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TRAUMATIC ANEURYSM OF THE COMMON FEMORAL ARTERY AFTER HIP ENDOPROSTHESIS

A Case Report

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Arthroplasty of the hip with insertion of a hip endoprosthesis is a frequent procedure at the Orthopaedic Department of Aker Hospital, Oslo (Aamold et al. 1974). The indication for the operation is usually osteoarthritis of the hip or fractured femoral neck in patients more than 70 years old.

The following case represents a rare arterial trauma after a femoral head replacement with a Christiansen prosthesis (Christiansen 1974).

CASE REPORT

A 76-year-old woman was treated with osteosynthesis for a fractured femoral neck. She was readmitted 1 year later because of pains in the hip joint: the suspicion of femoral head necrosis was verified radiographically. The patient was reoperated and a Christiansen endoprosthesis was inserted. The posterior curved exposure of the hip joint ("Southern exposure") (Nicola 1966) is most usual in this type of operation.

However, in this case a more ventral approach was used (Müller 1965). Peroperatively it would be decided whether a total or a partial hip replacement was to be performed. The incision ran from the superior iliac spine along the greater trochanter and the femoral shaft. The joint capsule was exposed between the facia latae muscle and the medial gluteal muscle. The capsule was opened and a Christiansen femoral head prosthesis was used for replacement of the necrotic head.

The first postoperative days were uncomplicated. On the 6th postoperative day, however, the patient deteriorated rapidly with a low blood pressure and a low hemoglobin. In the left iliac fossa a tumor was palpated, which in a few days extended almost to the left costal arch. The clinical diagnosis was retroperitoneal hemorrhage, although arteriograms were normal. She was unable to move her operated hip because of great pain.

The retroperitoneal hematoma was evacuated through an obligue incision in the left iliac fossa, but she improved only slightly.

Gradually the femoral pulse on the operated side became more accentuated, a

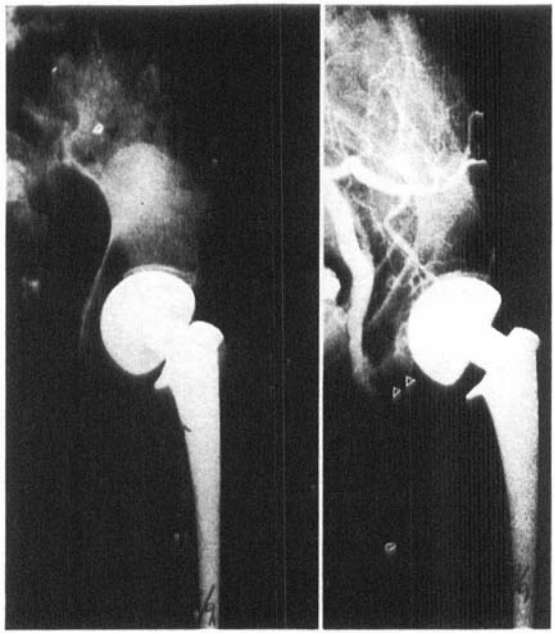

Figure 1. Arteriogram shows contrast leakage from a traumatic femoral aneurysm into a hematoma.

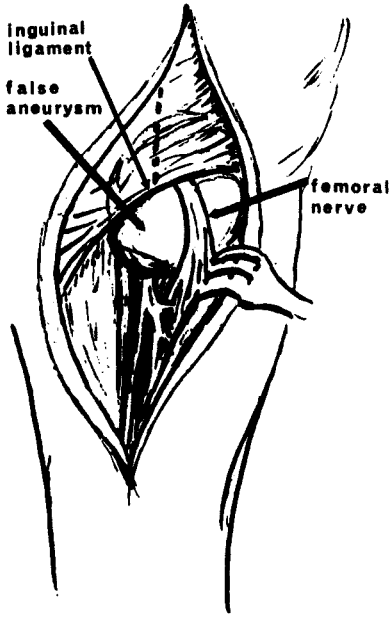

Figure 2. The femoral nerve compressed between the aneurysm and the inguinal ligament.

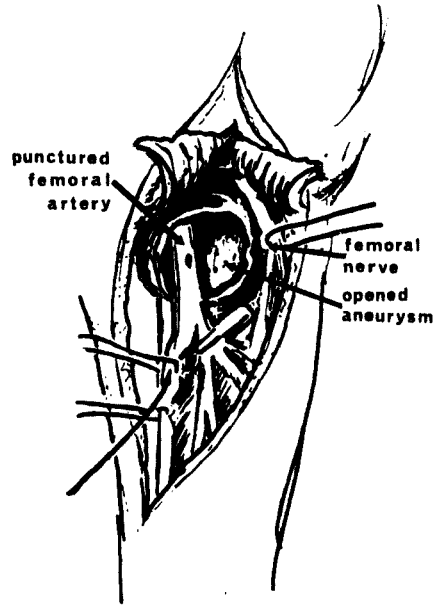

Figure 3. The punctured femoral artery exposed after removal of the hematoma.

