Clinical Findings of Laryngeal Amyloidosis with LVS, HSDP, and NBI

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ABSTRACT

We offer one of the first reports to compare the findings of Laryngovideostroboscopy (LVS), High Speed Digital Phonoscopy (HSDP), and Narrow Band Imaging (NBI) in Laryngeal Amyloidosis (LA).

Here, we present a retrospective case series focusing on the clinical endoscopic findings of 13 patients with LA. All patients also underwent biopsy driven histopathologic confirmation of LA.

Clinical surveillance revealed varying utility for each endoscopic modality. LVS clearly demonstrated the size and the location of LA, but was less accurate in displaying the mucosal wave as compared to HSDP. NBI offered more categorical differentiation of normal and affected tissue.

We conclude that LA should be included in the differential diagnosis of laryngeal lesions, and that the clinical evaluation of LA is enhanced by these imaging techniques throughout the initial work-up and long-term surveillance of the disease process.

INTRODUCTION

Amyloidosis refers to a benign condition where amyloid proteins are deposited abnormally in the extracellular space. The etiology for this disorder remains unclear, and these deposits can occur anywhere in the body.

Laryngeal amyloidosis (LA) refers to the manifestation of these deposits within the larynx, and is quite rare. The first reported case of LA was described in 1873 by A. Borov [1]. Since then, we have learned that LA accounts for 0.2% - 1.5% of benign laryngeal tumors with a male-to-female ratio of 3:1.

LA usually presents with hoarseness, difficulty breathing, neck pain, and rarely hemoptysis. LA is characterized on endoscopy as a well defined yellowish mass located in the larynx.

METHODS AND MATERIALS

The charts including endoscopic and operative reports and imaging of thirteen total cases of LA were reviewed.

The diagnostic protocol consisted of Phonatory Function Studies (PhFS) with visualization by LVS, HSDP, and NBI. We used KayPENTAX system for HSDP and Olympus system for NBI. Customized acoustic evaluation was also an integral aspect of our workup and long-term surveillance of LA [2].

All patients underwent biopsy of the laryngeal lesions revealing amorphous congophilic material birefringent under polarized light, consistent with amyloidosis. A subset of patients underwent excision via microdirect laryngoscopy with CO2 laser in a staged manner contingent upon the extent of disease.

DISCUSSION

LA is a rare, enigmatic disorder that should nevertheless be included in the differential diagnosis of a laryngeal lesion.

Novel means of LA visualization, including LVS, HSDP, and NBI contributed to our understanding of how voice is affected by this condition. LVS was found to be an excellent tool to show the size and location of LA. However, we found LVS to be less accurate in displaying the mucosal wave, particularly when the wave was apertic. HSDP permitted a detailed observation of the vibratory cycle, but was less informative regarding the geography of these lesions. NBI was employed to rule out neoplastic processes [4], and its utility has already been demonstrated with respect to the evaluation of tracheobronchial amyloidosis [5].

Through these techniques, we have learned that subglottic LA is less disturbing to the phonatory process than it may appear, particularly with mobility of the middle and upper lips of the vocal folds. Subglottic LA appears to induce air flow deflection, resulting in hiss and noise, rather than jitter or shimmer. These new modalities aid in our understanding of LA and may help in the preoperative assessment and postsurgical surveillance of this disease process.

REFERENCES