

# Aneurysm complicating high tibial osteotomy

## A case report

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Submitted 95-06-03. Accepted 95-11-15

A 58-year-old man presented with pain in the left knee which had been steadily increasing over an 18-month period. He demonstrated quadriceps wasting, a small effusion, and a stable joint in 5 degrees of varus malalignment. He had normal pulses and no neurological deficit. Radiographs showed arthrosis of the medial compartment. He had a closing wedge upper tibial osteotomy, as described by Coventry (1985), resulting in 10 degrees of valgus. An experienced surgeon carried out the procedure. The osteotomy was held with staples before a plaster cast was applied. The tourniquet was then released. Postoperatively, he had normal neurovascular findings in his operated leg, until on the fourth day, when he developed a painful knee and a foot-drop on the same side. A wound inspection at that time revealed a hematoma with a large bloodstained blister over it. The blister was de-roofed and the wound allowed to granulate. However, the hematoma developed a sinus from which a bloody discharge was noted. 1 month after the procedure, he was readmitted with a swollen left leg. Ultrasound examination indicated a probable femoral thrombus. A venogram showed no filling of the calf veins, with a thrombus in the superior femoral and popliteal vessels, but the iliac veins were not affected. Anticoagulants were started. The discharge from the hematoma had decreased and his foot-drop was improving. 2 months later he still had a persistent hematoma and a sinus with a bloody discharge. An angiogram showed a pseudoaneurysm arising from the inferior lateral geniculate artery. A wound exploration revealed a bleeding point along with a subperiosteal sac. This was thought to be the aneurysm, and hence the area was carefully oversown. Following this the wound healed. At 6 months no foot-drop was observed. At 1 year his knee was still slightly swollen but, as at all stages, he had excellent pain relief in his knee.



Angiogram showing a pseudoaneurysm following the tibial osteotomy.

## Discussion

Complete division of a vessel results in the retraction of its ends. However, an unlikely partial injury to the lateral vessel wall may lead to the formation of a pseudoaneurysm. This can follow penetrative trauma (Graham et al. 1992). It may be the result of any surgical procedure, such as an insertion of a dynamic hip screw (Kleintz and Nolte 1993). There are several vessels around the knee, but the geniculate vessels on the lateral side are at particular risk. The inferior lateral geniculate artery has a course close to the lateral joint line and hence is at risk during exposure of the lateral side of the knee. Pseudoaneurysms affecting the lateral geniculate artery have been reported as a rare complication in arthroscopic surgery (Manning and Marshall 1987, Armato 1990), and lateral meni-

scectomies (Fairbank and Jamieson 1951). Vascular complications following upper tibial osteotomies, such as an anterior compartment syndrome after the anterior tibial artery is compromised, have been reported, but these are rare (Coventry 1985).

Our patient had a persistent hematoma with bloody discharge at the wound site. This aroused suspicion of a pseudoaneurysm, later confirmed by angiography. The foot-drop had resulted from pressure of the aneurysm sac on the lateral popliteal nerve. To our knowledge, a pseudoaneurysm is a rare and previously unreported complication of upper tibial osteotomy. This complication may be difficult to avoid, but releasing the tourniquet before wound closure and cautery of bleeding points might reduce the risk of its occurrence. If an aneurysm is still suspected, investigations and exploration should be carried out at an early stage.

## References

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