

## 4th Branchial Sinus

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### History

Previously well 3 year old with painful neck mass and fever.

### Diagnosis

4th Branchial Sinus

### Discussion

The branchial apparatus is a series of mesodermal arches separated externally by ectoderm (branchial clefts) and internally by endoderm (pharyngeal pouches). Branchial anomalies are vestigial remnants resulting from incomplete obliteration of the branchial apparatus or buried epithelial rests. Branchial anomalies are classified as cysts (no internal or external communication), sinuses (internal or external drainage with or without a cyst) or fistulas (internal and external communication with or without a cyst). Anatomic location can help differentiate the branchial arch origin.

Fourth branchial anomalies extend from the pyriform sinus to the mediastinum and penetrate the thyrohyoid membrane. Fourth branchial anomalies are cradled by the superior and recurrent laryngeal nerves and often course through the thyroid gland. Differential diagnoses include: laryngocele, suppurative adenitis, suppurative thyroiditis, and foreign body reaction.

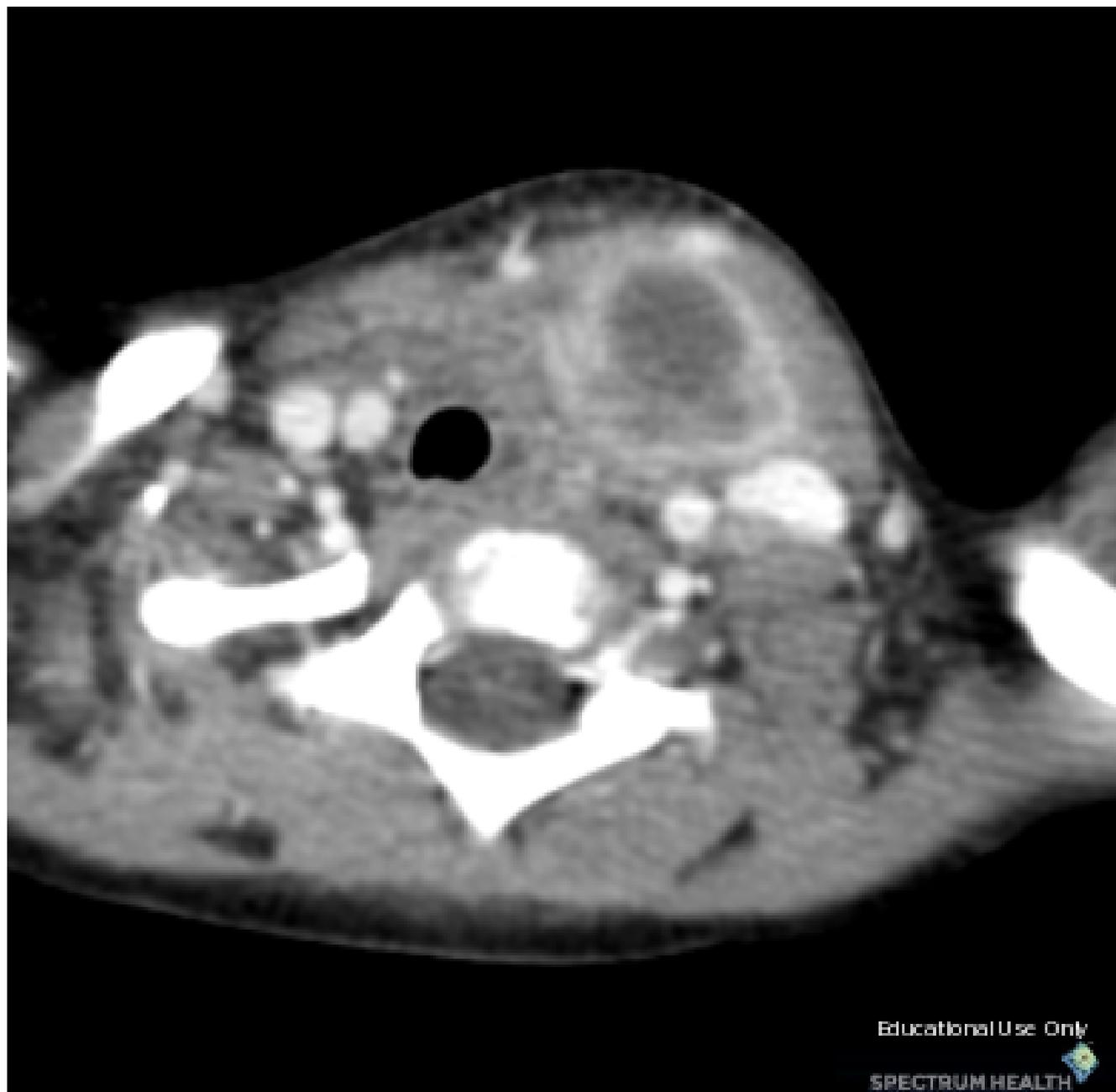
### Findings

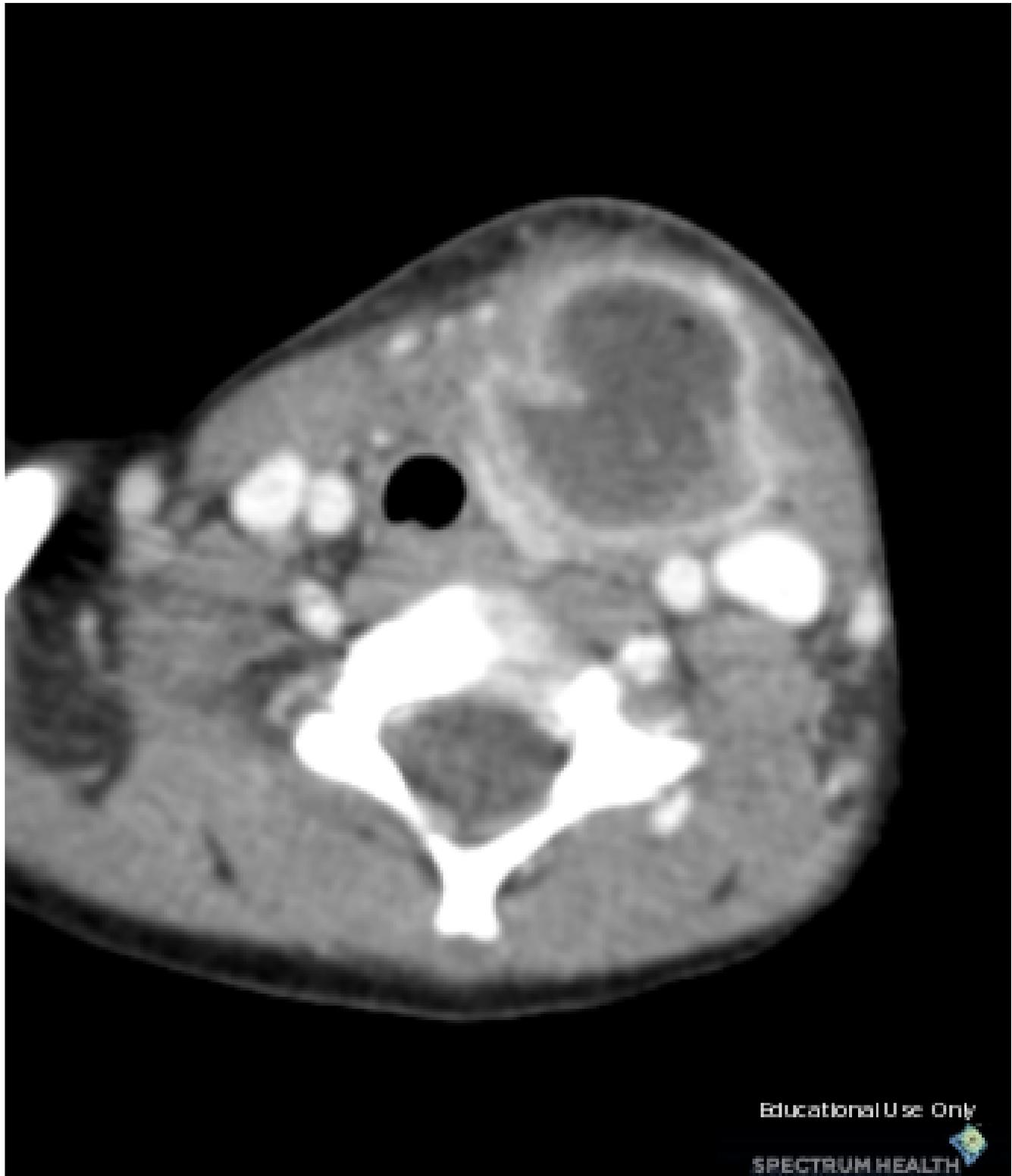
CT-Axial and coronal reformatted images demonstrate complex fluid collection with irregular enhancing rim extending from the pyriform sinus to the suprasternal notch. A few bubbles of air are also present. The left lobe of the thyroid is heterogeneous. The airway is deviated to the right but not effaced.

