

Cerebral Air Embolism

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Clinical Presentation

- ▶ An 18 month old female with hypoplastic left heart syndrome was admitted to undergo Fontan completion.
- ▶ That evening following the procedure, she experience a fixed right gaze deviation, right upper and lower extremity jerking and a left-sided flaccidity.

Imaging Discussion

CT



- ▶ An unenhanced CT of the head revealed scattered foci of air within the cerebral sulci, predominantly in the right frontal region.
- ▶ This is consistent with cerebral air embolism (CAE), in the setting of her recent surgery.



Imaging Discussion

MRI

Subsequent MRI demonstrated corresponding regions of cytotoxic edema consistent with acute infarcts.

Imaging Discussion Follow-Up CT

Follow-up CT performed four days later demonstrated evolution of the infarcts without hemorrhagic transformation.





Management

- ▶ Immediate stabilization of the patient
- ▶ Definitive treatment with hyperbaric oxygen



Outcome

- Cerebral air embolism can lead to catastrophic neurologic deficits.
- The more rapidly treatment is initiated, the better the clinical outcome.
- Our patient experienced seizure and left-sided flaccidity initially.
- Several months later, she is left with left sided spasticity and weakness which have demonstrated slow improvement with therapy. However, she will have residual permanent deficits.



Take Home Points

- ▶ CAE is a rare postoperative complication in pediatric cardiac surgery patients that can lead to catastrophic neurologic deficits.
- ▶ The more rapidly treatment is initiated, the better the clinical outcome.
- ▶ Early identification on imaging is critical, as prompt diagnosis can influence management and improve neurological outcomes.

Thank you !

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