POST-OPERATIVE ANEURYSM OF THE DESCENDING GENICULAR ARTERY PRESENTING AS A PULSATING HAEMARTHROSIS OF THE KNEE

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A man aged twenty-two years was admitted to the Minia Public Hospital with chronic arthritis of the left knee. Synovectomy was carried out through a parapatellar incision. At operation the synovial membrane was hypertrophied and inflamed, with creeping pannus at the periphery of the articular cartilage. The membrane was removed and the patella, which showed multiple erosions, was excised. After operation the limb was put in plaster, which had to be split on the next day because of severe pain. On the third day after operation the dressings were heavily soaked with blood and the joint was markedly distended. Aspiration on three occasions yielded fresh blood. As aspiration was followed by almost immediate recurrence of the haemarthrosis, a vascular complication was suspected and the patient was transferred to Kasr-El-Aini hospital.

On admission two months after synovectomy there was severe and persistent pain. Examination revealed a warm, tense, pulsating swelling of the joint. Compression of the femoral artery at the groin arrested the pulsation and a faint bruit could be heard over the swelling. The limb was wasted, with considerable limitation of knee movement, but the distal pulses were palpable and the peripheral circulation was adequate. Radiographs showed widespread rarefaction of the bones with patchy erosion of the articular surfaces. Femoral arteriography (Fig. 1) showed a large aneurysmal sac within the knee, communicating with a greatly enlarged descending genicular artery. On palpation of the knee in the course of the latter vessel, pulsations could be felt indistinctly.

Operation—A curved incision was made along the line of the pulsation, sloping downwards and forwards over the medial tibial condyle. The artery was exposed, ligated and excised and then the joint was opened and the aneurysmal sac evacuated and curetted. Operation was followed by relief of pain, and within two weeks the patient was able to walk and use his knee without pain. Subsequent arteriography revealed normal findings with complete regression of the dilated vessel (Fig. 2). The patient returned to work and activity, and three years later the limb was normal except for residual muscle wasting and limitation of knee movement.
DISCUSSION

Damage of the periarticular vessels, with the subsequent development of an aneurysm, is a recognised complication of operations on the knee. Published reports suggest that such vascular lesions are particularly common after meniscectomy and that the most vulnerable vessels are the popliteal (Ross 1951, Patrick 1963) and the lateral inferior genicular arteries (Elkin 1948, Fairbank and Jamieson 1951, Hooper and Spring 1953).

The capsule of the knee joint is intimately related to a very rich network of anastomotic blood vessels which are prone to injury during operations on the knee. As these operations are often carried out on the exsanguinated limb, such vascular injuries usually pass unnoticed and, unless a large vessel is involved, no untoward effects are likely to ensue. Chiefly because meniscectomy is the commonest operation on the knee, it has been responsible for most cases of post-operative aneurysms around the joint. Aneurysms develop in the popliteal fossa, involving the popliteal vessels in medial meniscectomy and the lateral inferior genicular artery after removal of the lateral cartilage.

This case shows two interesting features which are worthy of discussion: the involvement of the descending genicular artery and the development of an intra-articular rather than a periarticular aneurysm.

Unlike all other genicular vessels, the descending genicular artery is related to the front of the joint and is relatively safe from injury during meniscectomy. During synovectomy, however, it is probably the most vulnerable vessel as it is related to the thin anterior part of the joint capsule. The lack of soft tissue in this area would not allow the development of an extra-articular pulsating haematoma as a prelude to later aneurysmal formation outside the joint. This explains the intra-articular site of the aneurysmal sac in our case.

The pulsating haematoma due to injury to the descending genicular artery, being confined within the joint, is expected to be associated with a very different symptomatology from that of other vessels dissecting its way outside the joint. The swelling assumes the form of a rather tense and large haemarthrosis in which pulsation may be detected, and owing to its relation to the very sensitive articular surfaces and joint capsule it tends to be associated with agonising pain and joint stiffness. Diagnosis is readily established by femoral angiography and as the feeding vessel is readily accessible and relatively unimportant, surgical treatment is more simple than in injuries to other vessels with the formation of a popliteal aneurysm. The present case provides an illustration of such an injury with its presentation, diagnosis and management.

SUMMARY

1. A case of traumatic aneurysm of the descending genicular artery complicating elective operation on the knee joint is reported.
2. The aneurysm was mainly intra-articular, presenting as a pulsating haemarthrosis soon after operation.
3. The pathogenesis, symptomatology, diagnosis and management are briefly discussed.

REFERENCES