Prosthetic hip dislocation following saphenous vein harvesting for coronary revascularisation

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Abstract

As the age of patients undergoing coronary revascularisation continues to increase so will the incidence of patients undergoing the procedure with hip replacements in-situ. We report on the first case of hip dislocation following saphenous vein harvesting for coronary revascularisation and describe a simple bedside technique that allows it to be diagnosed early. It is imperative that those dealing with this group of patients are aware of this potential complication and how to avoid and diagnose it early.

Keywords: CABG; Saphenous vein; Coronary revascularisation; Hip dislocation

1. Background

The saphenous vein continues to be the most commonly utilised conduit in cardiac surgery despite increasing interest in arterial conduits. Saphenous vein harvested using a longitudinal open technique results in an incidence of complications (infection, dehiscence, delayed healing, lymphangitis, neuraoma formation and limb amputation) ranging from 2–25% [1–4]. Endoscopic techniques of saphenous vein harvesting are becoming increasingly popular as they are believed to result in fewer wound complications [5] and are becoming increasingly popular in the elderly population. We report on the first case of prosthetic hip dislocation following saphenous vein harvesting for coronary revascularisation.

2. Case presentation

A 72-year-old lady underwent right sided open saphenous vein harvesting from medial malleolus to mid thigh for elective two-vessel coronary revascularisation. This lady had a past history of arterial and embolic disease, stable lung sarcoidosis, and a right total hip replacement which had been performed eight years previously for osteoarthritis without complications. Up to the point of her dislocation the hip replacement had been functioning well.

Her coronary revascularisation was uneventful and she was transferred to ICU for routine postoperative monitoring. On extubation the patient complained of thigh pain and was unable to tolerate being sat up or moved. This thigh pain was initially attributed to wound pain from her vein harvest site and simple analgesics were prescribed. However, this did not settle and the patient was unable to transfer or mobilise due to thigh and hip pain for a further two days. At postoperative day three it was noted that she had a shortened leg with a painfully reduced range of hip joint motion. Fortunately, there was no evidence of any neurovascular compromise. Plain radiographs taken at this time showed a dislocation of her hip prosthesis (Fig. 1).

The patient was referred to the orthopaedic team at this point and taken to theatre where she underwent a closed reduction and examination under anaesthesia. The reduced hip was found to be stable and the patient did not require further orthopaedic intervention. Post-reduction the patient was initially placed in an abductor splint but was permitted to mobilise as pain allowed without restrictions.

3. Conclusion

Hip prosthesis stability depends on component design, component alignment, soft tissue tensioning and soft tissue function [6, 7]. Even if all of these four components are normal a hip will still dislocate if it is put through extreme ranges of movement. Classically, posterior hip dislocations are brought on by extremes of internal rotation, adduction and flexion at the hip while anterior hip dislocations are brought about by external rotation, abduction and extension. Our patient had no previous problems with her total hip replacement; her radiographs did not demonstrate any gross component misalignment and she was noted to have a stable hip while being examined under anaesthesia post-reduction. We believe the hip dislocated as a result of decreased local soft tissue function due to general anaesthesia with paralysis and because of the hip’s position (external rotation, abduction and flexion) during saphenous vein harvesting.
As the age of patients undergoing coronary revascularisation increases [3] the incidence of patients undergoing saphenous vein harvesting with total hip replacements in situ is likely to increase. Both open and closed techniques of saphenous vein harvesting require varying degrees of external rotation, abduction and flexion of the hip in paralysed patients. This puts the patient with a hip replacement at risk of dislocating. Furthermore, due to the length of time some patients can spend intubated and sedated post-operatively, unless a dislocation is actively looked for, it can easily be missed until the patient is actually able to complain of pain and inability to mobilise. This leads to an unnecessary increase in the risk of neurovascular damage (sciatic nerve in posterior dislocation, femoral nerve and saphenous vein harvesting require varying degrees of external rotation, abduction and flexion of the hip in paralysed patients. This puts the patient with a hip replacement at risk of dislocating. Furthermore, due to the length of time some patients can spend intubated and sedated post-operatively, unless a dislocation is actively looked for, it can easily be missed until the patient is actually able to complain of pain and inability to mobilise. This leads to an unnecessary increase in the risk of neurovascular damage (sciatic nerve in posterior dislocation, femoral nerve and vessels in anterior dislocation) and of recurrent dislocations due to soft tissue stretching and damage.

In order to decrease the risk of dislocation and time to diagnosis of hip dislocation during cardiac revascularisation, we advise that where possible graft is harvested from the limb without a prosthesis, and in those cases where it is necessary to harvest saphenous vein from a limb with a prosthesis, extra caution should be taken to decrease the amount of external rotation, abduction and flexion at the hip. Furthermore, extra care must be taken during the transfer and positioning of this group of patients. To decrease the time to diagnosis we advocate simply measuring leg lengths pre and immediately postoperatively. Any postoperative difference should be further investigated with plain radiography.

References


