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Lost guide wire during central venous catheter placement: A Case Report

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Abstract: A rare complication of central vein catheter placement is the complete loss of guide wire into the circulation. It may get unnoticed and may be asymptomatic also but should always be removed as early as possible. We report a case of lost guide wire during central venous catheter placement which was eventually removed without complications. The factors leading to this complication, how to prevent it and how to deal with it will be addressed.
Keywords: Central venous catheter, complications, guide wire

INTRODUCTION

Central venous catheter placement is a common procedure in every intensive care unit. Ever since 1953 when Seldinger describes its technique of catheter placement, it's the most widely used technique for bedside procedures[1]. Every procedure has its potential complications, so it's true for this also and the complication rate can be as high as 15[2]. Guide wire related complications of it are rarely reported and totally preventable. In this paper we report a case of lost guide wire during central vein catheter placement and its successful removal.

CASE PRESENTATION:

40 year old male hypertensive patient was admitted in ICU at 4 am with complaints of shortness of breath since last 2-3 days and reduced urine output since last 20 days. He was tachypneic and orthopneic. His pulse rate was 140/minute, BP was 190/110, respiratory rate 38/min and he was a febrile. Respiratory system examination reveals bilateral vesicular breadth sounds with bilateral basal fine crepts. Cardiovascular examination reveals presence of S3. His Xray chest was suggestive of acute pulmonary edema. His creatinine was 11.11mg/dl and urea was 131mg/dl. 2D Echo done showed concentric hypertrophy of left ventricle and diastolic dysfunction. So a provisional diagnosis of acute pulmonary edema due to renal failure was made on clinical ground and intravenous diuretics were advised. But with repeated failed attempts of peripheral vein cannulation, urgent central vein catheter placement was planned. As he was very orthopneic femoral vien cannulation was planned. Seldinger technique was used. Firstly cleaning and drapping was done. Femoral vien was located and guide wire was placed through the needle. Then the needle was removed and dilator was inserted. At this stage guide wire was slipped and lodged inside the vein as the distal tip was not hold tightly. As the condition of the patient was deteriorating central venous catheter was placed and intravenous diuretics and other medical therapy were started with it and patient responds well to it. Then X-ray pelvis and X-ray chest was done which shows guide wire in situ. Then plan to remove guide wire was made on the same day and interventional radiologist was consulted who removed it by snare technique (figure1). Patient tolerated the procedure well and was discharged in stable condition.

Fig- 1: showing the removal of guide wire by snare technique

DISCUSSION

Guide wires during central vein catheter placement can cause complications leading to morbidity and mortality. The common complications are listed and discussed below.

Common guide wire related complications[3].

1. Cardiac dysrhythmias
2. Cardiac conduction abnormalities
3. Perforation of vessel or cardiac chambers
4. Kinking of wire
5. Breakage of distal tip of guide wire
6. Complete loss of guide wire

Cardiac dysrhythmias, mainly premature atrial or ventricular contractions can occur from guide wire touching the endocardium but are usually short lived and resolves as soon as it's pulled back[4]. Most common conduction abnormality is right bundle branch block due to its superficial location on right ventricular endocardium. Perforation of vessel or cardiac chambers and kinking of wire can occur if excess force is applied against the resistance. Breakage of distal tip can occur by pulling the guide wire back after it has passed the bevel of the needle[5].

Complete loss of guide wire is a totally avoidable complication. In our case it happens due to slipping of the distal tip of guide wire. Predisposing factors for it are inattention, inexperienced operator, inadequate supervision and overtired staff. In our case last factor was the probable reason as the operator was fully experienced. Signs of guide wire loss include missing guide wire, resistance to injections and poor backflow and are confirmed by radiography[6]. Usually lost guide wires don't cause any symptoms but it can cause arrhythmias, vascular damage, thrombosis and embolism[7]. If such a complication has occurred, guide wire should be removed as early as possible[8]. Interventional radiology is the preferred method for its removal[6]. In it patient is heparinized and under radiographic control a goose neck snare is passed via femoral vien and the foreign body is caught and removed[9].

The best ways to prevent guide wire related complications are:

- Consider guide wire a fragile instrument.
- Always hold the distal tip of guide wire.
- Never apply force against the resistance.
- Insert the guide wire up to 18-20 cms[10].

CONCLUSION

Central vein catheter placement requires good operating skill, expert supervison and adequate attention. Guide wire related complications can be hazardous but are uncommon and preventable.

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