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Case Report

Migration of an Intravenous Wire Guide in a Young Polytraumatized Patient

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Abstract: The placement of a central venous catheter is a life-saving gesture with multiple indications but it can be the cause of several complications including the migration of the metallic guide, in which we present a case that occurred in a 30-year-old patient; admitted to the emergency department for polytrauma following a road traffic accident. She benefited from the placement of a left femoral venous catheter for emergency intensive care; there was the migration of the guide wire during the insertion of the catheter. A control X-ray shows the presence of the guide wire from the inferior vena cava to the right internal jugular vein. Surgery was indicated employing a mini approach to the internal jugular vein to extract the guide.

Keywords: Migration of guide; young; polytraumatized.

INTRODUCTION

The placement of a central venous line is a common gesture in the emergency and intensive care units. One out of two patients benefits from a central venous catheterization in intensive care, with this rate varying according to the type and habits of the unit [1]. Like all other procedures, it is associated with a large number of potential risks [2]. The incidence of adverse events related to the insertion of a subclavian venous catheter, internal jugular or femoral includes complications and failures. It varies from 5 to 19% [3]. Guidewire migration is a rare complication whose occurrence is accompanied by a significant risk of morbidity and mortality [2]. We will report the case of a guidewire migration of a central venous line in a young polytraumatized patient.

OBSERVATION

30-year-old patient; no significant pathological history. Admitted to the emergency department for polytrauma following a road traffic accident. At admission, the medical exam shows a patient with a Glasgow score of 13; in a state of shock. Trauma to the right upper limb and right leg.

A central line through the left femoral vein was placed for filling. An X-ray of the arm and leg shows a fracture of the humerus and the right leg. She received an external fixator on the right arm and a nail on the right leg.

An X-ray of the pelvis shows the presence of the lower end of a metal guide in the inferior vena cava (fig. 1); complementary cervico-thoraco-abdominal X-rays show a metal guide from the inferior vena cava to the right internal jugular vein (fig2). Surgical extraction of the metal guide was indicated, she benefited from the extraction of the guide by a surgical approach to the internal jugular vein (fig. 3 and 4) between the sternal head and the clavicular head of the sternocleidomastoid muscle.

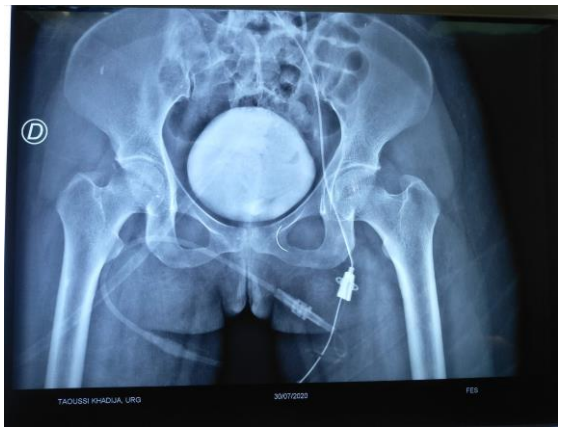

Fig. 1: An X-ray of the pelvis shows the presence of the lower end of a metal guide in the inferior vena cava

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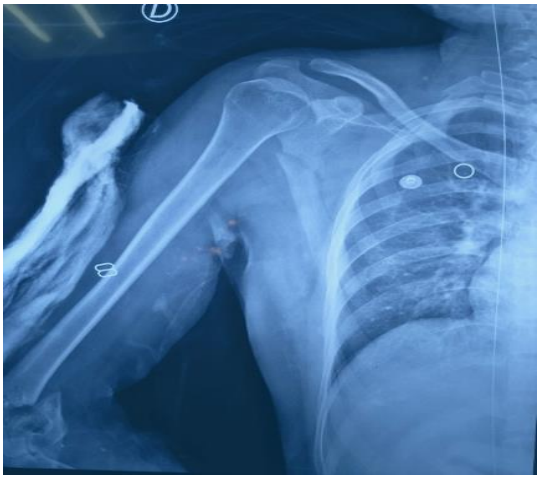

Fig. 2: **Complementary cervico-thoraco-abdominal X-rays show a metal guide from the inferior vena cava to the right internal jugular vein**

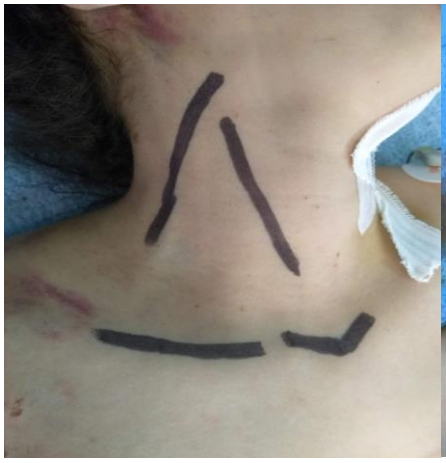

Fig. 3

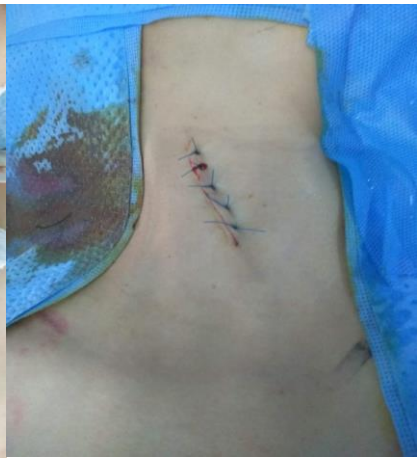

Fig.4

Fig. 3 and 4: A surgical approach to the internal jugular vein

DISCUSSION

The placement of a central venous catheter is a life-saving gesture with multiple indications, the practice of which is very common in the emergency and intensive care units. Several ways for placing the central venous catheter are possible: subclavian, jugular, and femoral. However, many studies have been published describing mechanical complications related to central venous catheter insertion. The incidence of serious insertion complications is higher for the subclavian and the internal jugular vein than for the femoral vein [4]. The insertion of a femoral catheter for an emergency intervention is a simple and relatively safe procedure. However, it can be dangerous if it is carried out without respecting the rules of catheterization, in particular, if it is carried out by an unskilled operator [5].

Catheterization complications include those associated with catheter insertion (pneumothorax, arterial and nerve damage) and those associated with prolonged catheter use (thrombosis and infection); but intravascular migration of the guide remains exceptional [5-7].

The most frequently reported complications related to guide wire migration are heart rhythm disorder, cardiac conduction abnormalities, perforation of vessels or cardiac cavities, twisting, looping, or knotting of the guide wire, entanglement of previously placed intravascular devices, rupture of the distal end of the guide wire with embolization or the complete loss of the guide wire in the vascular system [2].

The factors favoring the migration of the guide wire are inattention, an emergency situation, obesity, and the operator's lack of experience or fatigue [8].

The removal of the guide by conventional surgery or by interventional radiography is an emergency.

Conventional surgery was our therapeutic choice to extract the guide from our patient, unlike Qutub and al who had extracted the guide by

interventional radiography despite the common site of the central venous catheter placement.

The therapeutic choice depends on the experience, the team's tray, and the type of complication induced by the metallic guide.

CONCLUSION

Guide wire migration during central catheter placement is a rare complication but remains serious due to the consequences of the lesions it can cause. The extraction of the guide must be carried out urgently with the appropriate therapeutic means.

CONFLICT OF INTERESTS

The authors do not declare any conflict of interests.

Contribution of the Authors

All the authors contributed to this article; they approved the final version of this manuscript.

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