CASE REPORT

Extensive gluteal haematoma after an intracapsular hip fracture in a patient on warfarin

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SUMMARY

We describe a case of a patient on warfarin who developed an extensive haematoma after a hip hemiarthroplasty and was successfully treated with embolisation. This case highlights the importance of regular haematology input, careful consideration of a suitable surgical approach, close monitoring of postoperative wounds in patients on warfarin and the emerging role of embolisation.

BACKGROUND

A hip fracture is a common orthopaedic diagnosis, with an estimated incidence of around 75 000/year in the UK.¹ This is expected to increase with an ageing population. Many of these patients have extensive medical comorbidities and often require anticoagulation. In these cases, careful planning, including discussion with haematologists, is often required to determine the ideal preoperative and postoperative anticoagulation regimes, to reduce the risk of exsanguination, postoperative haemorrhage and haematoma. We present a case of an extensive haematoma after a hip hemiarthroplasty performed using a transgluteal approach in a patient on warfarin due to a mitral valve replacement, which was successfully treated with embolisation.

CASE PRESENTATION

An 81-year-old woman was referred to the orthopaedic team with a right intracapsular hip fracture (figure 1) after a mechanical fall on a Saturday evening. She had a metallic mitral valve replacement following rheumatic fever and was on lifelong

warfarin (target international normalised ratio (INR) 2.5–3.5). She also had atrial fibrillation and a pacemaker. Her admission abbreviated mental test score was 3/10 and she lived in a care home, usually mobilising indoors with a Zimmer frame. In view of her medical comorbidities, the decision was made to delay immediate surgery to allow thorough work up and preoperative optimisation.

After discussion with the haematologists, the patient's warfarin was stopped and reversed. Her haemoglobin on admission was 96 and INR was 2.4, which was reversed with 5 mg vitamin K IV to 1.6 preoperatively. The patient received a preoperative orthogeriatric review and pacemaker check. A cemented bipolar hemiarthroplasty was implanted on Monday (figure 2). Intraoperatively, a transgluteal approach was performed and only bipolar diathermy was used due to the patient's pacemaker. The capsular cut was performed with a scalpel. Careful haemostasis was performed before closing the hip joint. She returned to the ward under joint orthopaedic and orthogeriatric care, and the haematologists were consulted for further anticoagulation management.

Postoperatively haemoglobin was 70 and 4 units of red blood cells were transfused. Her postoperatively anticoagulation regime from the haematologists was for prophylactic dose enoxaparin on day 1 postoperatively, followed by treatment dose

Figure 1 An intracapsular displaced right hip fracture.

Figure 2 A satisfactorily implanted bipolar hip hemiarthroplasty.

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tinzaparin and reinitiation of Warfarin on day 2 postoperatively. On day 2 postoperatively, the patient reported of a new cough and was started on co-trimoxazole by the orthogeriatric team for suspected pneumonia. On day 4 postoperatively, the patient's INR was 8.0; warfarin was reversed with vitamin K and held. Tinzaparin was also held.

On day 5 postoperatively, the patient became acutely unwell and haemodynamically unstable overnight. Vascular, haematology, ICU and medical input were urgently sought.

INVESTIGATIONS

A CT scan of the patient's chest, abdomen and pelvis and CT arteriogram were performed to exclude any source of internal bleeding. CT revealed a large gluteal haematoma with a blush of contrast seen (figure 3).

DIFFERENTIAL DIAGNOSIS

- ▶ Bleeding from hip wound
- ▶ Bleeding from gastrointestinal tract
- ▶ Haemolysis

TREATMENT

The patient persisted to be shocked despite aggressive resuscitation with fluids, red blood cells and clotting factors. It was decided that she should not go back to theatre due to her profoundly deranged coagulation and comorbidities. Based on the blushing of contrast seen on CT arteriogram in the gluteal region, the on-call consultant interventional radiologist was contacted and an emergency angiogram was performed, which revealed extravasation from the gluteal branches of the internal iliac artery (figure 4). Four microcoils were inserted in the periphery of the gluteal arterial tree, with postcontrast images demonstrating cessation of the bleeding site and no further sites of bleeding after embolisation (figure 5).

OUTCOME AND FOLLOW-UP

The patient went on to make an uneventful recovery and was discharged back to her care home. On subsequent review 3 months postoperatively, the patient was well and mobilising with a Zimmer frame.

DISCUSSION

Postoperative haematomas are well documented sequelae of hip fractures and can be attributed to three causes: the initial trauma, inadequate intraoperative haemostasis and medication with an anticoagulant effect. Some authors have investigated methods to reducing bleeding rates, including the use of suction drains and

Figure 3 Axial CT slice, demonstrating an extensive gluteal haematoma.

Figure 4 Angiogram demonstrating extravasation from gluteal branches of the internal iliac artery.

adjusting prophylactic thromboprophylaxis regimes,^{2 3} however, there is still no clear agreed consensus.

In 2011, the National Institute for Care Excellence (NICE) published their guidelines, which among other recommendations, state that patients should be admitted under joint orthopaedic and orthogeriatric care and have their operation within 36 h of diagnosis, which is expected to reduce mortality rates.⁴ NICE also suggests that the anterolateral approach should be

Figure 5 Postcontrast angiogram demonstrating cessation of bleeding.

used in preference to the posterior approach due to the increased risk of dislocation,^{5 6} however, they stated that the evidence that this was based on was of poor quality. More recently, Biber *et al*⁷ compared the posterior and transgluteal approaches for early complication rates in their series of 704 hip hemiarthroplasties. Although overall complication rates were similar, as other studies have demonstrated, they found a higher dislocation rate in the posterior approach (3.9% cf 0.5%). However, they also found a significantly higher rate of haematoma formation in the transgluteal approach group (5.5% cf 1.2%). It is important to note that NICE guidelines were based on dislocation rates and did not discuss haematoma rates. We suggest that in patients who have a high risk of bleeding, the posterior approach should be considered in an attempt to avoid significant postoperative bleeding.

Embolisation is a well-established technique to stop haemorrhage and is often used in pelvic fractures.⁸ There are no

published cases on its use in hip fractures, probably due to haemorrhage usually being self limiting, or because patients are often taken back to theatre instead. We report on a case of embolisation as a means to control life-threatening exsanguination in a patient too unstable for further operative intervention.

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Competing interests None declared.

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Learning points

- ▶ Haematoma formation is a recognised sequela of hip fracture, its surgical fixation and subsequent anticoagulation.
- ▶ A gluteal haematoma may be extensive, resulting in significant anaemia and haemodynamic instability.
- ▶ A transgluteal approach to the hip is associated with a higher risk of gluteal haematoma formation than the posterior approach.
- ▶ Embolisation represents a potentially life-saving technique in the management of gluteal artery bleeding in the haemodynamically unstable patient.

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