Endoscopic Management of Supraglottic Stenosis

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ABSTRACT

Stenosis of the supraglottic larynx and pharynx is an uncommon but difficult to treat condition. The most common etiologies are carcinogenic injury from chemoradiotherapy, surgery, radiation therapy, or prolonged intubation. Other causes include blunt or penetrating trauma, caustic ingestion, and inflammatory diseases such as granulomatosis, Wegener’s granulomatosis, relapsing polychondritis, tuberculosis, and fungal infections. Laryngopharyngeal stenosis depend upon stenosis severity, and range from shortness of breath and dysphagia to dysarthria and stridor.

The optimal treatment of supraglottic laryngopharyngeal stenosis requires a multifaceted approach. In the past, the treatment of choice was open supraglottic laryngectomy, but this was accompanied by high morbidity related to aspiration and poor wound healing. More conservative techniques have gained favor recently because of reduced morbidity. In this report, we present a surgical technique of managing supraglottic laryngopharyngeal stenosis to provide long-term paleness. The stenosis is primarily managed with scar releasing incisions of the lateral laryngopharynx using the CO2 laser combined with balloon dilation and Mitomycin-C application as adjunctive treatment.

METHODS

A retrospective review of all cases of supraglottic laryngopharyngeal stenosis treated during a four-year period at a tertiary academic medical center by the senior surgeon (DKC) was performed. Cases with concurrent glottic, subglottic, or interarytenoid involvement were excluded. Outcomes evaluated were swallowing function and tracheostomy decannulation. Four patients with supraglottic laryngopharyngeal stenosis were identified.

RESULTS

The first case was a 50-year-old female who presented two years after chemoradiation therapy for base of tongue cancer. She was G-tube and tracheostomy dependent. She initially underwent office-based CRE balloon dilations but recurrent stenosis required dilation every six to eight weeks. She then underwent lateral pharyngolarynx CO2 laser releasing incisions, balloon dilation, and Mitomycin-C application (Figure 1). She was subsequently decannulated and required another laser procedure about twelve months later without needing a tracheostomy. The airway remains stable at twelve months follow-up.

The second case was a 58-year-old male who also developed supraglottic stenosis after radiation therapy and was G-tube and tracheostomy dependent. Initial management included CO2 laser releasing incisions, balloon dilation, and Mitomycin-C application (Figure 2). He was subsequently decannulated but developed moderate restenosis after one year. He was taken back to the operating room for a repeat procedure as it could still be performed without a repeat tracheostomy.

Two additional cases were treated for symptomatic supraglottic stenosis. One was a 50-year-old female with sarcoidosis who was tracheostomy dependent. She underwent the surgical procedure and was decannulated but required one additional procedure 12 months later without needing a repeat tracheostomy. The other was an idiopathic case in a 50-year-old female. She underwent the surgical procedure and was decannulated.

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