

Orthopaedic Department, Gävle Sjukhus, Gävle, Sweden.

## ANEURYSM OF POPLITEAL ARTERY CAUSED BY CARTILAGINOUS EXOSTOSIS

### *A Case Report*

LENNART HOVELIUS

Accepted 28.iv.75

Cartilaginous exostoses which lead to vascular complications in the form of traumatic aneurysm are rare. One case was published by Paul in 1953 and subsequent reports of 17 others have been found in the literature.

In the autumn of 1973 a patient with a traumatic aneurysm in the popliteal artery, caused by cartilaginous exostosis was operated on in our department.

### CASE REPORT

A 17-year-old youth presented with a 2-month history of spontaneous pain in the lower part of the right thigh, with swelling of the soft tissues above the knee after a time. He was admitted to the local hospital, where X-ray examination disclosed exostosis distally and medially on the right femur; angiography revealed an aneurysm (Figure 1). He was referred to the Orthopaedic Department, Gävle Sjukhus, where a warm, pulseless resistance the size of an infant's head was observed preoperatively on the medial aspect above the knee; no palpable pulse was noted distally; knee-joint mobility was impaired (range 160-90°). The diagnosis was malignant osteocarcinoma and he was operated on. The exostosis was exposed, as well as the distal parts of the superior femoral and the popliteal arteries. This revealed a false aneurysm with arterial bleeding and old coagulum. A hole some millimeters in diameter was found proximally in the popliteal artery, in line with a jagged, broad-based exostosis. The exostosis was removed with a chisel and the artery was repaired with 5-0 silk sutures without constriction. The postoperative course was uneventful. Pulses were readily palpated distally in the lower leg, immediately after the opera-



*Figure 1. Angiograph showing popliteal artery aneurysm, with the jet phenomenon clearly visible.*

tion and at a check-up 6 months later, when mobility in the knee joint was also normal. Pathological examination showed exostosis with remnants of cartilage.

#### DISCUSSION

In addition to this patient, 18 other cases of traumatic aneurysm caused by cartilaginous exostosis have been reported in the literature. Most of the patients were between 16 and 20 years of age which is the age at which the cartilage in the exostosis calcifies (Turek 1967), resulting in a jagged formation that is liable to damage the artery, due either to the latter's pulsation or to movements in the knee joint. An important contributory factor is, of course, that just above the knee joint the artery adheres to the tendon of adductor magnus and passes through the narrow opening in this muscle. The trauma was located in this area in all but one of the cases referred to above, the exception (Cachera

1970) being an aneurysm caused by exostosis on the proximal part of the humerus.

Treatment is surgery. In most cases the vessel could be repaired with sutures but in some patients an end-to-end anastomosis was performed. A venous graft (saphena magna) was used in three cases and an arterial homograft in one. In the latter case there were good pulses distally in the extremity 3 weeks after the operation but they had disappeared after about 6 months. The prognosis was good even if there were no palpable pulses distally after the operation.

#### SUMMARY

A case is reported of traumatic aneurysm in a young man, caused by cartilaginous exostosis distally in the femur. An analysis is given of 18 similar cases from the literature.

#### REFERENCES

- Cahera, J. P., Letournel, E. & Kieffer, E. (1970) Un cas d'anévrisme artériel compliquant une exostose ostéogénique de l'extrémité supérieure de l'humérus. *J. Chir. (Paris)* **99**, 39.
- Paul, M. (1953) Aneurysm of popliteal artery from perforation by cancellous exostosis of femur: Report of a case. *J. Bone Jt Surg.* **35-B**, 270.
- Turek, S. L. (1967) *Orthopaedics. Principles and their application*. 2nd ed., p. 324. J. B. Lippincott, Philadelphia.

*Key words:* aneurysm; exostosis

Correspondence to:

Dr. L. Hovelius  
Department of Ortopaedic Surgery  
Gävle Sjukhus  
800 07 Gävle  
Sweden