

CLINICAL IMAGE

The lost guide wire

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Abstract. A 36 year-old man was admitted to the Intensive Care Unit (ICU) with severe pneumonia. After percutaneous catheterization of the femoral vein, the guide wire was lost. This was only noticed two weeks after discharge from hospital. Fortunately, the guide wire was discovered and extracted without further complications.

Introduction

The training of ICU residents is very challenging task for the supervising intensivist. Some skills such as percutaneous catheterization using the Seldinger technique are complex for the new trainee. In this case we report the inadvertent loss of a catheter guide wire during catheter insertion attempts, and its later detection and recovery.

Case history

A 36 year-old male was admitted to the ICU with severe community acquired pneumonia. Despite volume resuscitation, norepinephrine and dobutamine had to be administered a few hours after admission. For this reason, a venous catheter (Edwards Life sciences, 3 lumen, 16 cm M3716HE) was inserted using the Seldinger technique [1]. Because of the upright position of the patient, the right femoral vein was chosen. One of our residents who had previously placed approximately 10 central venous catheters performed the insertion procedure, assisted by an ICU nurse. After preparing the patient, the catheter was inserted successfully with no complications. Only one lumen (proximal) was tested and blood could be withdrawn easily. The catheter tray was not checked for the guide wire after the procedure was finished. After initiating an norepinephrine and dobutamine infusion, the patient's blood pressure rose to adequate levels and diuresis was satisfactory. One hour later, the ICU nurse discovered that the distal lumen was obstructed. Because of the good clinical response no further attention was paid to this. Only two days after admission, the inotropic support could be withdrawn and the venous catheter was removed. The next day the patient was transferred to the medical ward, and discharged from hospital in a good condition one day later.

Two weeks later the patient returned to the pulmonology outpatient clinic for a regular follow-up appointment. He was well and had no complaints whatsoever. There were also no indications for bloodstream infection, thrombosis or arrhythmias. [2] The frontal chest x-ray revealed a guide wire, located in the inferior caval vein and almost reaching the right atrium. After informing the patient, the guide wire was removed the next day under fluoroscopic control using a goose-neck snare [3]. The entire guide wire was removed. There was no evidence to suggest that this had caused any problems detrimental to his health and after one night of observation he was discharged from hospital.

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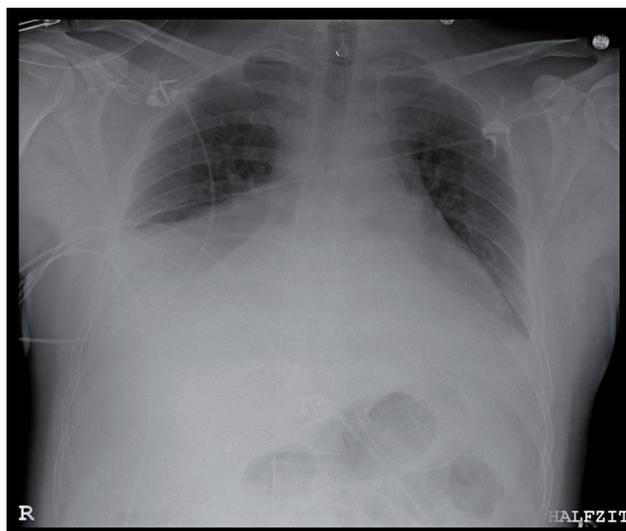


Figure 1: frontal chest x-ray day 1

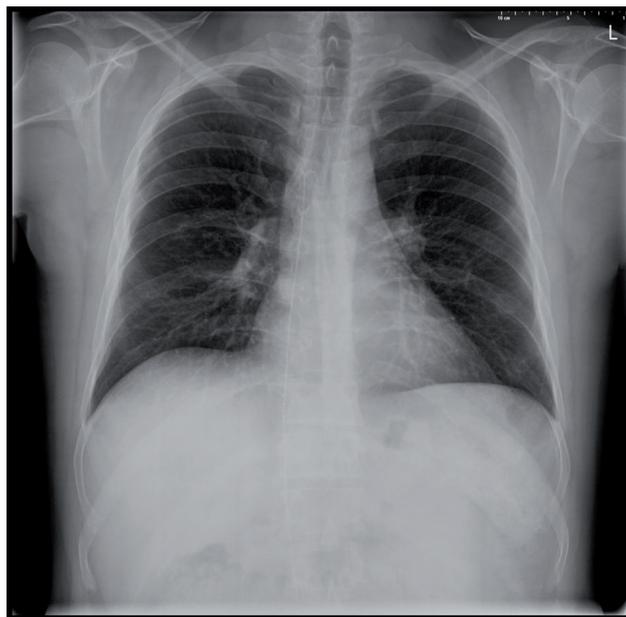


Figure 2: frontal chest x-ray day 14

Discussion

A missing guide wire is a rare but serious complication [4]. This incident took a favourable turn, but complications could have been critical [5,6]. Although percutaneous catheterization by the Seldinger procedure was performed properly, it is unclear why despite the availability of a clear protocol the removal of the guide wire was ignored, although it would be reasonable to assume that the lack of experience of the resident was a major factor. Talking to the patient is a frequent cause of distraction during insertion [7,8]. A chest x-ray is a standard procedure after inserting a catheter into the left or right subclavian or jugular veins. In our hospital, however, this is not routine after a femoral vein insertion. Surprisingly, the guide wire was visible on every chest x-ray that was taken after insertion of the catheter during the period of admission to the ICU. The first chest x-ray (Figure 1) was taken one day after admission, 12 hours after insertion of the catheter. The pneumonia, the ECG leads and the fact that nobody was looking for a guide wire may have contributed to the malposition being overlooked. After the patient had made a full recovery, two weeks after discharge from hospital, a radiologist discovered the guide wire at a regular follow-up appointment (Figure 2). After this incident, a number of measures were implemented. The local ICU protocol has been updated, with more attention being paid to

the Seldinger procedure. The training and supervision for residents has been improved, with more emphasis on inserting central venous catheters. Good supervision and training skills are essential in order to prevent guide wires being lost.

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