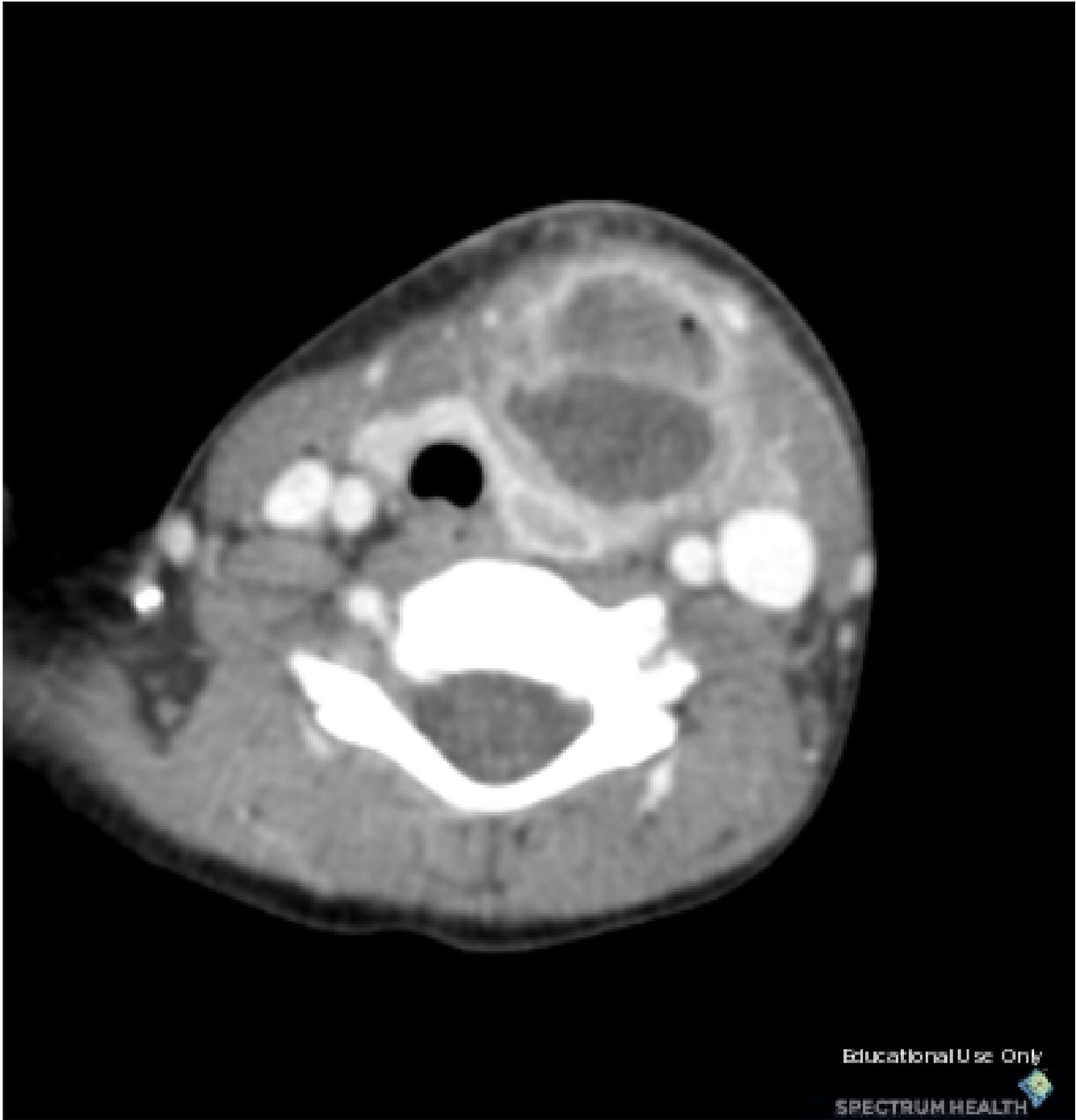
### Reference

Benson MT et al. Congenital anomalies of the branchial apparatus: Embryology and pathologic anatomy. *Radiographics* (1992); 12(5):943-960.

