoral joint. In view of these findings, it was decided to undertake Trans Arterial Embolization using polyvinyl alcohol particles. This procedure was done and embolization was carried out successfully. Since this procedure, patient has not developed pain or swelling. Treatment for his arthritic knee is being continued. He may need TKR in future and is not contra-indicated from the point of view of the embolization procedure.

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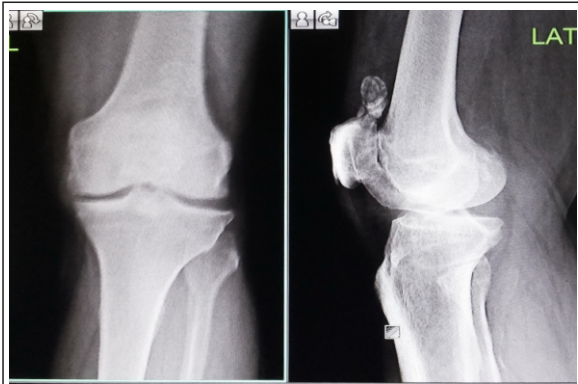


Figure 1: Radiograph of the patient showing osteoarthritis with severe involvement of the patellofemoral joint

Discussion:

Etiology of recurrent haemarthrosis in osteoarthritis is still disputed. Wilson et al studied five cases and concluded that the hypertrophic synovium is the source of bleeding [1]. However an alternate theory has been put forward more recently by Kumawara [2]. They studied six cases, five of which underwent arthroscopy. Arthroscopic examination in these cases revealed a degenerative flap tear of the posterior horn of the lateral meniscus and this led to postulation that the bleeding was from the peripheral vessels of the posterior meniscus. This was further supported by the finding that no patient developed recurrence after meniscectomy [2]. Nomura et al recently reported two cases where pulsating soft tissue was located on posterolateral corner of the knee [4]. This tissue showed pulsatile bleeding on manipulation and arthroscopic electrocoagulation of this tissue prevented

recurrence. In our case we could not locate either a meniscal tear of such vascular tissue. We did a synovectomy but did not come across any active pulsatile bleeding during the procedure. Probably the feeding vessels that opened inside the joint were not big enough to be identified through arthroscopy. We could locate the feeding vessels through digital subtraction angiography and found that most vascularity was localised around the patellofemoral joint. The severe affliction of the patellofemoral joint and surrounding synovium was also evident from the radiograph that showed exuberant osteophytes. Based on these findings, transarterial embolization was done and worked well in our case. We could not locate similar method of management of recurrent haemarthrosis in osteoarthritis in literature however this method has been well reported in cases of recurrent haemarthrosis after total knee arthroplasty [6,7,8]. In select cases, rather than arthroscopy, angiography can be done to localize the feeding vessels and selective embolization would be helpful. This would be a minimally invasive procedure and will have less morbidity and less chances of failure.

Points to be Learnt from this case report:

1. Hypertrophic vascular synovium can lead to recurrent haemarthrosis because of the friability of the tissues which can be

exacerbated by anticoagulant medicines. The vascular tissue is specially fragile due to aging, atherosclerosis and anticoagulants [2].

2. Any type of arthritis can be the underlying cause of synovial hypertrophy. It is also known to occur as a late complication of TKR when the prosthesis or the cement impinges on the hypertrophied synovium.

3. Angiographic features include hypertrophic synovium with hypervascularity due to feeding arteries and causes hypervascular blush.

4. Selective Trans Arterial embolization is good alternative to surgical excision of hypertrophic synovium. This procedure has higher percentage of successful outcome than surgical treatment and is less invasive.

5. If the MRI scan shows purely venous malformation and a venous blush DSA is not required and can be blocked by percutaneous procedure.

Conclusion: Recurrent haemarthrosis is an uncommon presentation of osteoarthritis but it is not unknown. The common aetiologies are bleeding from synovium and from the peripheral vessels of torn meniscus. In case the MRI and arthroscopy fail to detect a bleeder, a digital subtraction angiography may help to identify the bleeder. Once the offending vessel is identified, selective embolization can be done and can achieve successful outcome with no recurrence. Same strategy can be used primarily before doing an arthroscopy in case MRI shows no meniscal tear.

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