# Cerebral Air Embolism

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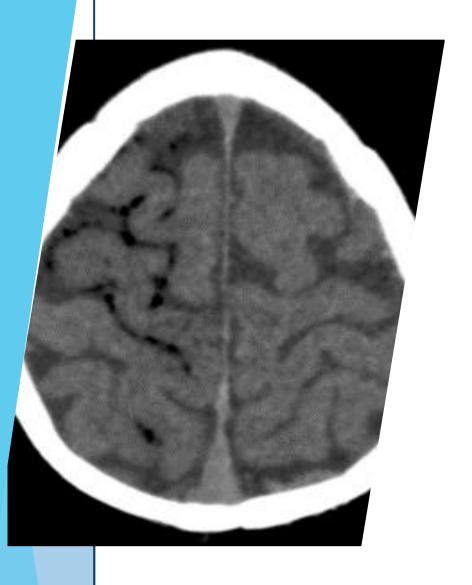
**SENRS 2025** 





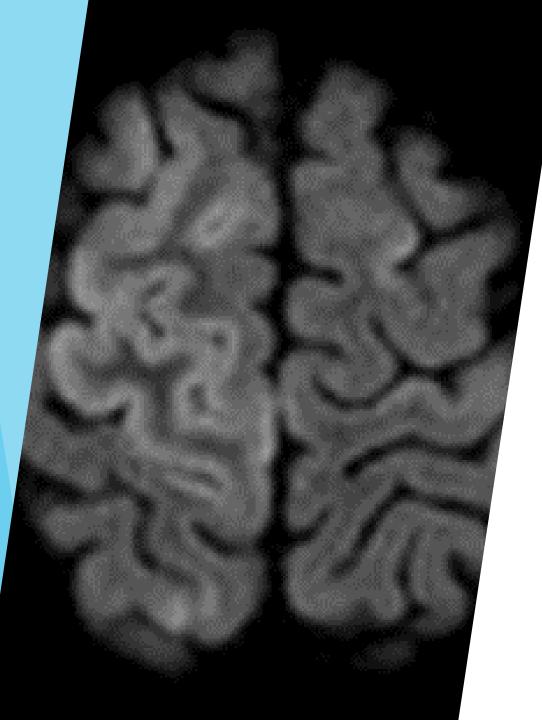
### **Clinical Presentation**

- 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.



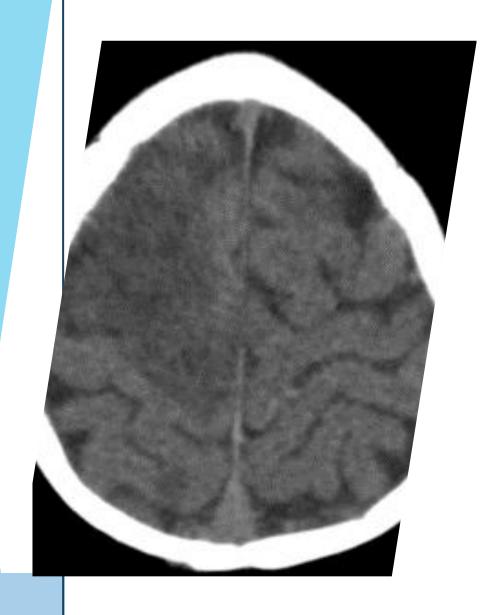
# Imaging Discussion CT

- An unenhanced CT of the head revealed scattered foci of air within the cerebral sulci, predominantly in th 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

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### 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.

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## 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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