

INADVERTENT SUBCLAVIAN ARTERY CANNULATION DURING CENTRAL VENOUS CATHETER PLACEMENT

– PULL OR REPAIR?

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INTRODUCTION

Inadvertent subclavian artery puncture and cannulation is a rare complication during **central venous catheter (CVC) placement**.

While *arterial puncture* is described in **6-9%** of this procedures, *arterial cannulation* occurs in **<1%**.

Location of subclavian artery behind the clavicle makes compression and arterial control difficult.

Simple catheter removal (**pull-and-pressure**) may result in massive bleeding, stroke, pseudoaneurysm, or death.

We describe two cases of inadvertent subclavian artery cannulation with a large-bore catheter during CVC placement with very different managements.

CONCLUSION

We believe that when inadvertent subclavian artery cannulation occurs, the safest approach is to, **before catheter removal, consult with a vascular surgeon** for prompt open or endovascular repair.

In CASE 1, minimally invasive **endovascular repair** with a covered stent proved safe and effective.

The **pull-and-pressure** approach, as described in CASE 2, appears to be associated with significant morbidity and mortality. **When used we suggest imaging to exclude complications.**

CASE 1

51-year-old female

Implanted CVC Placement in Right Subclavian Vein

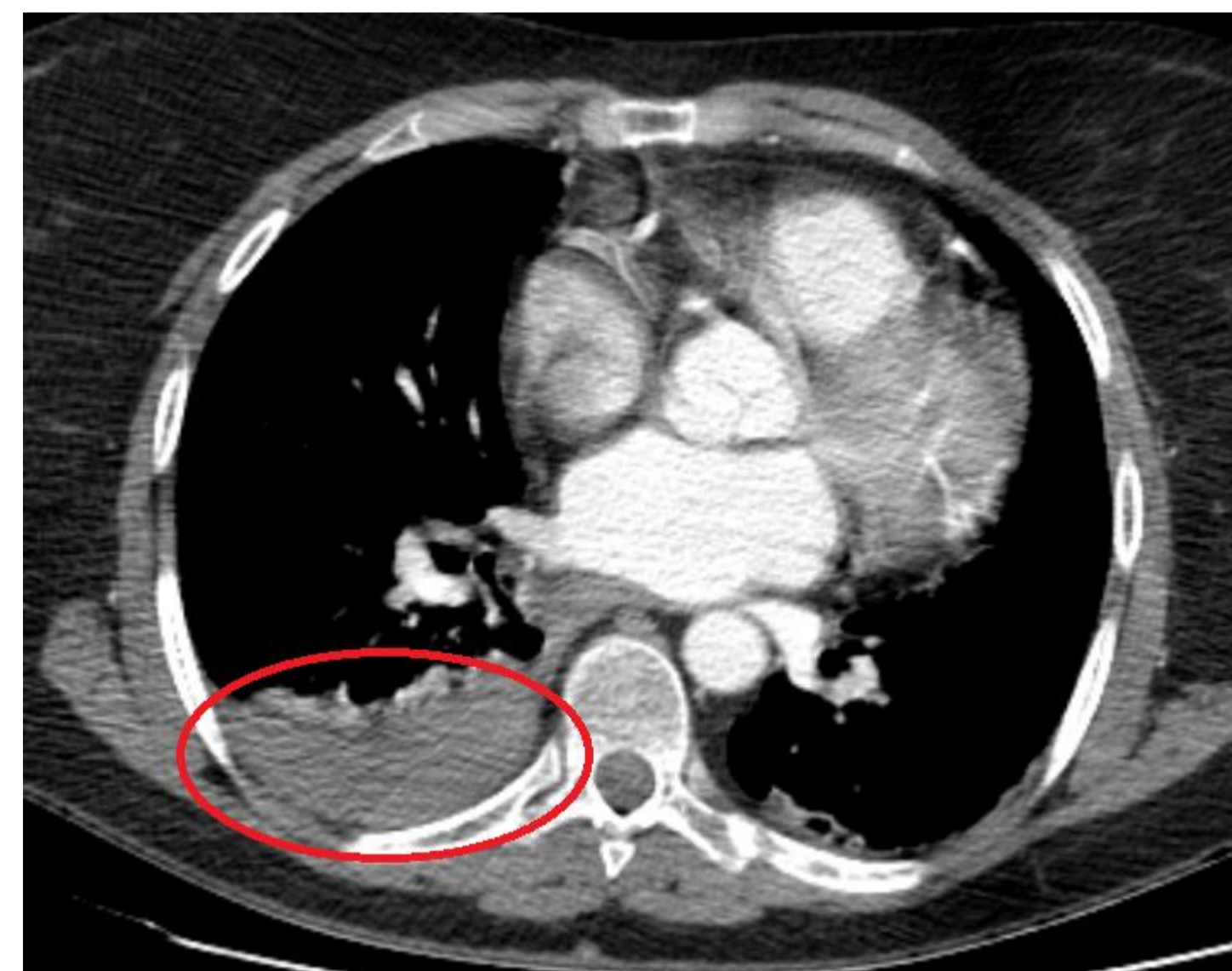
- **Pulsatile flow** after **dilation** for CVC placement.
- **Blood gas analysis** confirmed subclavian artery cannulation.

