

Removal of a missed guide wire in central vein with endovascular intervention: a case report

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During invasive vascular procedures, missing the guide wire in the vascular lumen is a rare complication. It was identified with direct X-ray images in a 29-year-old male patient with tetraplegia developed after a car accident and followed in the intensive care unit that the guide wire was missed from the right femoral vein after central catheter intervention performed and extended to superior vena cava. The guide wire in the vein was removed with endovascular snare method with the femoral vein attempt. In this article, missing the guide wire into the vascular lumen after invasive vascular interventions as a rare complication was discussed.

Keywords: Catheterization; complication; intravascular foreign body/guide wire; percutaneous intervention.

Invasive vascular interventions (IVI) are performed with increasing frequency in intensive care units (ICU), operating rooms, emergency, and units of cardiologic and radiologic procedures. Critical complications may occur during IVI in the early and late periods. Anatomical structures, individual experiences and skills and the quality of the materials used are crucial factors in the development of complications. Often pneumothorax, hemothorax, vascular injury and bleeding, infection, thromboembolic events, air embolism may be accompanied. The embolization of catheter fragments is a serious complication and the incidence was reported to be 0.1-1%.^[1] The missing of a guide wire into the vascular lumen is seen rarely, however, it may cause mortality with a rate of 24-60% leading to complications such as thrombosis, infections, cardiac arrhythmia and perforation.^[2-4] In this article, a case of missing guide wire into the vein during central venous catheterization was presented in the light of the literature.

CASE REPORT

A 29-year-old male patient who was admitted with tetraplegia developed after a car accident was put on a mechanical ventilator in the ICU. The patient who was stabilized was transferred to the re-animation ICU of our hospital after being performed first interventions in the emergency department. He had a dislocation of the C6-7, compression fracture in C7 and cord compression. Necessary correction operations were made by a neurosurgeon. Since he was admitted to the

ICU, he had persistent fever, increased white blood cell counts and CRP values. On telecardiography, abdominal and pelvic radiographs, the image of a guide wire extending from the superior vena cava to the right femoral vein was identified (Figures 1-3). It was understood that the guide wire was missed during the placement of central venous catheter into the right femoral vein in the external emergency service. The guide wire was easily removed with snare catheter by the endovascular snare method by performing intervention from the right femoral vein under fluoroscopy (Figure 4). No additional complications were seen before and after the intervention.

DISCUSSION

Central venous catheterization (CVC) has been increasingly performed with several purposes in the operating rooms, ICUs, emergency units, invasive intervention units, sometimes in services. The intervention is usually done by the Seldinger technique, and jugular, subclavian and femoral veins are mostly used. Some complications such as infection, air or thrombus embolism, arrhythmia, hematoma, pneumothorax, hemothorax, hydrothorax, chylothorax, cardiac perforation, cardiac tamponade, trauma to

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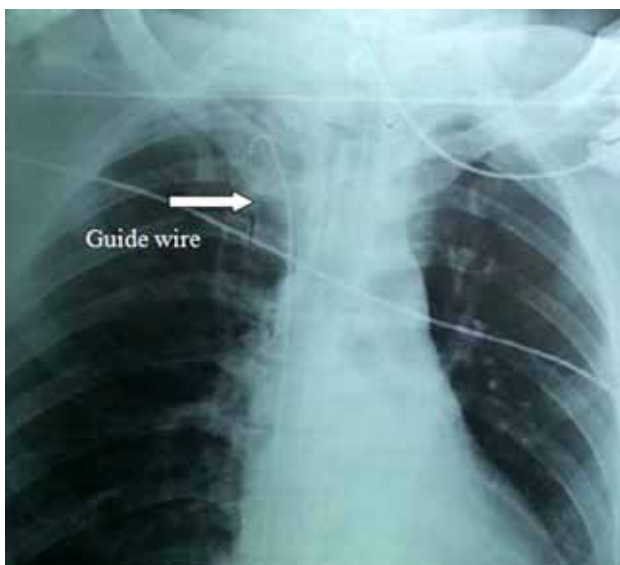


Figure 1. Image of guide wire in superior vena cava on telecardiography.

adjacent nerves and blood vessels can be seen during and in the early stages of CVC. The missing of guide wire into the vein; perforation of the superior vena cava, which can be fatal, aortic injury, acute cardiac tamponade and rupture of catheter have been reported as a very rare complication.^[3] The complications such

