Lost guide wire during central venous cannulation and its surgical retrieval

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ABSTRACT

Central venous cannulation via the internal jugular vein is commonly used in critically ill patients. Numerous complications of this procedure including embolisation of a fragment of guide wire and its retrieval by interventional radiological techniques are well known. We report a case of a lost guide wire into the venous circulation during central venous cannulation, which was retrieved via a right femoral venotomy.

Key words: Central venous cannulation, complication, guide wire

INTRODUCTION

Central Venous Cannulation via the internal jugular vein is commonly used in critically ill patients. Numerous complications of this procedure including embolisation of a fragment of guide wire and its retrieval by interventional radiological techniques are well known.[1-3] Only two cases of slippage of guide wire in the circulation requiring surgical retrieval[4,5] have been reported so far.

We report a case of a lost guide wire into the venous circulation during central venous cannulation, which was retrieved via a right femoral venotomy.

CASE REPORT

A 13-year-old boy presented to a zonal hospital of the Indian Army after falling down from a tree and incurred undisplaced fractures of the lower ends of both radii, fracture of the shaft of the right femur, with fracture of the neck of the left femur. After initial resuscitation, bilateral colle’s plaster was given and both the legs were placed in skeletal traction.

Three days after the injury the child was taken up for open reduction and Dynamic Compression Plating of the shaft of the right femur where the right internal jugular cannulation was attempted, since both the upper extremities were in plaster. During the cannulation of the internal jugular vein, the whole of the guide was lost in the internal jugular vein [Figure 1]. The external jugular vein was cannulated and the surgery completed. Post operative X-rays showed the

Figure 1: Retrieval of guide wire by femoral venotomy
Figure 2: X-ray of guide wire in the right femoral artery

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upper end of the guide wire in the superior vena cava and the inferior in the right femoral vein [Figure 2]. The patient was heparinised (Inj Low Molecular Weight Heparin, 3500 IU, bid) and taken up for retrieval of guide wire on the next day. Through a vertical incision in the right femoral triangle the right femoral vein was exposed. Proximal and distal control obtained by vascular loops, and the femoral vein opened by a longitudinal venotomy. The guide wire was held gently with vascular forceps, and the distal end eased out first, following which the whole guide wire was withdrawn. The venotomy was closed with vascular sutures using magnification. Subsequent intra-operative radiographs confirmed the full retrieval of the guide wire. The fracture of the neck of the left femur was then reduced and fixed two cancellous screws, in the same anesthesia setting.

Heparin was continued for 48 hours and then discontinued. The patient made and uneventful recovery and was mobilized after six weeks of surgery. The patient has been followed up for 06 months after surgery with no complications.

**DISCUSSION**

Central venous cannulation carries many complications,[1] loss of a fragment of guide wire with subsequent pulmonary embolism being a common one.[2] The loss of the guide wire can also result in arrhythmias, perforation of vessels, perforation through the cardiac chambers and thrombosis of peripheral vessels.[3] Though the loss is commonly recognized instances of unrecognized loss of guide wire into the circulation are also known.[3] The best method of retrieval of the guide wire is by interventional radiological methods, but two cases exist in literature where interventional radiological measures failed and the guide wire had to be retrieved by surgical venotomy.[4,5] In one it was extracted thru the saphenous vein,[4] while in the other it was removed through the right atrium by performing a median sternotomy and placing the patient on cardiopulmonary bypass.[5]

In our case since there were no interventional radiological facilities available and the lower end of the guide wire was seen in the right femoral vein it was easy to remove the guide wire after a femoral venotomy. Since the patient had to be operated for his fracture neck of left femur the surgery was carried out in the same anesthesia setting. The presence of the guide wire in the circulation did not cause any complications.

Loss of guide wire during central venous cannulation is a serious complication. During insertion utmost care of the guide wire should be taken. Only a small length of the guide wire should be inserted and its distal end should always be visible both during dilation and while inserting the cannula. The guide wire if removed through the venotomy should be removed gently with atraumatic forceps so that no venous mucosa is damaged. The venotomy should be preferably closed with magnification.

**REFERENCES**