

Critical Airway; A Rare Case of Laryngeal Myxedema with Longstanding Subglottic Myxedema

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Introduction

- According to European prevalence studies hypothyroidism is a chronic disease that affects 5% of the population and another 5% have undiagnosed thyroid failure. Up to a third of those that are diagnosed are inadequately treated.¹
- Hypothyroidism can reveal itself clinically due to brittle nails, lethargy, dry skin, constipation, mood changes, weight gain, poor concentration, and weakness.²
- In severe cases it can lead to interstitial deposition of hydrophilic mucopolysaccharides, can lead to retention of fluid, and diminish lymphatic drainage and blood circulation.³
- Supraglottic myxedema resulting in acute upper airway obstruction has rarely been reported as a complication of severe hypothyroidism.^{4,5} Subglottic myxedema has been noted in one case of congenital hypothyroidism.⁶

Case Presentation

- A 39 yo female with a history of DM2, hypothyroidism, and morbid obesity. No relevant surgical history.
- She presented with sore throat, nasal congestion, and catarrh. She was discharged later that day on Mucinex.
- The next day she presented with worsening shortness of breath, biphasic stridor, and neck swelling. Epinephrine was administered with minimal improvement. CT showed enlargement of the epiglottis up to 8 mm consistent with epiglottitis, mucosal thickening of the supraglottis.
- Decision was made to perform an awake fiberoptic supraglottitis but not edema of the glottis. Further evaluation revealed a TSH of 65 and a FT4 <0.1.



Initial Presentation Day 1

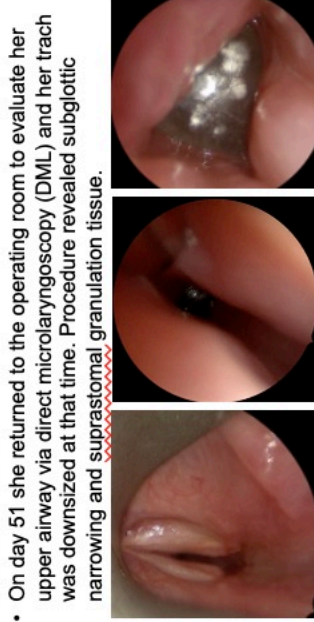


CT Soft Tissue Neck w/o Contrast Day 1



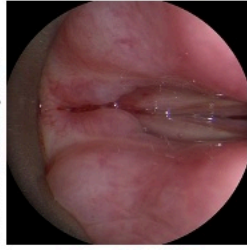
Initial FEES. Unable to visualize vocal cords due to supraglottic edema. Day 13

- She required a trach after a prolonged intubation of 9 days.
- She was discharged on the 23rd day after admission with a tracheostomy on RA, complete occlusion of her upper airway, TSH of 12.47, and T4 WNL.
- On day 37 she was seen in clinic and her upper airway revealed minimal narrowing.
- On day 51 she returned to the operating room to evaluate her upper airway via direct microlaryngoscopy (DML) and her trach was downsized at that time. Procedure revealed subglottic narrowing and suprastomal granulation tissue.



Direct Microlaryngoscopy from Superior to Inferior. There is Extensive Subglottic Myxedema. Day 51

- On day 57 she was seen in office and was able to speak using a Passy-Muir valve (PMV).
- DML on day 128 showed continued vocal cord and subglottic edema. She was kept overnight and a capping trial was successful.
- On day 134 she presented to the ED due to decannulation of her trach after a coughing episode. Trach was unable to be reinserted due to granulation tissue and scar formation.
- She was observed over the course of two days and discharged in good condition.
- On day 141 she was seen in clinic. She had some thickening of her left vocal cord but is otherwise stable and her tracheal stoma is closed is healing well.



Direct Microlaryngoscopy Day 128



After Spontaneous Decannulation. Day 134

Discussion

- This case report is one of the rare patients reported in the literature of laryngeal myxedema due to severe hypothyroidism necessitating acute airway intubation, subsequent tracheostomy, and resolution of the laryngeal myxedema after control of the severe hypothyroid state.
- Similarities between the 4 patient reports (2 from reference #4, 1 from reference #5, and 1 from ours) are as follows: none were in myxedema coma, they all presented with shortness of breath, stridor, laryngeal myxedema, and required intubation and subsequent tracheostomy. They all improved after management of their hypothyroid state.
- The main difference is that in our case there was presence of longstanding subglottic myxedema that did not resolve until 4 months after initial presentation.

Conclusion

- Laryngeal myxedema is a rare complication of severe hypothyroidism. With increased awareness on this complication, we hope that there will be an emphasis in education from providers on the importance of adequate management of hypothyroidism.
- Continued research is needed to compile risk factors, and correlation of TSH & T4 levels, long term morbidity, and mortality. A multi-institution retrospective study could facilitate collecting data on this rare complication and would facilitate the formation of guidelines for management and disease progression.

Acknowledges & Contact Information

- The author acknowledges Dr. Selinsky and Dr. Robbins for assistance with case report conceptualization and guidance. For more information on this particular case report please reach out to the author at Roberto.Frusciante@ohiohealth.com

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