

Delayed Onset Sciatic Nerve Palsy Secondary To Hematoma Caused By Cement Fragment Post Revision Hemiarthroplasty

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Citation

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Abstract

Sciatic nerve palsy is an uncommon complication after hemiarthroplasty, yet potentially devastating in terms of functional outcome post-operatively. There are a few isolated case reports of sciatic nerve palsy related to post-operative hematoma after hemiarthroplasty or total hip replacement. The cases are all associated with peri-operative use of anticoagulants. We describe a case of delayed sciatic nerve palsy after hip hemiarthroplasty due to hematoma formation caused by sharp cement spike protruding from previous dynamic hip screw hole.

INTRODUCTION

Sciatic nerve palsy is an uncommon complication after hemiarthroplasty, yet potentially devastating in terms of functional outcome post-operatively. There are a few isolated case reports of sciatic nerve palsy related to post-operative hematoma after hemiarthroplasty or total hip replacement. The cases are all associated with peri-operative use of anticoagulants. We describe a case of delayed sciatic nerve palsy after hip hemiarthroplasty due to hematoma formation caused by sharp cement spike protruding from previous dynamic hip screw hole.

CASE REPORT

An 80-year-old lady has a history of right intertrochanteric fracture with dynamic hip screw (DHS) fixation 2 years ago. The intra-operative and postoperative course was uneventful. The patient has also a history of symptomatic anemia, gallbladder polyp, osteoporotic collapse and osteoarthritis of the knee. Upon follow-up, she was noted to have right femoral head collapse likely due to avascular necrosis (Fig 1). Revision hemiarthroplasty was planned. However, she presented to us with right femur neck fracture after a fall injury before the planned surgery. Removal of dynamic hip screw and bipolar cemented hemiarthroplasty were performed with posterior approach. A size 44mm Stryker bipolar femoral head with -4mm offset 28mm V40 head and size 33 Exeter V40 stem were used. The operation was

uneventful. After the operation, she was noted to have hemoglobin drop on day 1 and day 5 postoperatively, requiring blood transfusion. Her wound was seen and there was no active oozing or swelling. Post-operative X-ray showed satisfactory alignment of the implant. (Fig 2)

Twelve days after the operation, she complained of increased right hip pain and right leg numbness. On physical examination, she was noted to have right foot drop and decreased sensation over toes. Blood test showed hemoglobin drop of 2.5g/dl over six days. Contrast computed tomography of the right hip revealed a large hematoma in the right gluteal region measuring 10 x 9 x 14cm. There was also dense contrast pooling posterior to the right femoral metaphyseal-diaphyseal region, suggestive of active bleeding. Emergency operation of wound exploration and hematoma was conducted subsequently. A large hematoma was evacuated in the posterior hip. The sciatic nerve was explored and found intact. We found a cement fragment with sharp spike distal to the previous dynamic hip screw hole, and there was arterial spurting around the sharp cement spike. The cement fragment was removed and bleeders were ligated. The patient tolerated the procedure with intra-operative blood loss of 1000ml. After the operation, the patient had improved right hip pain. Hemoglobin level was static upon interval monitoring. Four weeks following the emergent procedure, the patient

presented in follow-up with persistent numbness and foot drop, which required ankle-foot orthosis. She was able to walk with frame with 2 mild assistances.

Figure 1

Right femoral head collapse with dynamic hip screw in-situ.



Figure 2

Postoperative radiograph after revision hemiarthroplasty.

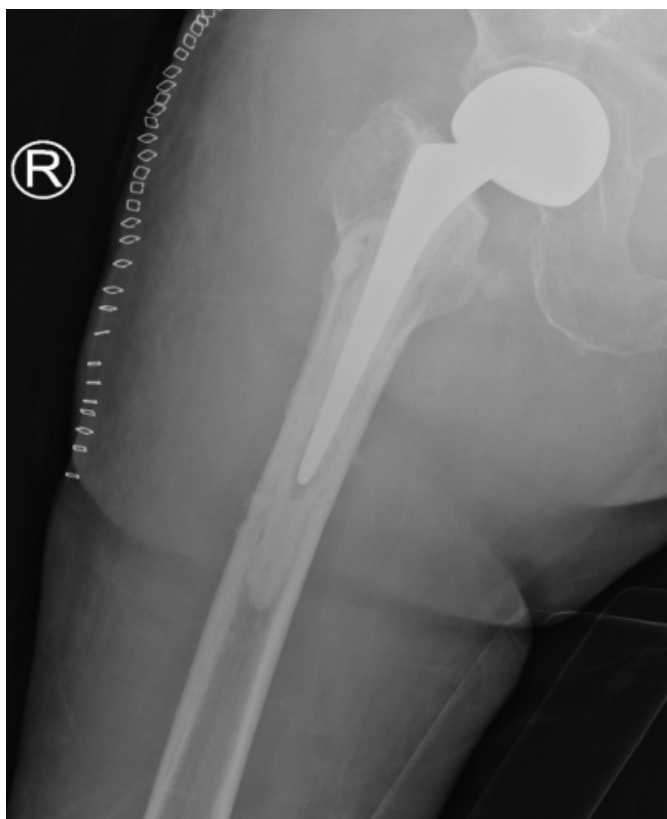
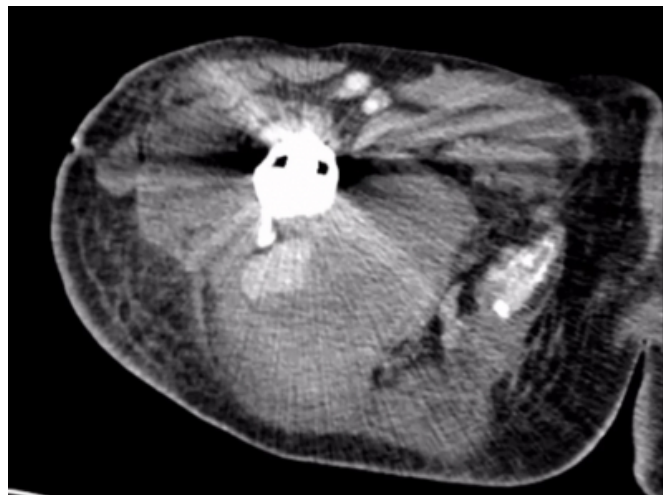


