

Rare Complication of Adult Epiglottitis with Extension to Anterior Neck Space: A Case Report



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Case Presentation

A 75-year-old Caucasian male presented to emergency department with 4-day history of worsening sore throat, frequent cough, and weakness. His symptoms also included hoarseness and odynophagia with poor oral tolerance. He denied fever, chills, drooling, difficulty breathing, nausea, vomiting, or chest pain at the time of initial evaluation.

In the ED, his initial blood pressure was 146/96 mmHg, pulse 100, temperature 99.5°F, respirations 18/min, and room air pulse oximetry 96%. Laboratory analyses revealed an elevated white blood cell count of 16.9 K/mm³. Lateral radiograph of soft tissue of the neck was significant for classic findings of thumb print sign, consistent with epiglottitis (Figure 1). A diagnosis of acute epiglottitis was suspected, and ENT was consulted. Diagnosis was confirmed via direct visualization with flexible fiberoptic laryngoscopy. Patient was subsequently admitted to intensive care unit for further medical management with intravenous ceftriaxone, vancomycin, steroid, and continuous pulse oximetry.

Despite three days of aggressive empiric antibiotic therapies, patient reported minimal improvement of odynophagia with elevated white blood cell count to 17.4 K/mm³. Repeat flexible fiberoptic laryngoscopy revealed minimal improvement of epiglottic edema and erythema (Figure 4). Decision was then made to obtain Computed Tomography (CT) image of neck secondary to failed medical therapy, which showed extension of infection to anterior neck as noted below (Figure 3):

- Rim enhancing fluid collection in ventral and bilateral neck.
- Largest craniocaudal dimension measures 7.3 in right and 6.9 cm in left neck extending downward from hyoid to the level of clavicular head.

After further discussion with the entire treatment team, the patient was taken into the operating room for nasotracheal intubation and subsequent neck exploration, incision and drainage of neck abscess, washout, placement of Penrose drains and direct laryngoscopy with marsupialization of epiglottic abscess. Aerobic and anaerobic cultures showed moderate *Streptococcus anginosus* and *Staphylococcus epidermidis* and fungal cultures showed no growth.

Post operatively the patient continued to drain copious purulent material from his drain sites. Over the course of the next 1 week the drains were serially removed. His leukocytosis immediately began trending and resolved on post op day #8. He developed a moderate fistula along the midline neck that was treated by the wound care team with conservative wound care and wet-to-dry dressings which eventually resolved. The patient's dysphagia continued to improve following extensive evaluation and treatment by the speech team. He continued to improve and was discharged home following completion of antibiotic course.

Osteopathic Considerations

When we look at the above patient, there are several osteopathic models of care involved in both the diagnosis and treatment. Biomechanically, airway obstruction and dysphagia are common consequences of epiglottitis and can put extreme pressures on the respiratory and digestive systems, disrupting their optimal functioning. Furthermore, lack of improvement via conservative measures also impacts the patient's psychological status, as patient worry may rise when more advanced intervention is required. Osteopathic Manipulative Treatment (OMT) may also be applicable if considering post-operative edema clearance if there is somatic dysfunction of Sibson's fascia, related to the region of the thoracic outlet.



Figure 1. Lateral radiograph demonstrating thumb print sign of epiglottitis (A).

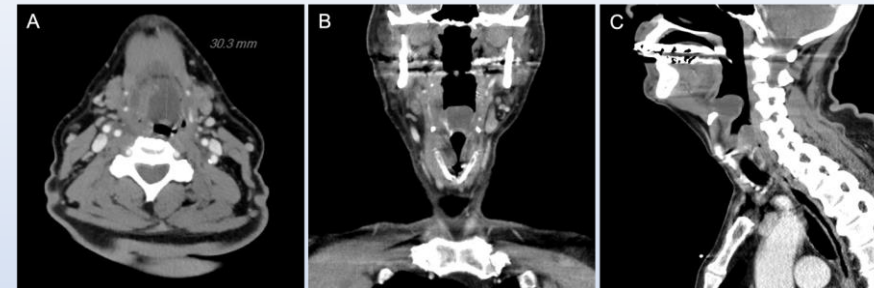


Figure 2. Computed Tomography (CT) image of a 75-year-old male who presented with worsening odynophagia and sore throat. Axial (A), coronal (B), and sagittal (C) plane revealing 3 x 2.4 x 2.2 cm hypodense mass with well-defined margins of epiglottitis.