The **PULL-AND-PRESSURE** approach was applied and compression was maintained for 15 minutes.

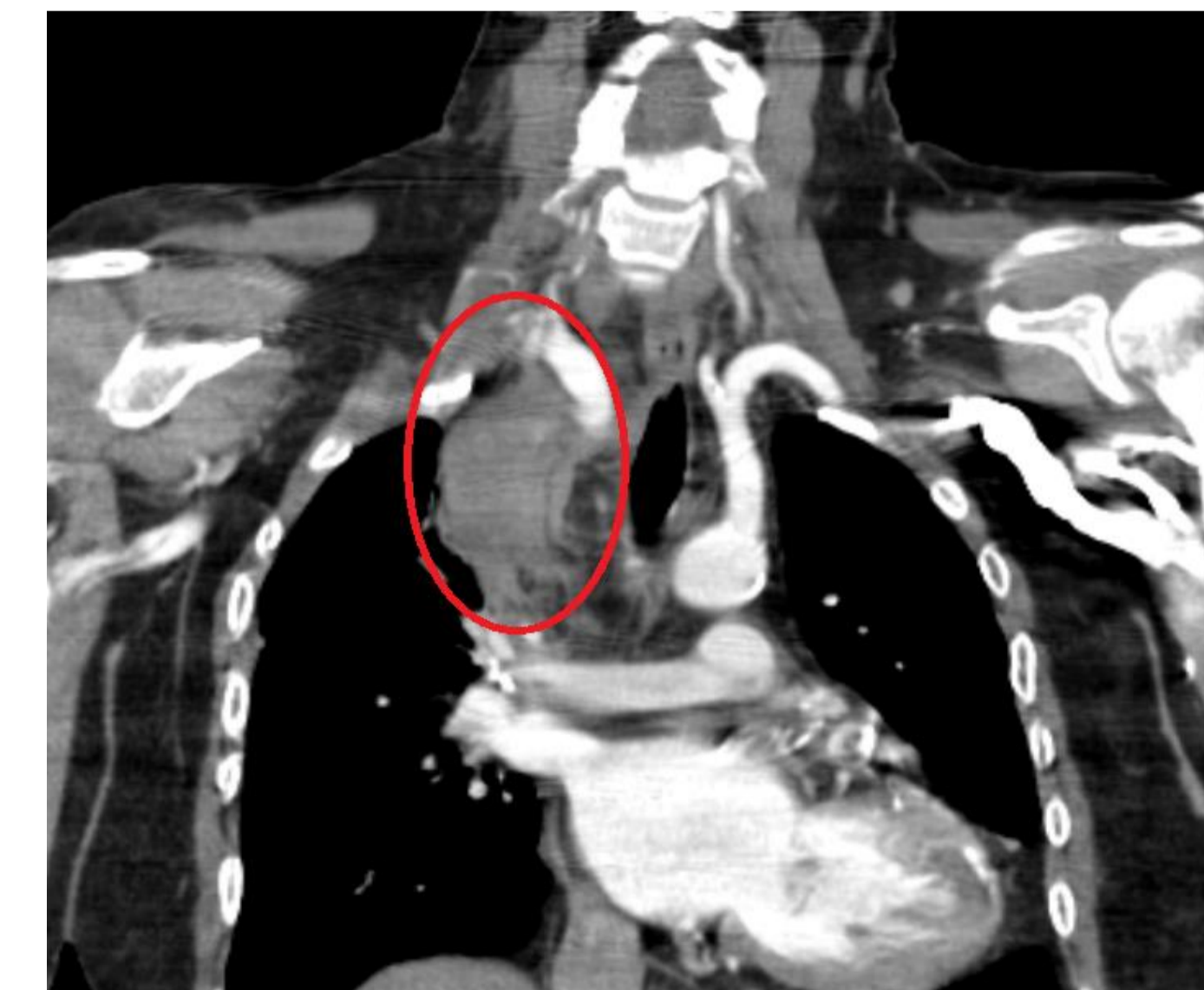
During compression, the patient developed **central cyanosis** and **dyspnea**, which ceased immediately after.

