Case Study: Epiglottic Calcifications Manifesting as Globus Sensation and Resulting in Aspiration Pneumonia

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Clinical Presentation

- **68 year old male with no significant PMH presented with productive cough, dyspnea and chronic globus sensation**
- **Vitals & Labs:**
  - **Tachycardic and Febrile (101F)**
  - **Elevated WBC**

Chest XR on Admission

Figure 1: Admission chest radiograph demonstrating a left lower lobe opacity concerning for pneumonia and/or atelectasis.

CTA Chest

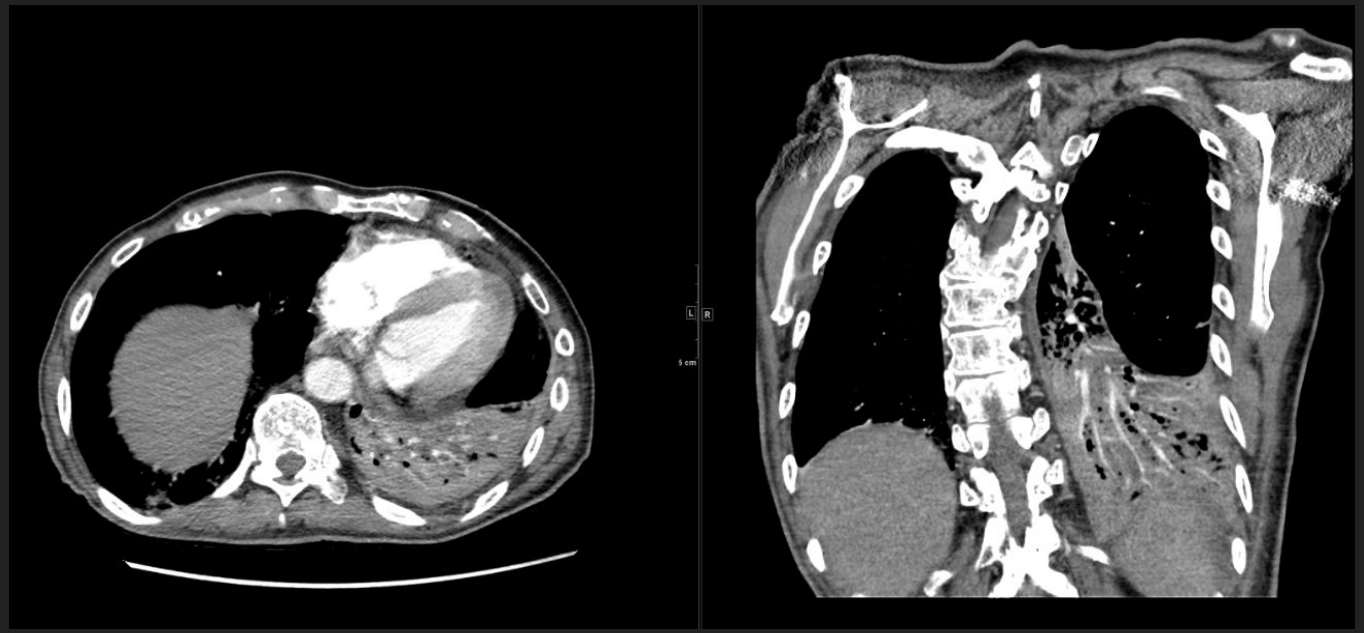

Figure 2: CTA of the chest demonstrating an occluded left lower lobe bronchus with associated left lower lobe collapse, developing pneumonia of the superior segment of the left lower lobe and apicoposterior segments of the left upper lobe.

Modified Barium Swallow

Figure 3: Sequential images of modified barium swallow exam demonstrating aspiration of all consistencies.

