

# Management of an Epidural Catheter in an Anticoagulated Patient on ECMO Therapy: A Case Report

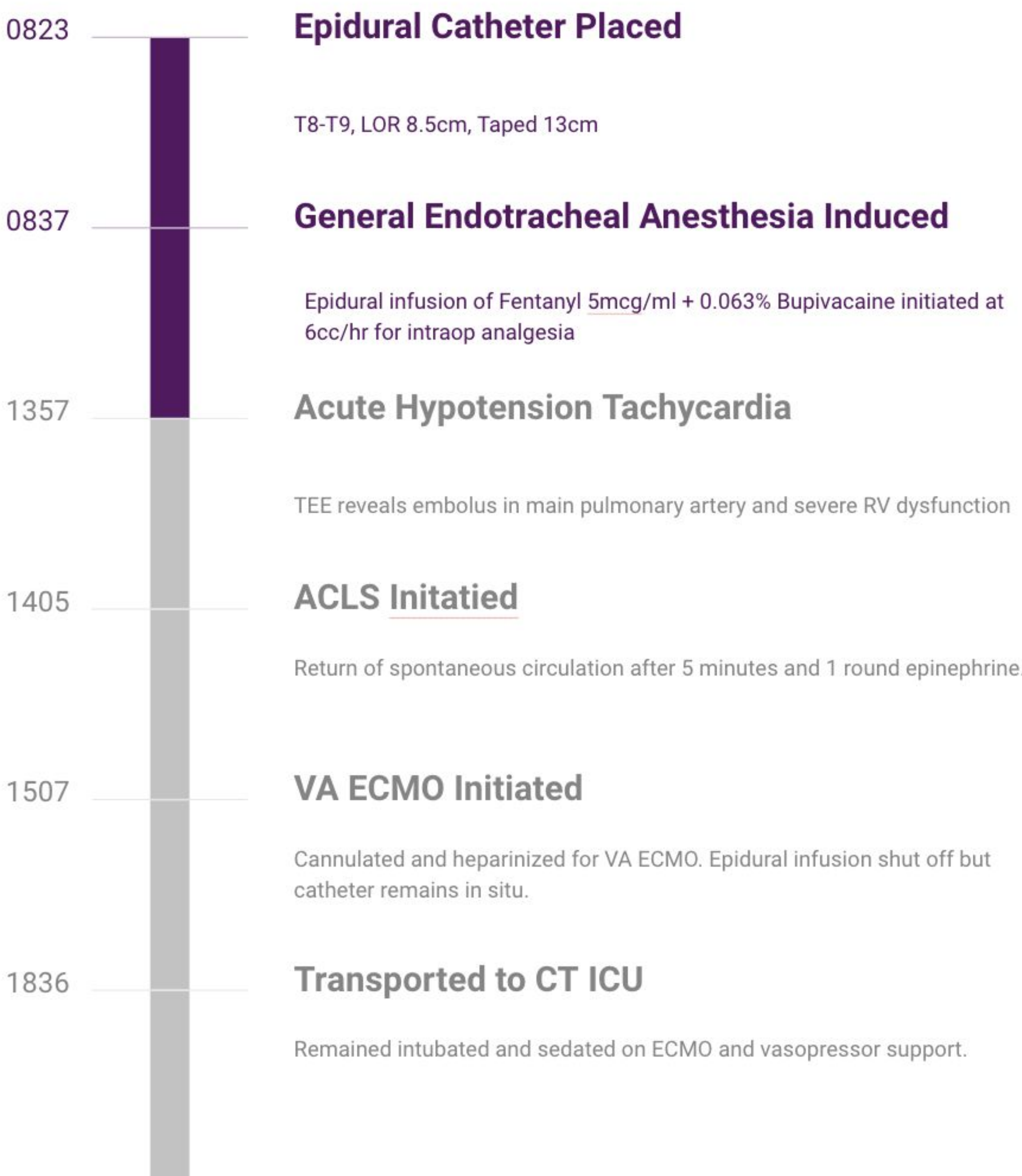
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## BACKGROUND

- The timing and duration of anticoagulation therapy in patients with epidural catheters is critical to prevention of epidural hematomas.
- Daily epidural catheter assessments are important for identifying potential complications including epidural hematoma, abscess formation, and catheter dislodgement.<sup>1</sup>
- This case report presents a scenario where systemic anticoagulation was emergently initiated for ECMO in a patient with an epidural catheter, and due to the nature of the patient’s critical clinical condition, could not be assessed or removed for the duration of the therapy.



## CASE DESCRIPTION

- 66-year-old male with PMHx of morbid obesity, HTN, HLD, GERD, CKD, and a renal tumor with extension into the renal vein and IVC presented from home for open left radical nephrectomy, IVC thrombectomy, and retroperitoneal lymph node dissection.
  - Pre-op TEE: normal LV function, LVEF 60-65%, normal diastolic and RV function, mild LV concentric hypertrophy and mild left atrial dilation
  - Morning of surgery: T8-T9 thoracic epidural placed. Loss of resistance at 8.5cm, catheter secured at 13cm. Infusion of fentanyl 5mcg/ml + 0.063% bupivacaine at 6cc/hr initiated after induction of general anesthesia.
- Intraop: The patient developed acute hypotension, tachycardia, and increasing pressor requirement that ultimately leading to cardiac arrest
  - TEE revealed a pulmonary embolus in the main pulmonary artery and sudden RV failure.
  - ACLS was initiated with ROSC achieved after 5 minutes.
  - Emergent cannulation for VA-V ECMO requiring bolus of 17,000 units of IV heparin and initiation of heparin infusion.
  - Surgical procedure was aborted.
  - Epidural infusion was discontinued but the catheter remained in situ.
- POD0: Admitted to CT ICU
  - The patient remained intubated, sedated, and unable to undergo neurological exams.
  - Any attempts to reposition the patient resulted in compromised ECMO flow with low flow alarms, limiting epidural catheter removal and site assessment.

- POD2: Started on CVVHD for acute renal failure.

- POD4: The patient was transitioned to comfort measures and passed away.

## DISCUSSION

- ASRA guidelines for patients on heparin infusions recommend removal of neuraxial catheters 4-6 hours after heparin is discontinued and normal coagulation status is confirmed.<sup>2</sup> However, for patients unable to safely halt anticoagulation, these recommendations cannot be followed.
- In these patients, the risk of infection from an indwelling catheter needs to be weighed against the risk of catheter removal while on full therapeutic anticoagulation.
- Both an epidural abscess and epidural hematoma can be difficult to diagnose in an intubated and sedated patient, so daily catheter assessments are paramount to confirm proper positioning and the absence of signs/symptoms of infection or hematoma at the site.<sup>1</sup>

## QUESTIONS RAISED

- How should an epidural catheter be assessed in a patient who is sedated, mechanically ventilated, and unable to be turned for visualization/palpation of the catheter?.
- Were this patient to require prolonged ECMO therapy and continuous anticoagulation, what is the best method to remove the epidural catheter?

## REFERENCES

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