

# Cesarean Delivery in a Parturient with Mechanical Valves and Fetus with Suspected Craniofacial Anomalies: A Multidisciplinary Approach with VA-ECMO Standby

Andrea Martinez, MD, Katherine Kachkarov, BS, Sanjeev Ponnappan, MD



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## LEARNING OBJECTIVE

- To highlight the perioperative coordination required for cesarean delivery in a patient with mechanical valves on anticoagulation and a fetus affected by warfarin embryopathy

## CASE PRESENTATION

- A 34-year-old pregnant woman (G4P1021) with mechanical aortic and mitral valves was admitted at 35 weeks and 3 days gestation for transition from warfarin to heparin in preparation for a planned repeat cesarean section.
- The fetus was diagnosed with presumed warfarin embryopathy, including facial and spinal abnormalities, intracranial hemorrhage, and congenital heart defects.
- A repeat cesarean section was performed at 36 weeks and 2 days. Two operating rooms were prepared: one for the mother and one for the infant.
- Heparin was discontinued prior to surgery, and spinal anesthesia was administered.
- A vigorous infant was delivered, spontaneously breathing. He was admitted to the NICU on nasal CPAP, avoiding the need for intubation.
- The mother remained hemodynamically stable throughout the surgery.
- She recovered uneventfully in the Post-Anesthesia Care Unit (PACU) and resumed heparin therapy later that day.

