

## LETTERS TO EDITOR

### Internal jugular venous catheterization: open technique as an alternative in patients on heparin infusion

Dear Editor,

We report an open technique of central venous catheterization (CVC) in a 65 year old lady with atrial septal defect (ASD), severe pulmonary stenosis (PS), atrial fibrillation (AF) and multiple right atrial clots with gangrene of the right leg on heparin infusion (800 IU hr<sup>-1</sup>) posted for emergency below knee amputation. Central venous monitoring is a standard monitoring in cardiac patients for non-cardiac surgery. To avoid multiple attempts and arterial puncture ultrasound guided CVC is being done, though its success depends on experience of the person performing the procedure<sup>1</sup>. A 65 year old lady, weighing 45 kg presented to surgery emergency clinics with pain in right leg. The patient had history of palpitations for the last four months and had left hemiparesis one month back due to acute lacunar infarct.

On examination she had dyspnoea on exertion (DOE) grade III / IV, anemia, central cyanosis and fever. Her pulse was irregularly irregular with a rate of 94 /min and her blood pressure was 140/ 90 mmHg. Her TLC was 20,000/cu mm, prothrombin time was 18/12 (test/control) and INR 1.3. Her oxygen saturation was 94% on face mask, and electrocardiogram showed atrial fibrillation, right axis deviation and right bundle branch block. Her chest X-ray showed increased translucency on right side, oligemic lung fields, cardiomegaly, and middle zone consolidation. Echocardiography revealed large (30 mm) ostium secundum ASD, PS (gradient across the valve 130 mmHg), severe pulmonary valve calcification and markedly dilated right atrium and right ventricle with right atrial clot. Doppler of right lower limb showed complete obstruction distal to right external iliac artery. Computed tomographic angiography showed small to medium sized thrombus or clots in right atrial chamber. In view of gangrene of the right leg, emergency below knee amputation was planned. In the operation room, after instituting the standard monitoring, right arterial cannulation was performed and general anaesthesia was induced. After intubation, cannulation of right internal jugular vein (IJV) was performed under direct vision after dissection in the neck by the surgeon and using seldinger technique by directly visualizing the vein and a predetermined length of guide wire and CVC (Certofix<sup>®</sup>, B Braun, Melsungen AG, Germany) was done in the right IJV. After applying the tourniquet, below knee amputation of leg was performed. The total surgical duration was 2 hours. Blood loss was 500 ml which was replaced by crystalloids.

The vitals were stable throughout the procedure. Patient was extubated next day and subsequent recovery was uneventful.

There is high incidence of paradoxical embolism leading to blockade of major or minor arteries in patients with large ASD and atrial fibrillation. In our patient, paradoxical embolus occluded right external iliac artery leading to gangrene of the leg, necessitating emergency amputation to prevent spreading of infection. Heparin infusion was started preoperatively and continued intraoperatively as there are case reports of further ischemia immediately after termination of heparin infusion in these patients<sup>2</sup>. In our institute, we routinely perform CVC under ultrasound guidance. Yet, as the patient was on heparin infusion, inadvertent arterial puncture or more than one attempt for cannulation may have lead to excessive bleeding, hematoma formation or other complications<sup>1</sup>. In pediatric patients, the cut open technique is the standard in difficult IJV cannulation and for Hickmann catheter insertion<sup>3</sup>. So, we planned IJV cannulation under direct vision after dissection and a predetermined length of guidewire and catheter was inserted without any untoward event. Another advantage of this procedure is that direct pressure can be applied over the vessel should bleeding occur.

We conclude that cut open technique for IJV cannulation may be given a chance in the patients with atrial clots on heparin infusion to reduce the risk of paradoxical thromboembolism.

#### References:

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