Bilateral pathological hip fractures in a patient with a bipulmonary transplant: a case report

Roberto Seijas,1 Oscar Ares,2 Aamer Malik,3 Ignacio Maled4
1 Department of Orthopedics and Traumatology, Fundacion Garcia Cugat, Hospital Quiron, Barcelona, Spain
2 Department of Orthopedics and Traumatology, Hospital of Viladecans, Viladecans, Spain
3 Department of Orthopedics and Traumatology, Hospital del Mar, Barcelona, Spain
4 Department of Orthopedics and Traumatology, Vall d’Hebron Hospital, Barcelona, Spain

ABSTRACT

The use of immunosuppressive agents to prevent tissue rejection may predispose patients to osteoporosis and fractures. We report a case of bilateral pathological hip fractures in a woman with osteoporosis who had undergone a bipulmonary transplant. To reduce the risk of pathological fractures, patients are given prophylaxes for osteoporosis prior to organ transplantation, but they remain at increased risk of fractures. They should be informed that this side-effect may occur after transplantation.

Key words: hip fractures; immunosuppressive agents; organ transplantation; osteoporosis

INTRODUCTION

Despite improved surgical techniques and medications, complications associated with organ transplantation remain high.1 Simultaneous fractures of both femoral necks is a rare complication and has been associated with epilepsy, electrocution, electroshock, high-energy trauma, and metabolic bone disease.2–5 In patients with metabolic bone disease such as osteoporosis, stress fractures may present as pain. Non-displaced stress fractures may be treated conservatively, but displaced intracapsular hip fractures should be treated with hemiarthroplasty or total hip arthroplasty.2,3 We report a case of bilateral pathological hip fractures in a woman with osteoporosis who had undergone a bipulmonary transplant.

CASE REPORT

In June 2002, a 55-year-old woman was diagnosed with osteoporosis (bone density, -2.3 Z-score) and treated with 60 mg of intravenous pamidronate (in 3 2-week cycles every 3 months) and 70 mg of alendronate (weekly thereafter), but her Z-score remained unchanged.

In December 2003, she underwent a bipulmonary transplant for severe chronic respiratory failure secondary to severe bilateral bronchiectasias and pulmonary hypertension. She later presented with signs of graft rejection with hypoxaemia, haemodynamic instability, paresis of the left diaphragm, and fever.
Methylprednisolone was prescribed (125 mg/8h on day 1 and 1 mg/kg on days 2 to 4), then progressively reduced (on days 5 to 10) and maintained (at 0.5 mg/kg/day thereafter). Other immunosuppressive agents used were azathioprine 1 mg/kg/day initially and a maintenance dose of cyclosporine A 250 μg daily. This treatment was successful and she was discharged 3 months later. Six weeks after discharge, she complained of a spontaneous increase in pain in both hips. She had no history of trauma or excessive strain on her hip joints. Radiographs showed displaced subcapital fractures of both femurs (Fig. a).

She underwent bilateral total hip arthroplasties with a one-week interval between each procedure to prevent massive loss of blood (Fig. b). Both the cup and stem were uncemented, with a hydroxyapatite surface coating. She was given enoxaparine (40 mg/day) for 6 weeks to prevent venous thromboembolism. Early weight bearing and mobilisation were well tolerated, enabling an early return to her normal activities of daily living. There were no complications. At the 2-year follow-up, she remained pain-free with independent ambulation.

**DISCUSSION**

Patients undergoing organ transplant require immunosuppressive medications, usually including steroids, which may cause osteoporosis. The loss of bone mass is most evident during the first month of transplant when high doses of corticosteroids and immunosuppressive agents are given to prevent acute tissue rejection. Bone density falls by about 20% during the post-transplant period. Bone density falls by about 20% during the post-transplant period. 25 to 42% of transplant patients develop pathological fractures, and the spine is the most common site. 1–5,9,10 Bilateral pathological hip fractures are uncommon and usually associated with neoplastic disease, metabolic disease, and renal osteodystrophy. 11 In our patient, cementless implants were used in order to reduce the risk of embolism to the transplanted lungs. 12 Prophylactic treatment augmenting bone density, including physical exercise and medications such as vitamin D, bisphosphonates, and teriparatide are recommended in patients undergoing organ transplantation. 8,10,13–16 They should also be informed of the increased risk of fractures after transplantation.

**REFERENCES**