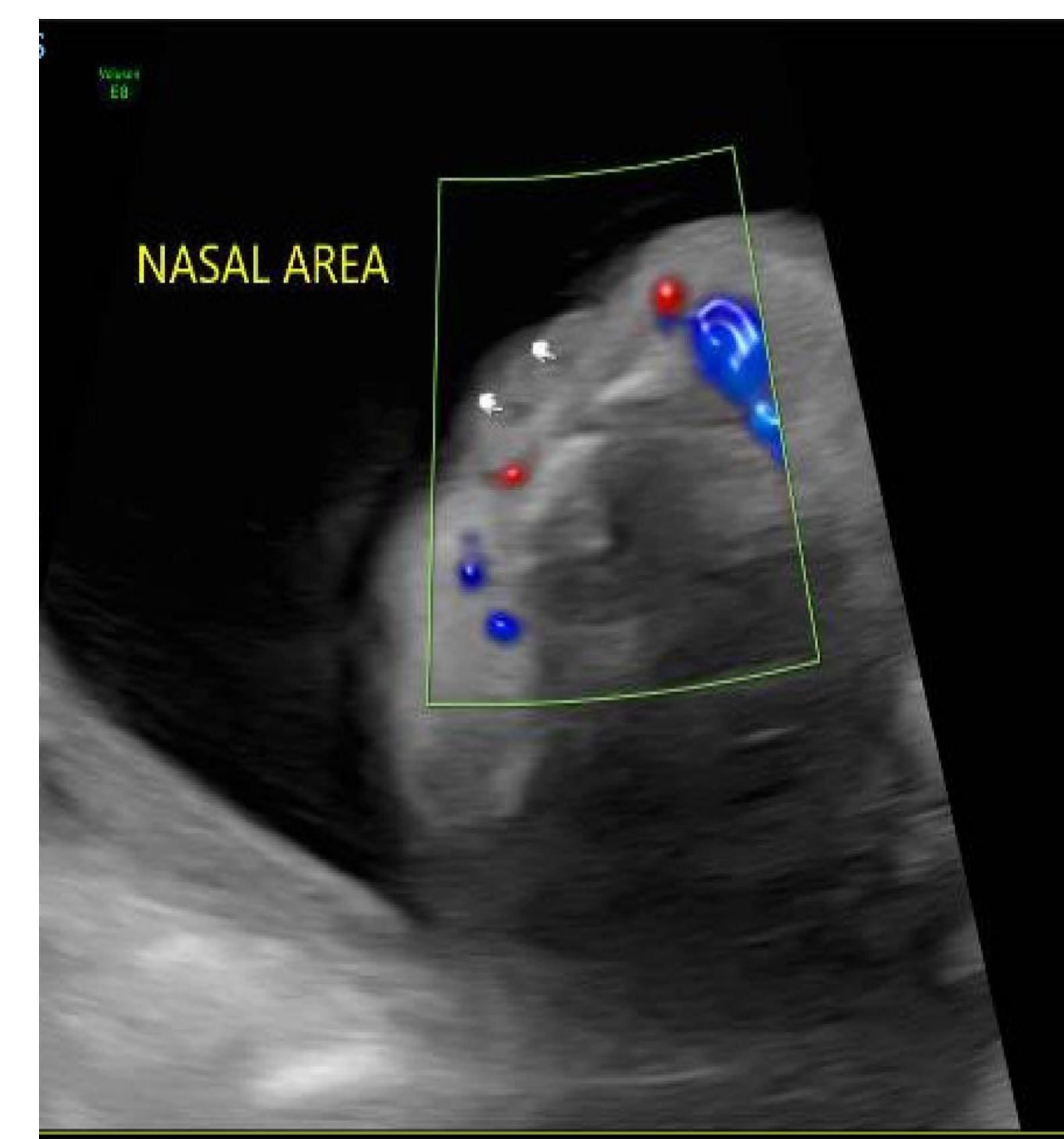
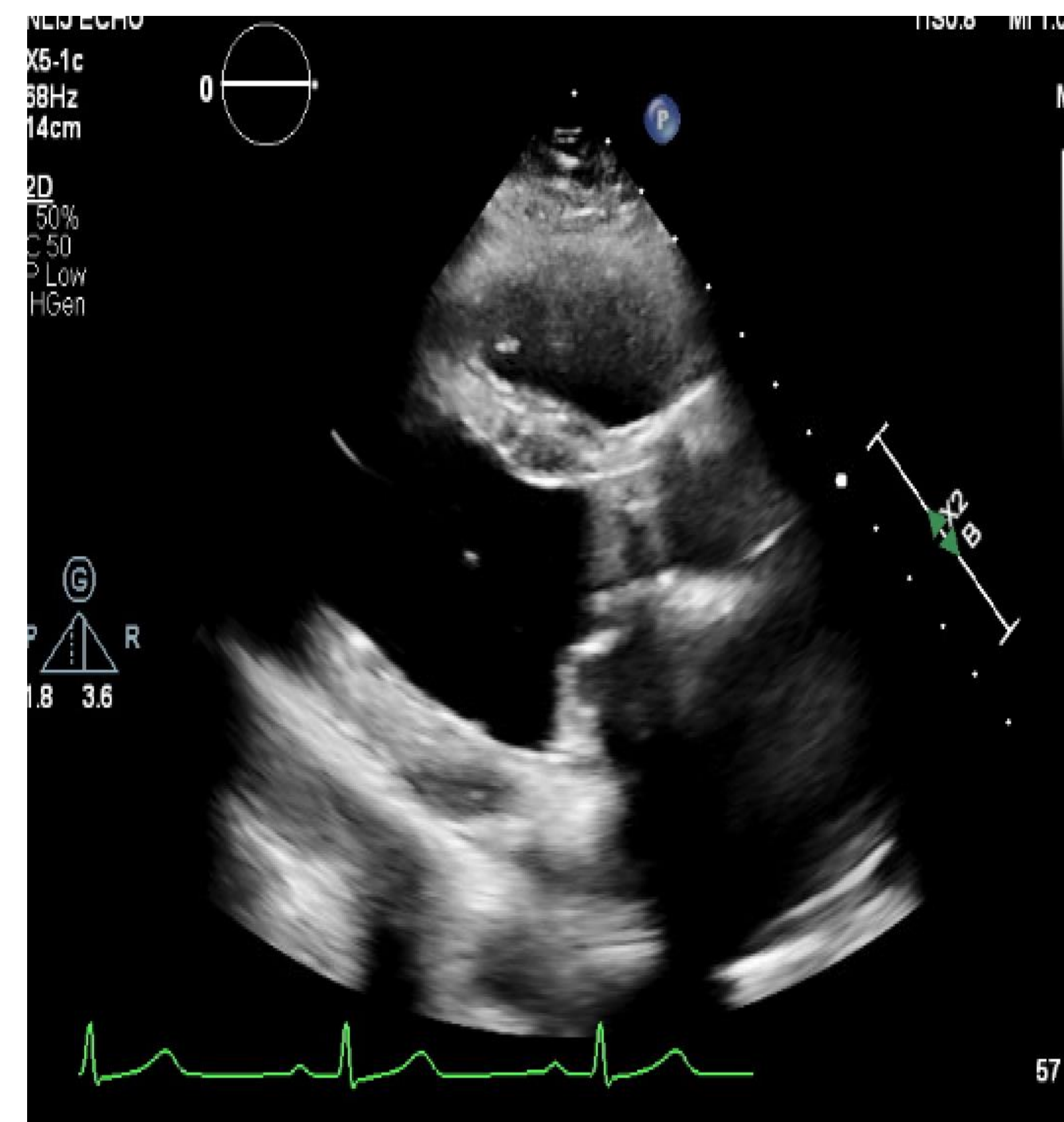
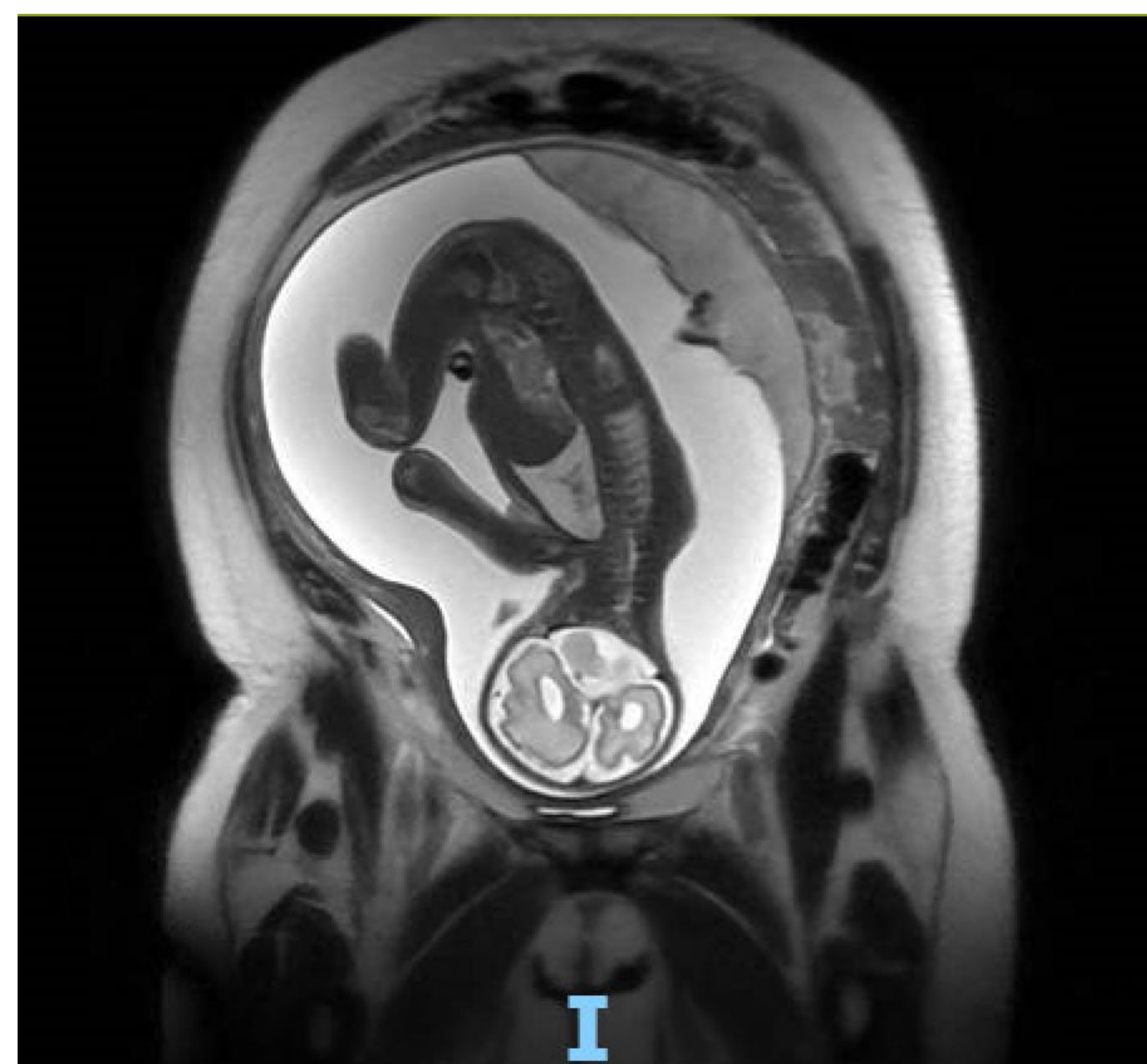
## DISCUSSION

