On-line Case Report

Pseudo-aneurysm of the profunda femoris artery as a late complication of hip fracture in a patient with myelodysplasia

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ABSTRACT

We report a pseudo-aneurysm of the profunda femoris artery that resulted in intermittent bleeding and pain 6 weeks following dynamic hip screw fixation of an intertrochanteric hip fracture. Early diagnosis by angiogram could have minimised significant patient morbidity in this case.

Keywords: Hip fractures – Profunda femoris – Pseudo-aneurysm – Coagulopathy – Myelodysplasia

Injuries to the profunda femoris artery are uncommon, but have been described following fractures and orthopaedic procedures involving the proximal femur. Pseudo-aneurysms often present late with persistent pain, swelling and anaemia. A pulsatile swelling may or may not be present.^{1-4,7} We report a pseudo-aneurysm of the profunda femoris that presented 6 weeks after dynamic hip screw fixation of a proximal femoral fracture in a patient with myelodysplasia and a coagulopathy of unknown cause.

Case report

A 76-year-old woman presented following a fall with an intertrochanteric hip fracture. The fracture was reduced in theatre and fixed with a dynamic hip screw. The procedure was uncomplicated and the patient was discharged home fully weight bearing.

At 6 weeks, the patient presented to the emergency department complaining of pain and swelling around the hip wound without any history of further trauma. The past medical history revealed myelodysplasia and

previously abnormal clotting (INR 1.6 and raised APTT ratio) which was only partially correctable on mixing studies. An anteroposterior pelvic radiograph showed the fracture and dynamic hip screw in a satisfactory position (Fig. 1). The patient was haemodynamically stable with a haemoglobin level of 10.4 g/dl. A haematoma was diagnosed and treated conservatively.

At 8 weeks, the patient returned with a tense swelling around the thigh. The haemoglobin level was 9.2 g/dl and the clotting screen was not elevated beyond previous levels. A haematoma was evacuated in theatre with fresh frozen plasma and vitamin K supplementation. All active bleeding points were coagulated and the wound primarily closed. There were no signs of infection. Postoperatively, there was continued 'ooze' from the hip wound despite pressure dressings and on-going vitamin K therapy. The haemoglobin level dropped to 5 g/dl and the patient required a total of 6 units of packed red blood cells and 8 units of fresh frozen plasma before returning to theatre.

Again, no active bleeding was found on approaching the femur from the lateral side. However, further dissection,

Figure 1 Anteroposterior pelvic radiograph.

Figure 2 (A) Early image from angiogram of the right profunda femoris artery. (B) Post embolisation angiogram.

posterior and medial to the femoral shaft, revealed active haemorrhage from the profunda femoris artery.

On-table angiography demonstrated a pseudo-aneurysm arising from the profunda femoris artery at the site of a displaced fragment of the lesser trochanter. Active contrast extravasation from the first bifurcation of the artery was seen adjacent to a medially displaced bone fragment (Fig. 2A) and the post-embolisation angiogram confirmed haemostasis following coil insertion (Fig. 2B).

Discussion

Injury to the common femoral artery or one of its branches is a rare, but recognised, complication following proximal femoral fracture (occurring in up to 0.21% of cases).⁶ Clinical signs of arterial injury may occur at the time of trauma with acute haemorrhage, or present later following development of a pseudo-aneurysm.

Bony injury more often occurs to the common femoral and superficial femoral arteries. The profunda femoris artery lies deep in the thigh and is protected against external trauma by the vastus medialis muscle. Injuries at this site have been described as a result of drills, long screws and retractors. Injury to the profunda femoris artery due to a fragment of bone is a rare event and has only been reported on eight occasions, mostly due to a displaced fragment of lesser trochanter. Fixation of intertrochanteric fractures does not require anatomical reduction of this lesser trochanter fragment.⁵ All reported cases presented 4–6 weeks after fixation of an intertrochanteric fracture with a swelling, pulsatile or non-pulsatile over the anteromedial thigh. None of the cases had co-existing coagulopathy unlike this patient. Myelodysplasia can result in a coagulopathy as a result of impaired platelet function. In addition, this patient had abnormal clotting which was only partially correctable with clotting factors. The cause was not determined but may have

been due to acquired inhibitors to clotting factors of the final common pathway of the coagulation cascade.

Conclusions

Patients with a pseudo-aneurysm deep in the thigh may not present with the usual signs of a pulsatile mass nor with signs of ischaemia.³ In the presence of on-going thigh pain and swelling following an intertrochanteric femoral fracture, the diagnosis of pseudo-aneurysm of the profunda femoris artery should be considered. We recommend the consideration of early angiography as a diagnostic and therapeutic intervention, especially in patients with a co-existent coagulopathy, to minimise the significant morbidity associated with these cases.

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