CT Neck w/ Contrast

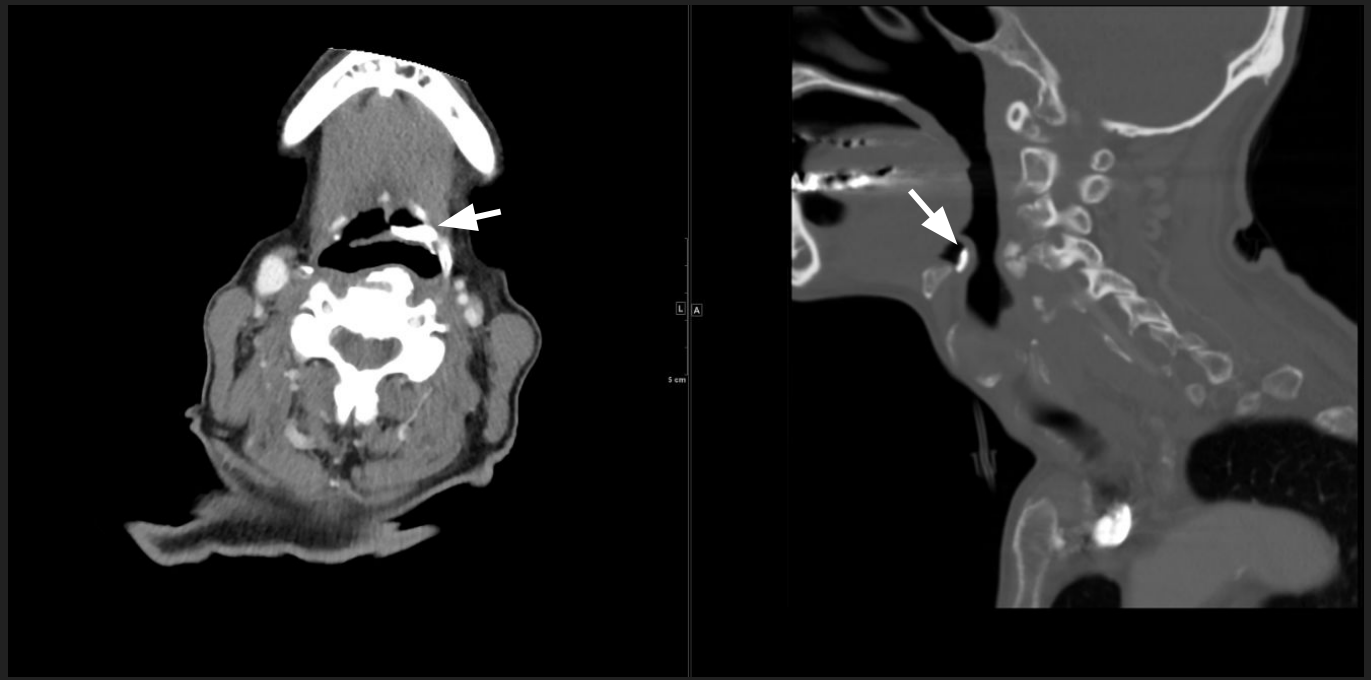

Figure 4: CT of the neck demonstrating ossification of the left aspect of the epiglottis (white arrow).

Management and Outcome

- IV antibiotics
  - Initially started on Ceftriaxone and Metronidazole
  - Escalated up to Vancomycin and Unasyn
- Oxygen supplementation
- PEG tube placement by GI for nutritional support
- Bronchoscopy w/ irrigation and clearing of mucus plugging

- Unfortunately, patient underwent cardiac arrest and expired 11 days post admission

Discussion

- Laryngeal cartilage calcifications are very common; however, epiglottic calcifications are rare
- Risk factors:
  - Previous trauma, infection, radiotherapy
  - Renal failure
  - Hyperparathyroidism
  - Granulomatous disease
- Misdiagnosis can have dire consequences:
  - Aspiration and subsequent pneumonia
  - Difficulty with intubation
  - Misdiagnosis of ingested foreign body on lateral radiographs
    - Leading to subsequent unnecessary medical interventions

Treatment and Prognosis

- Tailored based off individual clinical presentation
- Patients w/ dysphagia can benefit from optimizing head and neck positioning during swallow to facilitate bolus passage
- Surgical intervention reserved for patients w/ severe dysphagia and aspiration unresponsive to non-invasive methods of treatment
  - Supraglottoplasty
  - Epiglottopexy
- Prognosis:
  - Mortality and morbidity primarily determined by presence of associated aspiration

References

1. Galline, J., Marsot-Dupuch, K., Bigel, P., & Lasjaunias, P. (2005). Bilateral dystrophic ossification of the thyroid cartilage appearing as symmetrical laryngeal masses. *American Journal of Neuroradiology, 26*(3), 1339-1341. https://pubmed.ncbi.nlm.nih.gov/15956494

2. Günbey, H. P., Günbey, E., & Tanrıvermiş Sayit, A. (2014). A rare cause of abnormal epiglottic mobility and dysphagia. *The Journal of Craniofacial Surgery, 25*(6), e519-e521. https://pubmed.ncbi.nlm.nih.gov/25347598

3. Kano, M., Shimizu, Y. B., Okayama, K. C., Igari, T., & Kikuchi, M. (2005). A morphometric study of age-related changes in adult human epiglottis using quantitative digital analysis of cartilage calcification. *Cells Tissues Organs, 180*, 126-137. https://pubmed.ncbi.nlm.nih.gov/27426940

4. Ampanozi, G., Franckenberg, S., Schweitzer, W., Thali, M. J., & Chatzaraki, V. (2021). Prevalence of calcified epiglottis in postmortem computed tomography: Is there a correlation to failed endotracheal intubation? *Dentomaxillofacial Radiology, 50*(5), 20200615. https://doi.org/10.1259/dmfr.20200615

5. Zoller, H., & Bowie, E. R. (1957). Foreign bodies of food passages versus calcifications of laryngeal cartilages. *AMA Archives of Otolaryngology, 65*, 474-478. https://doi.org/10.1001/archotol.1957.03830230050010

References

6. Jeph, S., Aidi, M., Shah, A., Ly, T. T., & Bronov, O. (2017). Calcification of the epiglottis presenting as foreign body sensation in the neck. *Journal of Radiology Case Reports, 11*(6), 1-5. https://doi.org/10.3941/jrcr.v11i6.3093

7. Castán Senar, A., Dinu, L. E., Artigas, J. M., Larrosa, R., Navarro, Y., & Angulo, E. (2017). Foreign bodies on lateral neck radiographs in adults: Imaging findings and common pitfalls. *Radiographics, 37*, 323-345. https://doi.org/10.1148/rg.2017160073

8. Cook, T. M., & MacDougall-Davis, S. R. (2012). Complications and failure of airway management. *British Journal of Anaesthesia, 109*(Suppl 1), i68-i85. https://doi.org/10.1093/bja/aes393

9. Diaz, S., & Ekberg, O. (2010). The frequency of diagnostic errors in radiologic reports depends on the patient's age. *Acta Radiologica, 51*, 934-938. https://doi.org/10.3109/02841851.2010.503192

10. Okuyama, Y., Nonomura, Y., & Hatanaka, N. (2000). [A patient with dysphagia treated successfully and discharged without nutritional support]. *Gan To Kagaku Ryoho, 27*(Suppl 3), 754-755. https://pubmed.ncbi.nlm.nih.gov/11190340