

A Novel Technique in Managing Anterior Glottic Web: Utilising Tracheostoma as a Window for Serial Intralesional Steroid Injection (SILSI)

ABDUL RAHIM N^{1,2}, SOBANI MA², MANSOR M^{1,2*}

¹Department of Otorhinolaryngology Head and Neck Surgery, Faculty of Medicine, Universiti Teknologi MARA (UiTM), Malaysia

²Department of Otorhinolaryngology, Hospital Al-Sultan Abdullah UiTM, Bandar Puncak Alam, Selangor, Malaysia

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ABSTRAK

Sarang glotik anterior adalah pita tisu yang terdapat di antara satu pita suara ke sebelah pita suara yang bertentangan, terdiri dari sarang glotik yang kecil di bahagian hadapan pita suara hingga ke sarang glotik yang besar sehingga boleh menyebabkan saluran pernafasan di bahagian atas tersumbat. Teknik suntikan melalui 'transthyroid' atau 'transthyroid' adalah sukar kerana bahagian leher yang fibrosis disebabkan infeksi terdahulu. Oleh itu, intralesi bersiri suntikan steroid (SILSI) telah dilakukan melalui trakeostoma. Teknik ini mengelakkan pesakit daripada mengalami kesakitan tambahan sekiranya jarum suntikan melalui kulit di bahagian leher. Jarum suntikan yang dibengkokkan dimasukkan bersama skop fleksibel melalui trakeostoma supaya dapat melihat SILSI. Penggunaan trakeostoma sebagai tingkap untuk melakukan SILSI adalah berkesan. Kaedah ini dapat mengurangkan kesakitan terhadap pesakit dan dapat memberikan hasil yang memuaskan.

Kata kunci: Intralesi bersiri suntikan steroid; sarang glotik anterior; trakeostoma

ABSTRACT

Anterior glottic web is a band of tissue that extend from anterior aspect of one vocal fold to opposite vocal fold, ranging from small web to massive web causing upper airway obstruction. The transthyroid or transthyroid approach was challenging due to fibrotic neck post infection. Therefore, serial intralesional steroid injection (SILSI) approach via tracheostoma was performed. This technique spared the patient from additional pain inserting needles through the skin of her neck. Bent needle followed by a flexible

Address for correspondence and reprint requests: Masaany binti Mansor. Department of Otorhinolaryngology Head and Neck Surgery, Faculty of Medicine, Universiti Teknologi MARA (UiTM), Sungai Buloh, Selangor, Malaysia / Department of Otorhinolaryngology, Hospital Al-Sultan Abdullah UiTM, Bandar Puncak Alam, Selangor, Malaysia. Tel: +6017 4320959 Email: masaanymansor@uitm.edu.my

scope for visualisation was inserted via tracheostoma and SILSI performed. Utilisation of tracheostoma as a window to perform SILSI has proven to be effective. It is well tolerable by the patient and the result is satisfactory.

Keywords: Anterior glottic web; serial intralesional steroid injection (SILSI); tracheostoma

INTRODUCTION

In 1985, Cohen classified the anterior glottic webs according to the percentage of vocal cord involvement and the presence of subglottic extension. Type 1 is a thin web with <35% of glottic involvement, type 2 involves 35~50% of glottis, type 3 has a 50~75% glottic involvement with anterior cricoid cartilage extension resulting in subglottic stenosis (SGS) formation. A type 4 web involves 75~90% of the glottis with cricoid extension and associated SGS (Cohen 1985). The causes of anterior glottic web can be divided into congenital and non-congenital. In severe cases of anterior glottic web, patient might require life-long tracheostomy tube. The use of steroids in managing inflammatory laryngeal diseases is well established due to their potent anti-inflammatory effects. Steroids are active organic compounds which have immunomodulation properties with genomic mode of action characterised by the activation of anti-inflammatory genes or inhibition of proinflammatory transcription factors (Campagnolo et al. 2008). Serial intralesional steroid injections (SILSI) are advantageous in these cases as they allow direct administration of steroids locally, thereby avoiding adverse systemic side effects. Dexamethasone is preferred due to its high glucocorticoid properties with longer half-life. We presented a case of type 3 anterior glottic web secondary to

iatrogenic cause where the tracheostomy tube is required. We described a novel technique of SILSI by utilising tracheostoma as a window in managing type 3 anterior glottic web which led to successful decannulation.

