Acute compartment syndrome in the thigh after revision hip arthroplasty

A case report

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A 73-year-old-woman who had undergone THA for arthrosis in 1983 in the left hip had a revision because of loosening in 1994. We reconstructed the acetabular deficiency with morsellized allograft and a structural autograft from the contralateral iliac crest. After bone grafting, the acetabulum was reinforced with an anti-protrusion ring and the implants were fixed with bone cement. Autologous transfusion was used during the operation.

Just before the end of the operation, the patient's systolic blood pressure dropped to 50 mmHg and an acute bleeding diathesis occurred. The coagulation profile revealed fibrinogen 70 mg/dL, FDP 46 µg/dL and platelet 40,000/mL. DIC and shock were diagnosed, and the patient was given red blood cells, fresh frozen plasma, and platelets. The duration of the operation was 7 hours and the blood loss was 6,000 mL. Just after the operation, she could move her left leg and digits spontaneously.

Bleeding and shock could not be immediately controlled, and her left thigh became swollen. The patient complained of the thigh pain. 12 hours after the operation, serum creatine kinase levels rose to more than 20,000 IU/L. Although we suspected compartment syndrome in the thigh, we could not perform a fasciotomy because of her disastrous general condition. We continued transfusions of fresh blood, plasma, and platelets.

2 days after the operation, she recovered, and we diagnosed femoral and sciatic nerve palsy. Serum creatine kinase levels decreased to 3,000 IU/L. 2 weeks after the operation, CT examination showed that the anterior and posterior compartments of the left thigh were severely swollen and a diffuse intramuscular hemorrhage compressed the sciatic nerve (Figure 1). 4 months after the operation, femoral nerve palsy had improved gradually, but the recovery of the sciatic nerve was still incomplete, as confirmed by EMG. The patient could walk using a long-leg brace.

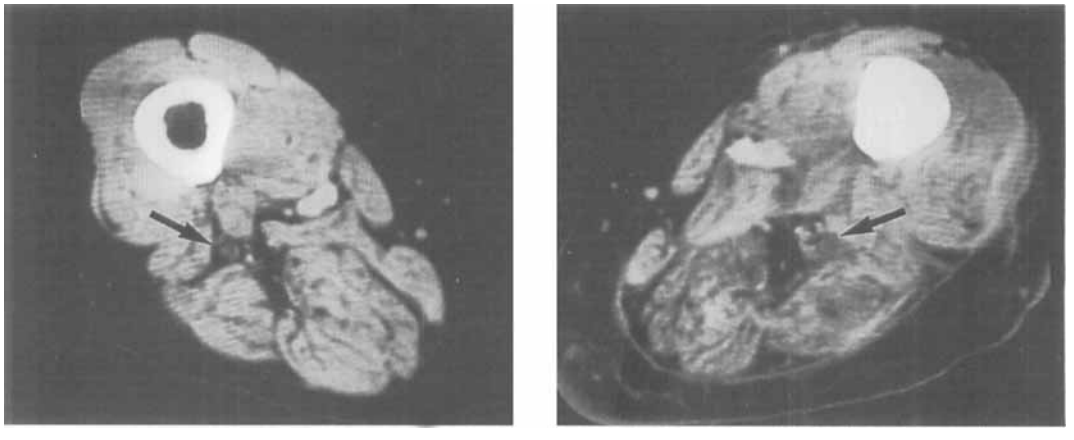

Figure 1. Enhanced CT of both thighs 2 weeks after the revision. Swollen anterior and posterior compartments of the left thigh (arrows indicate sciatic nerves).

Discussion

Acute compartment syndrome in the thigh is uncommon. Fleming et al. (1979) reported 5 cases suffering from sciatic nerve disturbance due to hemorrhage and hematoma following hip surgery. 4 of these patients had received anticoagulation therapy. Ebraheim et al. (1991) reported compartment syndrome in the thigh following blunt trauma in a man on chronic anticoagulation therapy. These reports show that compartment syndrome in the thigh may occur due to bleeding diathesis.

In orthopedic surgery, the occurrence of DIC is commoner than previously thought (Mayer and Gehlsen 1988). In prolonged procedures such as revision THA, one should be aware of the risk of coagulopathy in order to be able to prevent complications, such as in our case.

References

Ebraheim N A, Hoeflinger M J, Savolaine E R, Jackson W T. Anterior compartment syndrome of the thigh as a complication of blunt trauma in a patient on prolonged anticoagulation therapy. Clin Orthop 1991; 263: 180-4.

Fleming R E, Michelsen C B, Stinchfield F E. Sciatic paralysis. A complication of bleeding following hip surgery. J Bone Joint Surg (Am) 1979; 61(1): 37-9.

Mayer P J, Gehlsen J A. Coagulopathies associated with major spinal surgery. Clin Orthop 1988; 245: 83-8.