This case underscores the importance of a multidisciplinary approach in managing a high-risk parturient with complex maternal and fetal comorbidities. The mother, who had mechanical heart valves, safely received spinal anesthesia after anticoagulation was held. This anesthetic approach minimized fetal exposure to general anesthesia, reducing the risk of neonatal respiratory depression.

The fetus, with presumed warfarin embryopathy, faced significant risks of respiratory compromise due to craniofacial and spinal abnormalities. In anticipation of a potentially difficult airway, a dedicated second operating room was prepared with pediatric ENT, NICU, and anesthesia teams on standby.

Due to the temporary cessation of anticoagulation, presence of two mechanical valves, and potential need for clotting agents, the mother was at increased risk for thrombotic events, including valve obstruction. As a precaution, a veno-arterial extracorporeal membrane oxygenation (VA-ECMO) circuit was available on standby.

Ultimately, coordinated planning and preparation across multiple specialty teams led to favorable outcomes for both the mother and the infant.



## CONCLUSION

- Neuraxial anesthesia can be safely performed in parturients with mechanical heart valves when cardiac function is preserved and anticoagulation is carefully managed. This technique also allows for an unconfounded neonatal assessment.
- Anticipating a difficult neonatal airway due to warfarin embryopathy is critical; a dedicated pediatric airway team and a second OR are essential.
- VA-ECMO may be life-saving in patients with mechanical valves who are temporarily off anticoagulation, as acute valve thrombosis is a known risk.

## REFERENCES

- Guglielminotti J, Landau R, Li G. Adverse events and factors associated with potentially avoidable use of general anesthesia in cesarean deliveries. *Anesthesiology*. 2019;130(6):912- 922. doi:10.1097/ALN.0000000000002629