Figure 3

Axial over of computed tomography of right hip. Blue arrow showing cement spike from posterior aspect of trochanter; red arrow showing contrast pooling posterior to the femoral metaphyseal diaphyseal region.



DISCUSSION

The literature reports an incidence of 0.6% to 3.7% of nerve palsy after total hip arthroplasty. [1] The possible causes included direct iatrogenic injury to the nerve, traction injury by limb overlengthening, direct compression by retractors, thermal injury by cement or direct fraying by cement or osteophyte. [2] However, sciatic nerve palsy secondary to hematoma after hip replacement surgery was uncommonly reported in the literature. There were several case reports of delayed sciatic nerve palsy caused by hematoma after total hip arthroplasty or hemiarthroplasty. [3] The cases were often related to perioperative use of anticoagulation therapy for either thromboprophylaxis or treatment of deep vein thrombosis or pulmonary embolism.

This is the first case report of which we noted that hematoma formation secondary to sharp cement spike, leading to delayed sciatic nerve palsy. In our case, the patient presented with right gluteal pain, right leg numbness and foot drop twelve days after the operation. The drain inserted did not prevent hematoma formation in her case, and she did not have any use of perioperative anticoagulants. Post-operative X-ray also showed no signs of apparent cement extrusion or presence of cement osteophytes. The delayed onset of hematoma formation was believed to be related to limb movement during rehabilitation, causing repetitive damage to the blood vessel by the cement osteophyte.

Butt et al [2] reported six cases of wound hematoma-induced sciatic nerve palsy post-THA secondary to anticoagulant

therapy. In their study, all the patients reported paresthesia in the ipsilateral foot, pain over gluteal region, swelling over the sciatic nerve region and significant hemoglobin drop which could not be solely explained by intra-operative and post-operative blood losses. Five out of six patients developed foot drop. They also found that five of their patients were less than 70kg in weight and received full prophylactic dose of anticoagulants. They conclude that drains do not always prevent hematoma formation. Onset of the sciatic nerve palsy was reported to range from within 48 hours to thirteen days post-surgery. [2][3]

Revision hemiarthroplasty following fixation implant removal could be challenging. One of the problems is leakage of cement through screw holes. For instance, in our case, a sharp cement spike can result in arterial injury causing large compressive hematoma formation. The blood vessel damaged was postulated to be the transverse branch of lateral circumflex artery, passing just below the greater trochanter where the previous lag screw hole was. Cement leakage could be minimized with the use of various methods including finger pressure, packed gauze, fashioned bone plug, re-insertion of screws and surgical glove inflated with saline. [4] [5] In an in-vitro study, it was shown that pressurized cement leakage from DHS screw holes was unable to be occluded by fingers effectively. [6] Therefore, we recommend that pressurized cementation should be avoided to minimize cement leakage in revision hemiarthroplasty for failed DHS. Thorough inspection and removal of any remaining sharp cement osteophytes should also be performed intra-operatively in revision hemiarthroplasty.

CONCLUSION

In conclusion, delayed sciatic nerve palsy secondary to hematoma is a rare yet serious complication. We should be vigilant that post-operative hematoma was not only related to use of anticoagulants, it may also be caused by arterial injury by sharp cement osteophyte arising from previous screw hole. Symptoms of unexpected degree of gluteal pain, limb numbness, foot drop and unexplainable hemoglobin drop should raise concern of any subfascial hematoma formation causing sciatic nerve irritation. Prompt surgical decompression and hemostasis should be performed to prevent irreversible neural damage and further blood loss. We should also make efforts to prevent cement leakage by various blocking methods and avoiding pressurization during cementation.

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