

Extensive Bullous Complication Associated with Intermittent Pneumatic Compression

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Intermittent pneumatic compression (IPC) device is an effective method to prevent deep vein thrombosis. This method has been known to be safe with very low rate of complications compared to medical thromboprophylaxis. Therefore, this modality has been used widely in patients who underwent a hip fracture surgery. We report a patient who developed extensive bullae, a potentially serious skin complication, beneath the leg sleeves during the use of IPC device after hip fracture surgery.

Key Words: Venous thromboembolism, intermittent pneumatic compression device, fragile skin, extensive bullae

INTRODUCTION

Intermittent pneumatic compression (IPC) device is an effective means to prevent deep vein thrombosis,¹⁻⁴ and has been known to be safe with very low rate of complications compared to medical thromboprophylaxis.⁵ Therefore, this modality has been used widely in patients who underwent a hip fracture surgery.^{1-3,6}

We report a patient who developed extensive bullae, a potentially serious skin complication, beneath the leg sleeves during the use of IPC device after hip fracture surgery.

CASE REPORT

An 81-year-old woman, who sustained an intertrochanteric fracture on her left hip, was admitted via emergency room. She had been medicated with a beta-blocker for the treatment of hypertension. Otherwise, she did not take any medicine including steroids or anti-platelet drugs. She had no history of skin allergies, and preoperative laboratory examination revealed no evidence of coagulopathy. She underwent a cementless bipolar hemiarthroplasty under a spinal anesthesia. No special event occurred during the operation.

Postoperatively, IPC device (Kendall SCD EXPRESS™; Covidien, Mansfield, MA, USA) was applied on her both legs. According to a manufacture's brochure, the sleeve is made of a soft, lightweight, non-woven material, which can promote

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patient's comfort and compliance, and the microprocessor controls a 11-second-compression cycle to ensure 45 mm Hg-pressure delivery at the ankle, with resulting pressures of 40 mm Hg and 30 mm Hg sequentially at the calf and thigh.

There were no special events during hip fracture surgery, and her vital signs were stable on immediate postoperative period. But the patient became delirious on postoperative day 1. On the postoperative day 3, when she recovered from the delirium, she complained of left leg pain, and extensive large bullous skin lesions were found in her left leg. The lesions developed circumferentially beneath the IPC sleeves (Fig. 1). On physical examination, distal pulses, sensation and motor function were intact.

Immediately after the detection of skin lesions, IPC device was removed. The patient was consulted to a dermatologist and a diagnosis of fragile skin was made. Hemorrhagic fluid was aspirated, and wet dressing was applied. After 7 days, the skin lesions improved and the hemorrhagic bullae disappeared.

DISCUSSION

Venous thromboembolism is a frequent and serious complication after hip fracture surgery in elderly patients. The IPC has been known to be effective in preventing venous thrombosis with far less morbidities than pharmacologic prophylaxis.⁵ Compartment syndrome due to malfunctioning sleeves or a prolonged use has been reported.⁷ However, no skin complication has been reported after the use of IPC so far.

Our report showed that a bullous skin complication can occur even with recommended pressurization of 40-45 mm Hg during the use of IPC when the patient's skin is fragile.



Fig. 1. On the postoperative day 3, extensive large bullous skin lesions were found in her left leg.

In our patient, the detection of the skin lesion was delayed by 2 or 3 days because the patient was delirious postoperatively. Delirium is commonly detected in elderly patients who underwent hip fracture surgery, that is characterized a change of mental status with attention, awareness deficits, and loss of cognitive and perceptive functions.^{8,9}

When IPC device is applied on elderly patients with fragile skin and delirious condition, skin condition of the legs should be checked frequently during the application.

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