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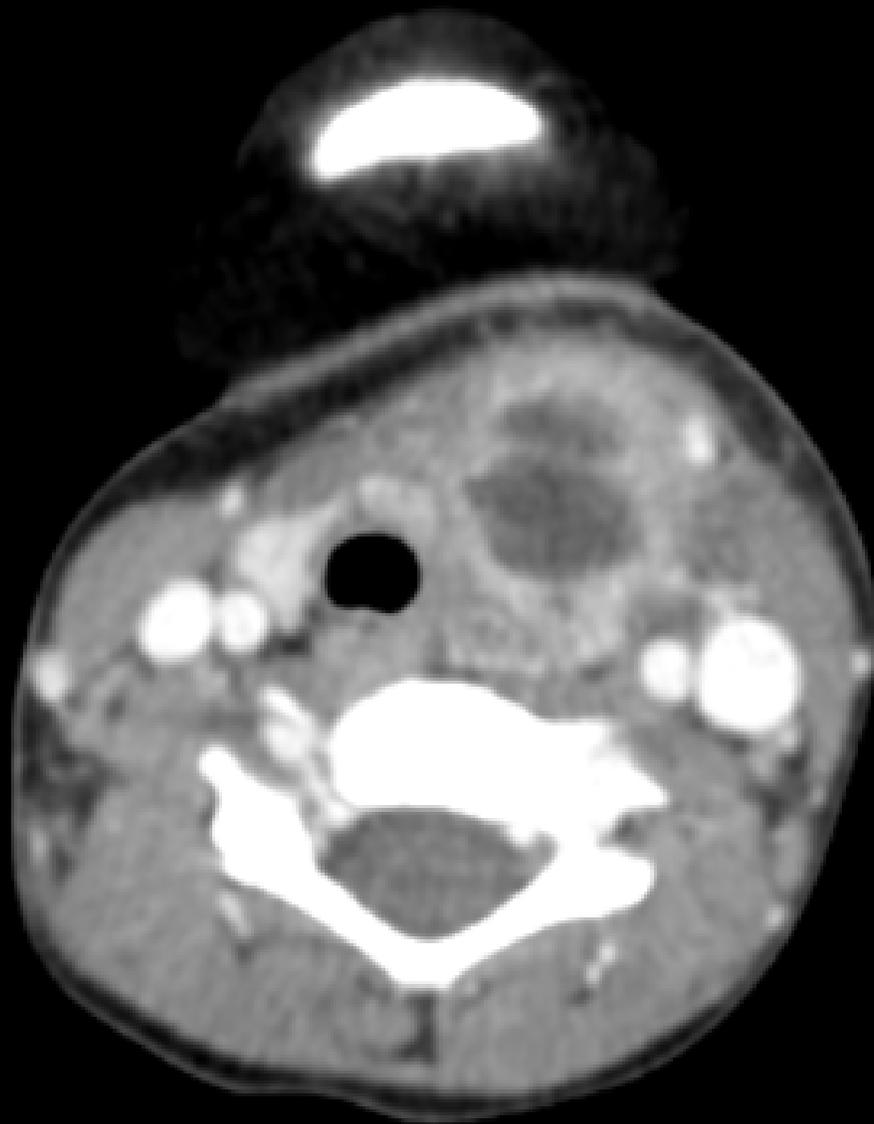






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