"thrill" was palpated and a systolic "bruit" was auscultated. The clinical diagnosis of "false aneurysm" of the common femoral artery was verified by a new angiography (Figure 1). Through an incision parallel to the femoral artery a false aneurysm, 8 cm in diameter, was exposed. The femoral nerve was compressed between the bulging aneurysm and the inguinal ligament (Figure 2). After the hematoma within the aneurysm was removed, bleeding started from a small opening in the artery, 2 cm proximal to the profunda bifurcation. It was controlled by direct suture (Figure 3). The tension of the nerve had probably caused the patient's severe pains. A few days after the last operation the patient was mobilized, and she recovered without further complications.

DISCUSSION

Several reports of complications in arthroplastic surgery of the hip have been published. In addition to postoperative hemorrhage, infection and thrombosis (Darke 1972), some technical problems have been described: rupture of the iliac vein from reaming the acetabulum (Harris 1970), loosening of the endoprosthesis (Wilson & Scales 1970), and hypotension and possibly cardiac arrest and pulmonary embolism with the use of acrylic bone cement (Daniel et al. 1972, Harris 1970). However, arterial trauma in hip surgery is a rare complication (Horton 1972). False aneurysm of the deep femoral artery after osteotomy (Meyer & Slager 1967) or osteosynthesis of the femoral neck (Mallory 1972) has been reported. Because iliac and common femoral vessels are so near the acetabulum and the pubic bone, it is surprising that damage to them is relatively rare in surgery of the hip. Using the antero-lateral approach to the hip joint, a Homan retractor is often placed with its tip behind the superior edge of the pubic bone, exerting a levering action to keep the operating field clear from soft tissue (Figure 4). The tip of the retractor had probably

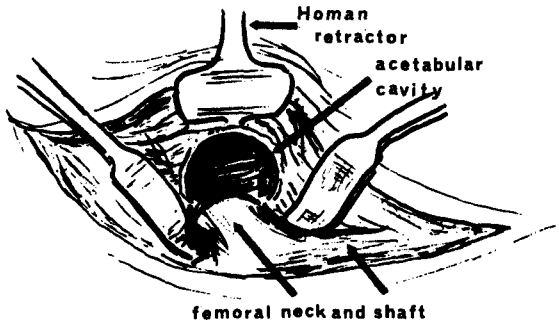

Figure 4. The Homan retractor with its tip behind the superior edge of the pubic bone.

punctured the common femoral artery in this case, and a false aneurysm had developed. The antero-lateral approach is probably less suited for the implantation of a Christiansen prosthesis, where the hip has to be inwardly rotated strongly in order to get it placed into the acetabulum.

SUMMARY

A case with a rare arterial trauma after a femoral head replacement with a Christiansen prosthesis is presented. The common femoral artery was penetrated by the tip of a Homan speculum and a false aneurysm developed.

REFERENCES

Aamold, J., Slungaard, U. & Narverud, G. (1974) Schenkelhalsbrücke behandelt mit primäre Einsetzung der rotations endoprothese nach Christiansen. *Zbl. Chir.* **99**, 537–541.

Christiansen, T. (1974) Combined endo- and total hip prosthesis with trunnion-bearing. *Acta chir. scand.* **140**, 185–188.

Daniel, W. W., Coventry, M. B. & Miller, E. (1972) Pulmonary complications after total hip arthroplasty with Charnley prosthesis as revealed by chest roentgenograms. *J. Bone Jt Surg.* **54**-A, 282–283.

Darke, S. G. (1972) Ileofemoral venous thrombosis after operations on the hip. A prospective controlled trial using dextran 70. *J. Bone Jt Surg.* **54**-B, 615–620.

Harris, N. H. (1970) Cardiac arrest and bone cement. *Brit. med. J.* **3**, 523–524.

Horton, R. E. (1972) Arterial injuries complicating orthopaedic surgery. *J. Bone Jt Surg.* **54**-B, 323–327.

Mallory, T. H. (1972) Rupture of the common iliac vein from reaming the acetabulum during total hip replacement. *J. Bone Jt Surg.* **54**-A, 276–277.

Meyer, T. L. & Slager, R. F. (1964) False aneurysm following subtrochanteric osteotomy. *J. Bone Jt Surg.* **46**-A, 581–582.

Müller, M. E. (1965) *Technique of internal fixation of fractures.* p. 214. Ed. Allgöver, M. & Willenegger, H., Springer Verlag, Berlin.

Nicola, T. (1966) *Atlas of orthopaedic exposure*, p. 86–87. The Williams and Wilkins Company, Baltimore.

Wilson, J. N. & Scales, J. T. (1970) Loosening of total hip replacements with cement fixation. Clinical findings and laboratory studies. *Clin. Orthop.* **72**, 145–160.

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