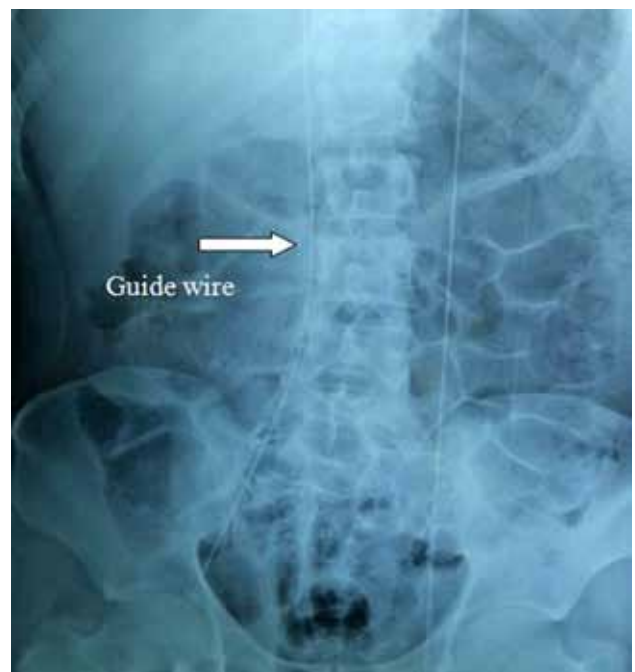


Figure 2. Image of guide wire in inferior vena cava on abdominal radiography.

as venous thrombosis, superior vena cava syndrome, endocarditis, and sepsis may develop in the late period.^[2,3] Doğan et al.^[3] reported that a forgotten guide wire in the lumen six months ago caused sepsis in the patient. In our case, although persistent fever and infection were observed due to the presence of intravascular catheter, the culture was negative.



Figure 3. Image of central venous catheter in right femoral vein and guide wire on pelvic radiography.

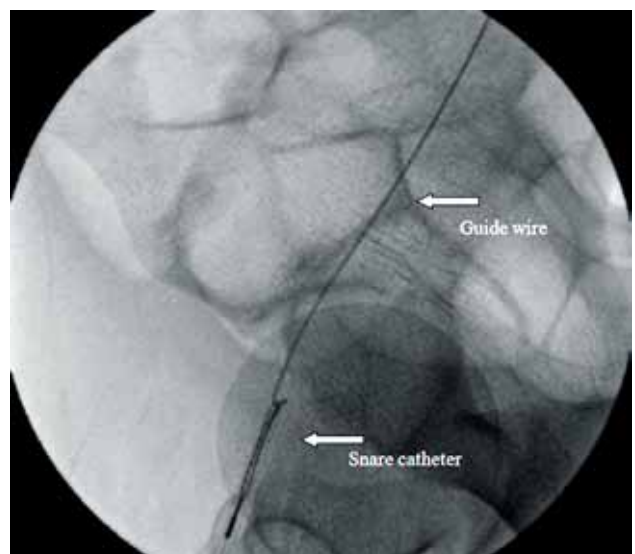


Figure 4. Image of fluoroscopy. Removal of the guide wire.

The most important factors which may cause complications in the early period are as follows: poor use of the technique, the clinician's experience while placing the catheter, anatomical region and the quality of the materials used.^[3,5] It was considered in our case that the missing of the guide wire into the vein could be due to the catheter insertion performed in emergency conditions and the poor use of the technique.

Complications which may occur after central venous catheterization, can be detected with inexpensive direct radiographies which can be performed easily at an early stage. The direct radiography performed after the procedure also provides information about the placement and function of the catheter. After CVC, plain radiographs will be performed initially and will allow the early diagnosis of complications and early correction before more serious complications occur.^[3,5] In our case, the presence of intravascular guide wire was detected by direct radiography at an early stage.

Removal of foreign bodies missed into vascular lumen can be made by endovascular or surgical interventions. As surgical technique, thoracotomy, retroperitoneal approach or vascular exploration can be needed. Schechter and Parisi^[6] described the snare technique in 1972 and they had removed the pieces of catheter from two patient's pulmonary arteries. Removal of foreign bodies missed into the vessel has continued to increase over time with the snare technique.^[4] Taşoğlu et al.^[5] and Özcan et al.^[7] removed an intravascular guide wire with endovascular method similar to our case which they were unable to remove it by a simple surgical intervention. We also removed the guide wire easily in our case by endovascular snare technique without performing open surgery because of its additional morbidity potential.

Furthermore, the cases of missing of foreign bodies into the vessels have been increasing with the increased IVI. The removal foreign bodies missed into the vessels with endovascular procedures protects the patient from major surgery and morbidity that

can arise in these interventions. Although surgical intervention remains important in patients in whom the removal of foreign bodies with endovascular interventions is not possible or in cases of failure, we conclude that performance of endovascular snare technique primarily is preferred. As a result, removal of intravascular foreign body can be performed rapidly, easily and safely with the endovascular snare technique.

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