CASE REPORT

A 45-year-old lady presented with history of intubation following neutropenic sepsis. Later on, she developed Ludwig's Angina which required tracheostomy under local anaesthesia. During follow-up, flexible nasopharyngolaryngoscope revealed 60% anterior glottic web (Cohen grade 3) with limited abduction of the left vocal fold. Anterior glottic web release was performed under general anaesthesia with laryngeal keel insertion. Laryngeal keel was kept in situ for 6 months. Upon removal of laryngeal keel, restenosis of anterior glottic region unfortunately occurred. Repeated SILSI was done weekly for a month followed by monthly visit to the clinic for the next 4 months for observation. The usual transthyroid or transthyroid approach was challenging due to fibrotic neck post infection. Therefore, approach via tracheostoma was performed. This technique spared the patient from additional pain inserting needles through the skin of her neck. Patient had been decannulated with good voice.

MATERIALS AND METHODS

23-gauge needle, 5 cc syringe and Olympus flexible scope were prepared prior to the injection procedure. 4 cc of 2% lidocaine was used to anaesthetise the larynx. 2 cc of 4 mg dexamethasone was used for SILSI at the required site.

The ethical approval was obtained for Ethics Committee of Faculty of Medicine, Universiti Teknologi Mara (UiTM), Selangor, Malaysia and met national and international guidelines.

This procedure was done as an office procedure. A 23-gauge needle was bent 35 degrees at the needle hub and another 45 degrees bent at the tip of needle as shown in Figure 1. This double bend needle was then attached to a 5 cc syringe containing 2 cc of 4mg dexamethasone. Then, the tracheostomy tube was removed, and the larynx is anaesthetised with 4 cc of 2% lidocaine by squirting the solution into



FIGURE 1: 23-gauge needle of 1.5 inches long was bent 35 degrees at the needle hub and another 45 degrees bent at the tip of needle before attaching to a syringe containing 2 cc of 4 mg dexamethasone

the tracheostoma aiming upward towards the larynx as shown in Figure 2. Once the larynx was anaesthetised, double bent needle together with flexible scope were inserted via tracheostoma and SILSI was given to the anterior glottic web as required as shown in Figure 3 and 4.



FIGURE 2: 4 cc of Lidocaine 2% was squirted into tracheostoma to anaesthetise the larynx after removal of tracheostomy tube



FIGURE 3: Double bent needle together with flexible scope were inserted via tracheostoma and the intralesional steroid injection was given at the anterior glottic web

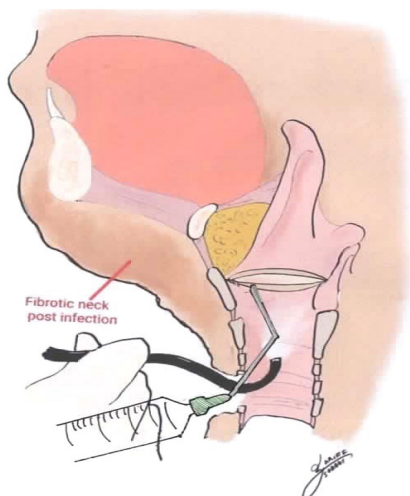


FIGURE 4: Illustration showed SILSI was performed at anterior glottic web guided by flexible scope

DISCUSSION

The treatment of glottic web consists of medical therapy, intralesional steroid injection, endolaryngeal or open surgical procedure depending on the severity of the web. The objective of the treatment is to provide adequate airway while preserving good quality of voice (Cohen 1985). SILSI has been used to treat scar tissue such as hypertrophic scar and keloid. It softens scar tissue by reducing scar thickness and volume (Huu et al. 2019). SILSI are also known to be effective in preventing maturation of scar tissue (Hideaki 2010). Corticosteroid has been proven to be effective treatment for subglottic stenosis cases either as primary or an adjunct treatment to surgery (Song & Franco 2020). The commonly used steroid molecules are triamcinolone acetonide and dexamethasone. Triamcinolone has a long plasma half-life, but dexamethasone has a 5-fold greater anti-inflammatory effect. Also, local triamcinolone injection has been reported to have whitish deposits

on the vocal folds. Hence, we prefer dexamethasone to avoid this issue (Noor Shairah et al. 2023).

We described a case of novel technique of SILSI utilising tracheostoma as a window using 2 cc of 4 mg dexamethasone in treating type 3 anterior glottic web. We highlight this technique as an alternative to conventional method via transthyrohyoid or transthyroid approach due to fibrotic and contracted neck from previous neck infection. Also due to neck contracture, the double bend needle can easily reach the anterior glottic web region. This novel technique spared the patient from additional pain inserting needles through the skin of her neck. SILSI was done weekly for one month followed by monthly visit to the clinic for close observation for the next 4 months. Patient eventually decannulated with adequate airway and good voice. Utilisation of tracheostoma window has been shown to be beneficial in this case.

CONCLUSION

This novel approach is well tolerated by the patient and the outcome is satisfactory.

CONFLICT OF INTEREST

Authors declare to have no conflict of interest.

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