A VASCULAR CONSULTANT WAS CALLED

ANGIO-CT SCAN



RIGHT HEMOTHORAX



CERVICAL AND MEDIASTINAL HEMATOMA

NO SIGNS OF ACTIVE BLEEDING

The patient was kept under surveillance and repeated CT Scan at 24h with no signs of progression. No other complications were reported.

CASE 2

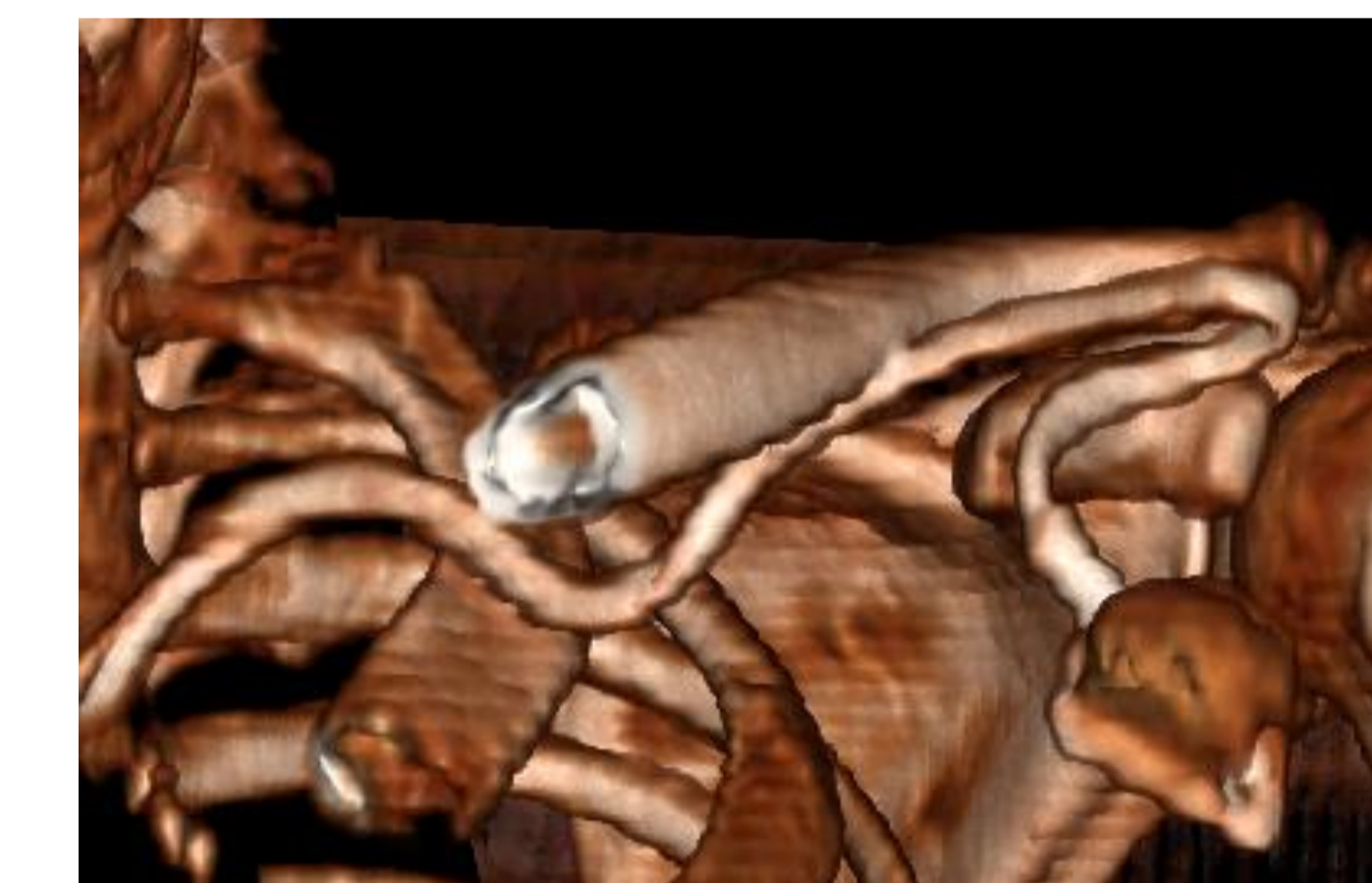
71-year-old female

Implanted CVC Placement in Left Subclavian Vein

- **Dilation and Cannulation** of left subclavian artery.
