

Acquired Anterior Laryngeal Web in a Shotgun Injury

Abstract:

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Abstract

We report the first case of an anterior laryngeal web post gunshot wound in the modern literature. A 27 year-old man suffered a close range shotgun injury to his neck. He presented with stridor and a large open neck wound. Emergency tracheostomy was required. A postoperative fiberoptic laryngoscopy revealed anterior glottic web formation. This case report highlights the difficulties in managing acquired anterior laryngeal webs and reviews the only other case in the literature from 1915.

Introduction

The vast majority of anterior laryngeal webs are congenital developmental defects in infants. Acquired webs are frequently due to iatrogenic trauma or less commonly with infections such as diphtheria. We describe an extremely rare case of anterior glottic web formation in a patient after a gunshot injury to neck.

Case Report

A 27 year-old male suffered a shotgun wound to the left side of his neck. This was at close range and on presentation he was aphonic and stridulous. A lateral radiograph of the neck on presentation showed the distribution of the shot (Figure 1). He had a traumatic intubation and had a tracheostomy performed between the second and third tracheal rings. Direct laryngoscopy showed an oedematous epiglottis and vocal cords. No major vascular injury was found on neck exploration. There was a large amount of soft tissue loss, but there was no evidence of disruption of the laryngeal framework. Subsequent CT scanning of his larynx was non-contributory due to the extent of streak artefact (Figure 2). The patient recovered well, however he continued to be markedly dysphonic. At ten days post injury flexible laryngoscopy revealed the development of an anterior laryngeal web. Several weeks later, a repeat direct laryngoscopy was attempted, but access proved difficult due to poor flexion of his neck and edema and redundancy of the vestibular folds. A laser excision of the supraglottic tissue and partial resection of the web was carried out. The patient's voice improved from a whisper but remained obviously hoarse. Subsequent flexible laryngoscopy demonstrated that the anterior laryngeal web persisted. The patient was considered for a laryngo-fissure approach with keel insertion or the use of a flexible bronchoscope with laser division of the web. However, the patient declined both options. The tracheostomy was decannulated and he is currently under review.

Discussion

Laryngo-tracheal trauma is life threatening. Shotgun wounds from close range (less than 3 meters) are classified as type 3 injuries, which usually involve massive tissue mutilation. The most fundamental therapeutic goal for patients with laryngotracheal injury is airway control by tracheostomy or endotracheal intubation. Similarly, patients who need neck exploration for control of bleeding should have the extent of the airway injury assessed at the same time by laryngoscopy and bronchoscopy. Although not in this case, computerised tomography is often a useful diagnostic tool to ascertain damage to laryngeal structure after trauma. Its role is emphasised even after a normal flexible laryngoscopy. Management of anterior laryngeal webs depend on the severity of the insult. A small thin anterior web with good voice may be treated conservatively. If phonation is affected, laser resection, with or without a stent may be employed. An anterior thick web without subglottic extension may be treated with a web split (open or endoscopic) with sialistic keel. An anterior web with subglottic extension would need a laryngo-tracheal reconstruction with cartilage graft.

There is one similar case in the literature. A British soldier survived a gunshot injury to neck at the battle of Ypres during the First World War. The patient had ongoing dysphonia and laryngeal examinations revealed an anterior laryngeal web to account for his symptoms. This case was discussed at the Royal society of medicine meeting at London in 1915 by a panel of eminent laryngologists of that time. A conservative approach was favoured over an open laryngo fissure and splinting. Our patient survived a potentially fatal injury. Although a moderate level of dysphonia remains, he is content with his voice and refused any further procedures. The patient is only the second reported case of anterior glottic web after gunshot injury to neck in the literature, and the first in 100 years.

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