CASE REPORT

Late Sciatic Nerve Palsy Caused by Recurrent Hematoma after Primary Total Hip Arthroplasty: A Case Report

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Introduction

Sciatic nerve palsy is a well-recognized but uncommon complication of primary total hip arthroplasty (THA)^{1,2}. While this complication occurs in the immediate post-operative period occasionally, delayed sciatic nerve palsy is rather rare, and has been reported to be involved with cemented implants and limb lengthening³⁻⁵. Hematoma has been described to be a possible cause of the sciatic nerve palsy after THA in patients receiving anticoagulation therapy^{6,7}. However, to our knowledge, delayed sciatic nerve palsy associated with iliopsoas hematoma “spontaneously” has never been reported in the context of THA.

Here we present a case of recurrent hematoma with subsequent sciatic nerve palsy after THA for developmental dysplasia of the hip (DDH). The patient was treated with surgical evacuation of the hematoma and showed an early and complete recovery.

Case Report

A 26-year-old woman was admitted for DDH with a leg-length discrepancy of above 3 cm (Fig. 1a). She reported no other diseases and did not receive any medicine. There was no coagulation disorder: PT = 13.8 s, APTT = 38.6 s, TT = 18.9 s, INR = 1.1. The preoperative hemoglobin level was 122 g/L.

Cementless THA was performed under general anesthesia through a posterolateral approach. Leg-length equality was achieved. Three cables were used to fixate the periprosthetic femoral fissured fracture which was caused during the course of expanding the medullary cavity. The trade name of the acetabular implant is the Depuy Pinnacle: a 48 mm acetabular cup with 32 mm ceramic insert, 32 mm ceramic femoral head

of +1 mm short neck (Fig. 1b). The femoral implant is a press-fit cementless component. There was no apparent bleeding. The patient was given 400 ml red cell suspension and 200 ml plasma for the blood loss during the surgery. Immediate post-operative examination revealed normal active movements of the left great toe. The hemoglobin level was 102 g/L. The patient received rivaroxaban tablets 10 mg/d for 10 days. The postoperative period was uneventful and the patient was transferred to the rehabilitation hospital on day 7 postoperatively.

Twenty-one days after discharge, the patient came back to our department with a complaint of numbness and tingling in her left foot. The hemoglobin level decreased to 69 g/L, and the coagulation function was normal: PT = 13.7 s, APTT = 31.9 s, TT = 17.5 s, INR = 1.0. The patient experienced left foot and ankle extensor weakness and numbness. In addition, her left thigh was observed to be quite swollen without ecchymosis (Fig. 2a).

The patient was then suspected to have a sciatic nerve injury and potential vascular damage. Owing to her blood pressure and heart rates being stable at that time, she was treated conservatively. We failed to extract liquid in the swelling region. She was kept in bed with the knee flexed and hip extended to reduce sciatic tension. Blood transfusions were given to the patient with 800 ml red cell suspension and 400 ml plasma and the hemoglobin level was increased to 116 g/L. On day 5 of re-admission, the patient developed a complete drop foot. Her left foot was insensate in the sciatic nerve distribution, and she was unable to do the dorsiflex or plantarflex movement. However, the pedal pulses were still palpable.

We then performed exploratory surgery immediately through the prior incision. The iliopsoas muscle was remarkably swollen with intramuscular hematoma. Fibrinous tissue as the

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Fig. 1 (a) Anteroposterior radiograph of the left hip presenting with DDH. (b) Postoperative radiograph of the cementless total hip replacement.

organization of hematoma was noted as well. A nearly 500 ml hematoma was removed from the wound and there were no signs of infection or any active bleeding points (Fig. 2b). Two drainage tubes were placed but did not provide significant output. They were removed on the second postoperative day. The left foot sensation came back immediately after the surgery and the patient could move the toes and ankle slightly. One week after the surgery, the patient made a complete recovery of the sciatic nerve function and was discharged.

Discussion

This is a very interesting case. This case did not manifest immediate nerve lesion postoperatively after limb lengthening of over 3 cm, which is usually identified as the threshold of risk factor for sciatic nerve palsy^{1,8}. Limb lengthening can make the nerve susceptible to injury and has been the cause of over 30% of nerve palsies according to the literature⁹. Egli *et al.* suggested that this complication might also relate to specific operative difficulties⁸. This did not appear to be the case

Fig. 2 (a) Postoperative clinical picture showing the hip was quite swollen without ecchymosis. (b) Intraoperative photograph showing hematoma compounds.

here as the patient didn't complain of any motor or sensory function deficit directly after the operation.

It is probable that iliacus hematoma caused the sciatic nerve palsy, because the patient complained of no neurologic lesions in the immediate post-operative period, and because of her prompt nerve functional recovery following the surgical removal of the hematoma. Interestingly, there was no anticoagulation accident and no postoperative trauma as in the previous reports^{10,11}. The patient complained of the syndrome eighteen days after termination of the anticoagulant drugs. Therefore we believe there is no evidence of a direct correlation between hematoma and anticoagulation.

In the literature, hematoma formation after THA has other possible reasons. Prosthesis with the screw fixation acetabular components increases the incidence of vascular injury, which may lead to the development of hematoma¹². In our case, the old blood component revealed this to be a delayed recurrent hematoma, and there were no signs of any active bleeding points. Bartelt and Sierra¹³ reported that impingement of the iliopsoas muscle, which was caused by a malpositioned acetabular component, is another potential reason. We excluded this possible reason by postoperative radiograph of the pelvis. The iliacus muscle was noted to be swollen during

the surgery. The question is then raised of a possible stretch of the iliacus muscle, which mainly consists of hip dislocation, tentative implementation of an increased neck length and the postoperative active stretching exercises. Also, we found that drain output doesn't always prevent haematoma formation, and to extract the haematoma via syringe is sometimes difficult.

The treatment of hematoma with associated nerve palsy remains uncertain. Several reports have provided favorable results of nonsurgical therapy on the femoral nerve palsy¹⁴⁻¹⁶, while there is still no related report of conservative treatment with the sciatic nerve. To our knowledge, if there is no suspicion of further bleeding, the follow-up neurologic dysfunction yield is stable and the case is without disorders of hemostasis like hemophilia, conservative therapy could be a reasonable alternative. However, in face of progressive neurological worsening, surgical intervention should be preformed promptly.

We present this case to draw attention that THA for DDH can cause sciatic nerve palsy through an uncommonly delayed hematoma. It may be due to a rare cause of iliacus muscle stretching followed by limb lengthening. Surgeons should be aware of this complication during the course of surgery and postoperative recovery.

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