- **THE CATHETER WAS LEFT IN PLACE.**

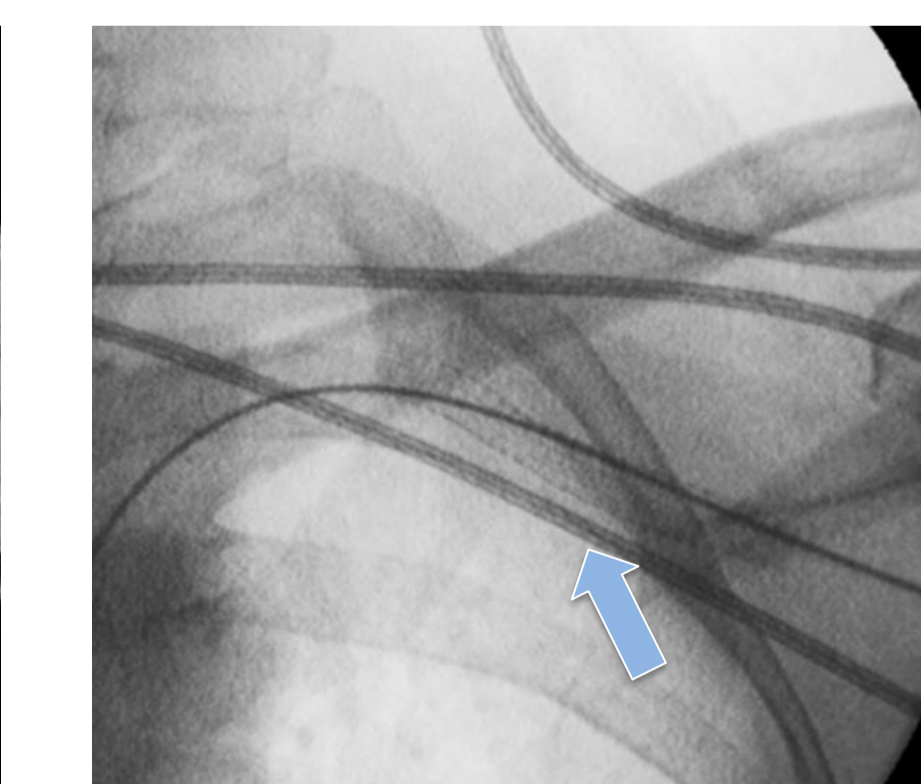
A VASCULAR CONSULTANT WAS CALLED

ANGIO-CT SCAN



ENTRY SITE IN THE SUBCLAVIAN ARTERY WITHOUT EVIDENCE OF ARTERIAL THROMBOSIS.

ENDOVASCULAR REPAIR with removal of the CVC and simultaneous release of a covered stent (Viabahn®).



The patient was discharged two days after surgery. **No complications** were reported during follow-up.