

## **Acute Compartment Syndrome of the forearm in a patient undergoing coronary artery bypass surgery**

Sir,

Compartment Syndrome is a life-threatening condition in which rapidly increasing interstitial pressures in a limb compartment compromise the vascular supply to the limb tissues, causing ischaemic tissue injury. If uncorrected, tissue necrosis may ensue,

requiring limb amputation.<sup>[1,2]</sup> For the prevention of intraoperative compartment syndrome, the importance of an excellent intravenous access and constant visual monitoring of the catheter site is often stressed.<sup>[3]</sup> We report a unique case in which a patient undergoing coronary artery bypass surgery (CABG) developed forearm compartment syndrome intraoperatively after infusion of about 2000 ml of intravenous fluids via a peripheral 16 gauge intravenous cannula without showing any signs of resistance to flow.

A 62-year-old male, known hypertensive and diabetic on medication, was taken up for CABG after a thorough pre-anaesthetic check-up. In the operation theatre, a peripheral vein (cephalic) on the flexor aspect of the right forearm was cannulated with a 16 gauge cannula in a single attempt without any difficulty and a normal saline infusion started. Flow was good without any signs of extravasation. The patient was then induced with intravenous fentanyl 150 µg, thiopentone 250 mg and vecuronium 8 mg through the same cannula. Radial arterial (left arm) and right jugular central line were inserted and positioning done for CABG with the arms tucked in by the side of the patient. After positioning, the flow to the peripheral vein was checked again and found to be satisfactory. Surgery was then started and proceeded as routine. During the surgery, the patient was infused about 1500 ml of crystalloids and 500 ml of colloid (tetrastarch). There was no resistance to flow in the peripheral vein at any point of time.

When drapes were removed after the surgery, the patient's right arm was extremely tense and swollen with cyanosed fingers and absent pulses. A diagnosis of acute forearm compartment syndrome was made and a decision to do emergency fasciotomy of the forearm and upper arm was taken to salvage the limb. The limb was draped, and fasciotomy done along the entire length of the forearm and upper arm. The colour of the limb rapidly changed to red as the compartmental pressures reduced. The right arm was kept elevated to reduce the oedema by gravity. The limb circulation was monitored with a combination of limb colour, plethysmography tracing and capillary refill. The fasciotomy was closed on the 3<sup>rd</sup> day after a considerable amount of oedema had dissipated and capillary refill and plethysmography trace were normal for about 48 h. The patient was then shifted to the ward and recovered uneventfully.

Acute forearm compartment syndrome due to

intravenous fluid extravasation is uncommon, but many case reports of forearm compartment syndrome due to mannitol extravasation<sup>[3,4]</sup> and autologous blood transfusion<sup>[5]</sup> have been published. This case report highlights the fact that although obtaining a secure intravascular access, securing it properly and constant visual inspection of the cannula site<sup>[3,6]</sup> are of paramount importance; this is not always possible particularly in surgeries where the upper limbs are tucked by the patient's side as a part of surgical positioning. Due to the absence of resistance to flow, the compartment syndrome could be recognised only at the end of surgery when the drapes were removed. This case illustrates the fact that prompt recognition and treatment are vital for limb salvage in compartment syndrome. Time is the key when circulation to any tissue is compromised, and the forearm compartment syndrome is no exception.

**Lalit Raj Garg, Sanjay Chhabra,  
Gopal Krishan Singla, Sunil Lakhwani**

Department of Anaesthesiology and Critical Care, Shriram Cardiac Centre, Kapurthala Chowk, Jalandhar, Punjab, India

**Address for correspondence:**

Dr. Lalit Raj Garg,  
Shriram Cardiac Centre, Joshi Hospital, Kapurthala Chowk,  
Jalandhar - 144 008, Punjab, India.  
E-mail: lalitrajgarg@gmail.com

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