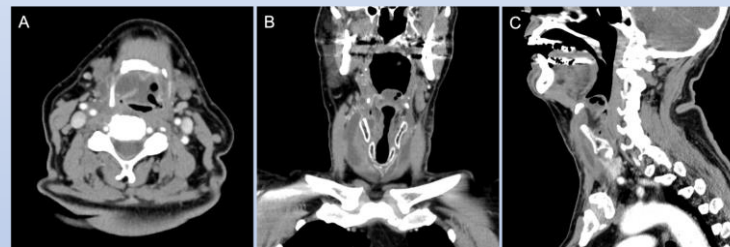


Figure 3. CT image revealing extension of infection into anterior neck in axial (A), coronal (B), and sagittal (C) plane on day 3 on intravenous antibiotics.

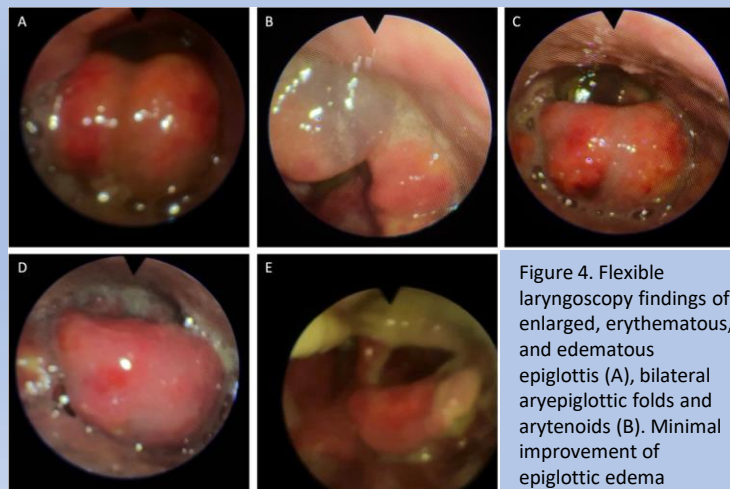


Figure 4. Flexible laryngoscopy findings of enlarged, erythematous, and edematous epiglottis (A), bilateral aryepiglottic folds and arytenoids (B). Minimal improvement of epiglottic edema

Discussion

Epiglottitis is a life-threatening infection of the epiglottis and adjacent supraglottic structures resulting in profound swelling of upper airway.¹ Due to its potential for precipitating abrupt airway obstruction, patient requires prompt diagnosis and emergent intervention to prevent catastrophic complications and death.² Globally, mortality rate for adult epiglottitis has been reported to be around 7%, which may be as high as 20%.⁵

Traditionally, epiglottitis was known to predominantly affect pediatric population around 3 years of age. Due to steady rise in *Hemophilus influenzae b* vaccinations, the prime epidemiology of acute epiglottitis has now shifted towards adult population.³ Common complications of adult epiglottitis includes: epiglottic abscess, pneumonia, respiratory failure, septic shock, cellulitis, tracheostomy, death. Anterior extension of infection, however, is rare. We present one case of adult epiglottitis who developed anterior extension of infection requiring emergent neck exploration.

References:

- Guerra AM, Waseem M. Epiglottitis. [Updated 2022 Oct 17]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK430960/>
- Ramlathian SR, Kramer N, Ganti L. Back to Basics: A Case of Adult Epiglottitis. *Cureus*. 2018 Oct 22;10(10):e3475. doi: 10.7759/cureus.3475. PMID: 30613442; PMCID: PMC6314392.
- Bridwell RE, Koyfman A, Long B. High risk and low prevalence diseases: Adult epiglottitis. *Am J Emerg Med*. 2022 Jul;57:14-20. doi: 10.1016/j.ajem.2022.04.018. Epub 2022 Apr 20. PMID: 35489220.
- Teklay, F Green, A Prasai, J Moor, 1558 Epiglottic Abscess: A Rare Complication of Adult Epiglottitis, *British Journal of Surgery*, Volume 108, Issue Supplement_6, September 2021, znb259.389, <https://doi.org/10.1093/bjs/znb259.389>
- Ames, W.A., et al. "Adult Epiglottitis: An under-Recognized, Life-Threatening Condition." *British Journal of Anaesthesia*, vol. 85, no. 5, 2000, pp. 795–797., <https://doi.org/10.1093/bja/85.5.795>.