
CASE REPORTS

LARYNGEAL AMYLOIDOSIS: INADVERTENT RISK FOR ENDOTRACHEAL INTUBATION

ABDUL-LATIF HAMDAN¹, ROGER MOUKARBEL¹,
ELIE KHALIFEE¹ AND CHAKIB AYOUB²

Abstract

Objective: To describe a rare case of localized laryngeal amyloidosis that presented an inadvertent risk for endotracheal intubation.

Result: This is the case of a 58-year-old female who presented with hoarseness and inspiratory stridor of several years duration. Laryngoscopic examination revealed a large left supraglottic mass arising from the left aryepiglottic fold and obscuring the true vocal cords. Computed tomography revealed a hypodense mass located in the left submucosal space at the supraglottic and glottic level. Intraoperative assessment by the anesthesia team for a direct laryngeal biopsy and tracheostomy procedure revealed difficult airway. Subsequently, bilateral superior laryngeal nerve block was done followed by successful fiberoptic intubation using tube number 6 while the patient is awake and with no sedation.

Conclusion: Securing the airway in patients with laryngeal amyloidosis is challenging and mandates proper management strategy by anesthesiologists.

Keywords: Larynx, amyloidosis, anesthesia, intubation, airway.

Introduction

Amyloidosis is a broad term that defines a rare range of disorders that are classified based on the biochemical nature of the deposited protein subunit. The larynx is the most common site of localized amyloidosis in the head and neck region and represents only 0.5-1% of all benign laryngeal tumors with a male predilection and occurring more often during the fifth decade of life. The accumulation of fibrillary proteins in laryngeal tissue can impair laryngeal function and present as hoarseness, dyspnea, stridor, cough, odynophagia, hemoptysis or even respiratory failure^{1,2}. The purpose of this report is to describe a rare case of localized laryngeal amyloidosis that presented an inadvertent risk for endotracheal intubation.

1 MD, EMBA, MPH, FACS, Department of Otolaryngology and Head & Neck Surgery, American University of Beirut-Medical Center, Lebanon.

2 MD, Department of Anesthesiology, American University of Beirut Medical Center, Lebanon.

Corresponding Author: Abdul-Latif Hamdan, MD, EMBA, MPH, FACS, American University of Beirut, Department of Otolaryngology. P.O. Box: 11-0236 Beirut-Lebanon. Tel/Fax: 961-1-350000. E-mail: ah77@aub.edu.lb

Case Report

This is the case of a 58-year-old nonsmoker female who presented with history of hoarseness and inspiratory stridor of several years duration. Laryngoscopic examination at presentation in November 2016 revealed a large left supraglottic mass arising from the left aryepiglottic fold and obscuring the true vocal cords (see figure 1). A CT scan of the neck with IV contrast revealed a hypodense mildly enhancing mass located in the left submucosal space at the supraglottic and glottic level measuring 1.4×1.8 cm. There was no invasion of the thyroid cartilage, strap muscles or carotid space. Another similar lesion was noted in the right posterolateral aspect of the upper trachea with ill-defined margins measuring 1.1×1.2 cm (figure 2). The radiologic findings were suggestive of benign lesions.

In view of her respiratory and phonatory symptoms, the patient was scheduled for a direct laryngeal biopsy and tracheostomy. Intraoperative assessment by the anesthesia team revealed a difficult airway. Subsequently, bilateral superior laryngeal nerve block was done. While the patient was fully awake, with no sedation, fiberoptic intubation was attempted using a reinforced tube number 6. The small tube size

allowed for easier maneuverability around the mass and resulted in a successful and uneventful intubation. Microscopic examination of the specimen was positive for congo red stain consistent with amyloidosis.

In December 2016, the left supraglottic lesion was resected using CO2 laser which resulted in good patency of supraglottic airway. Patient tolerated the procedure well.

Discussion

Localized laryngeal amyloidosis may present with a large array of symptoms related to phonation and breathing. Depending on the clinical presentation, treatment varies from observation to surgical excision taking into consideration the benign nature of the lesion which demands conservative management. Medical treatment of laryngeal amyloidosis with corticosteroids or radiotherapy has been shown to be unsatisfactory². To that end, symptomatic localized laryngeal amyloidosis mandates endoscopic surgical excision as the treatment of choice using either cold steel instruments or carbon dioxide laser. Though the choice of treatment modality should be guided by the experience and expertise of the surgeon, the use of

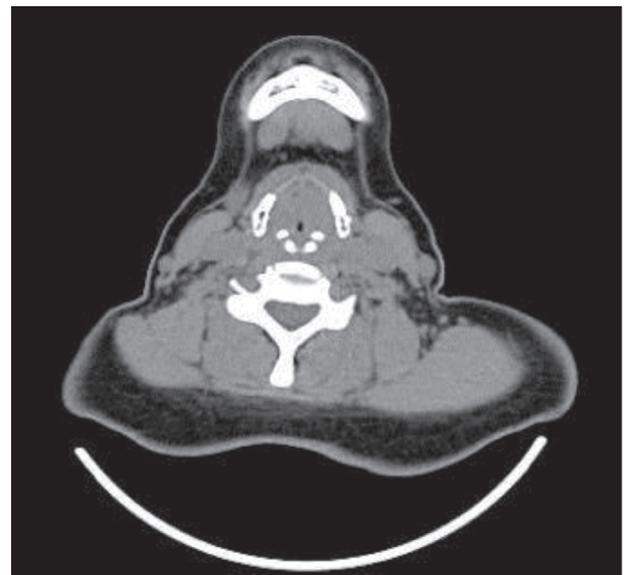
Fig. 1

Endoscopic examination showing a large left supraglottic mass arising from the left aryepiglottic fold



Fig. 2

Computed tomography of the neck with IV contrast revealing a hypodense mildly enhancing mass in the left submucosal space at the supraglottic and glottic level



laser has been reported to have several advantages over conventional surgery in relation to risk of bleeding and scarring³. Nevertheless, extreme care must be taken in order to avoid inadvertent voice changes or laryngeal/tracheal stenosis. As an alternative to total excision, debulking may be contemplated as an alternative especially when radical removal carries unwarranted risks on breathing, phonation or swallowing⁴. Physicians must keep in mind the patient's quality of life when choosing the type of intervention since the aim of effective therapy of localized laryngeal amyloidosis is not to completely eliminate the disease as much as to protect the upper airway and preserve phonatory function and normal swallowing.

Irrespective of the choice of therapeutic method for laryngeal amyloidosis, securing the airway is crucial and mandates proper management strategy in order to spare the patient unnecessary tracheostomy. In fact, anesthetic management of these patients and securing the airway is very challenging to anesthesiologists. Many strategies have been described in the literature

and these consist of using jet ventilation in order to avoid laryngeal manipulation and bleeding, use of laryngeal mask in cases of subglottic and tracheal involvement, and last but not least the use of a smaller tube that can be introduced using the Magill's forceps or fiberoptic scope⁵⁻⁷. The anesthesiology team should be well versed with a number of intubation techniques in order to properly secure the airway and prevent unnecessary tracheostomies.

Conclusion

Localized amyloidosis of the upper airway may present an inadvertent risk for endotracheal intubation. Diligent preoperative evaluation in afflicted patients is a mandate in order to circumvent inadvertent risks. The anesthesiology team should be well versed with a number of intubation techniques in order to properly secure the airway and prevent unnecessary tracheostomies.

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