


## How I do it - Coblation Assisted Division of Laryngeal Webs with Application of Locally Made Laryngeal Keel

S. Andaraweera<sup>1</sup>, C. Jayasuriya<sup>2</sup>, M. B. Perera<sup>3</sup> 

<sup>1</sup>- Senior Registrar ENT Surgery, NHSL, Colombo, Sri Lanka

<sup>2</sup>- Consultant ENT Surgeon, NHSL, Colombo, Sri Lanka

<sup>3</sup>- Consultant ENT Surgeon, TH Anuradhapura, Sri Lanka

### Abstract.

Management of anterior laryngeal web is a challenge with risk of adhesions without usage of a keel. In the absence of standard laryngeal keels, we present a technique of using silastic sheets and a feeding tube and placing the keel endoscopically in a close technique after coblation of laryngeal web.

**Keywords:** Laryngeal, web, keel, silastic

**Copyright:** © 2022 Andaraweera S. et al.

This is an open access article distributed under the [Creative Commons Attribution License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)



This license lets others distribute, remix, tweak, and build upon the work, even commercially, as long as they credit the original author for the creation.

**Funding:** None

**Competing interest:** None

**Correspondence:** Dr. S. Andaraweera ([kumarsanjeewa@yahoo.com](mailto:kumarsanjeewa@yahoo.com))

Accepted Date: 14<sup>th</sup> Jan 2022

Published Date: 26<sup>th</sup> February 2022

## Introduction

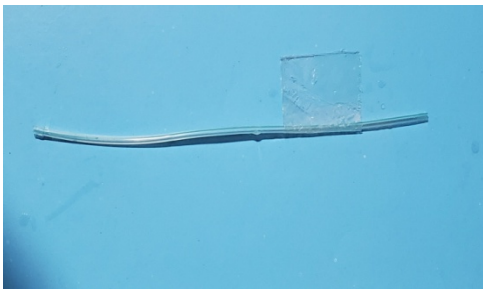
A 26 years old male with history of corrosive poisoning for 9 months on tracheostomy, presented with aphonia, but could breathe through larynx even with closed tracheostomy tube. On examination he had an extensive anterior laryngeal web. Webs were identified at level of true cords with obliteration of ventricles superiorly and in the subglottis (Cotton-Myer grade iii), just under the true cords to lie in continuity (Figure1). Our primary aims were to restore his voice as well as decannulation to achieve better quality of life.



**Figure 1:** Webs at the level of true cords and subglottis

## Technique

Laryngeal keel was made preoperatively with sterile, size 6 (FG) feeding tube and 1 mm thick, 4cm X 3cm silastic sheet which was folded in its width and stuck with glue (Figure 2). The surgery was performed under general anesthesia with ventilation through a cuffed tracheostomy tube. The patient was placed supine with slight neck extension. The skin was cleaned with povidone iodine from lower half of the face to clavicle and draped.



**Figure 2:** Laryngeal keel made with silastic sheet and feeding tube

Using suspension laryngoscopy, 0° and 30° rod lens telescopes were used to re-assess the levels of laryngeal webs. Length between upper and lower edge of web from vocal cords to subglottis was measured to be 2.5cm. Micro Laryngeal Coblation Wand (MLW) with settings of coblate 7 and coagulate 3 was used to divide the webs.

Wide bore needle (18 gauge) was introduced at superior half of the thyroid cartilage at its midline with telescopic guidance. Care was taken to avoid collateral damage by the needle. Once the needle tip entered the area above the web above false cords, a size 2/0 prolene suture was fed to the adapter of needle and passed to enter the supraglottic space. Suture was taken out from the supraglottic space outside through the laryngoscope and oral cavity using a micro laryngeal forcep. Wide bore needle was removed and end of suture was secured with a straight artery forcep. Locally made laryngeal keel was fed with prolene suture and distal end of feeding tube of the keel was placed towards the stoma with a micro laryngeal forcep. Straight artery forcep was introduced through the stoma above the tracheostomy tube under telescopic guidance and distal end of feeding tube was grasped by the artery forcep to pull it out so that superior edge of the stoma is protected by the feeding tube. Extreme care was taken to secure the silastic sheet in the region of divided webs. Two ends of the suture were secured with knots over a cloth button at upper entry point of suture to prevent skin damage by the prolene suture.

Tracheostomy tube was decuffed on first post operative day and closed to facilitate breathing through the larynx to prevent restenosis. Intravenous dexamethasone was given for five days post operatively to reduce the inflammation at surgical site. Anti-reflux treatment was given for 6 weeks. Patient was discharged in fifth post operative day with closed tracheostomy tube. Serial fiber optic nasolaryngoscopy was done at discharge, third and sixth post operative weeks.

## **Discussion**

Management of laryngeal webs still remain a challenge because of associated complications and risk of life<sup>1</sup>. Meticulous preoperative evaluation, planning and proper selection of surgical technique in every clinical situation is the key behind successful outcome. Endoscopic and open approaches are used to treat webs<sup>2,3</sup>. Selection of appropriate surgical technique depends on the cause, site, severity, duration of web and expected functional outcome<sup>1</sup>. Endoscopically, cold steel technique, laser and coblation technique can be used to divide web segments with their own advantages and disadvantages<sup>4</sup>. Recurrence is a known complication and laryngeal keel is used to prevent that. We currently do not have access to conventional laryngeal keels in Sri Lanka, which resorts us to improvise in managing such complex cases. Here, we have used endoscopic coblation assisted approach with such locally made laryngeal keel to treat our patient with anterior laryngeal web following corrosive poisoning. The strength of attachment between silastic sheet and feeding tube of the laryngeal keel was manually checked preoperatively. The tracheostomy tube was kept in situ for 6 weeks until keel was removed in case of accidental detaching of the silastic sheet from the feeding tube. The technique proved to be easy with the

only challenge being feeding the thread into the supraglottis. Care was taken not to damage the stoma site.

At the end of 6<sup>th</sup> week, no recurrence of webs was found at either true cords or subglottis and the patient had an adequate airway. Decannulation was done at the end of 6<sup>th</sup> post-operative week and the patient had a good quality voice. Periodic assessment was done monthly for 6 months. No recurrence of web or deterioration of voice was found after 6 months of the surgery. The patient was finally able to return to his previous occupation.

### **Conclusion**

Endoscopic coblation assisted division of laryngeal webs with application of local laryngeal keel made with silastic sheet remains a useful valid option for treating patients with acquired anterior laryngeal webs in the absence of conventional keels.

### **Acknowledgement**

We are grateful to Dr. K. B. Sandu from Lausanne University Hospital in Switzerland for his advices for a successful airway surgery.

### **References**

1. Swain SK, Sahu MC, Mohanty S, Samal R, Baisakh MR. Management of laryngotracheal stenosis - Still remains a challenge for successful outcome. *Apollo med* [Internet]. 2016;13(2):102-7. <https://doi.org/10.1016/j.apme.2016.01.003>
2. Chen J, Shu Y, Naunheim MR, Chen M, Cheng L, Wu H. Prevention of laryngeal webs through endoscopic keel placement for bilateral vocal cord lesions. *Front Med* [Internet]. 2018;12(3):301-6. <https://doi.org/10.1007/s11684-017-0549-0>. PMID:28948508
3. Chen J, Wu HT, Cheng L, He PJ. Endoscopic keel placement to treat and prevent-bilateral vocal cord adhesion. *Lin Chuang Er Bi Yan HouTou Jing WaiKeZaZhi* [Internet]. 2018;32(23):1821-5. Available from: <http://dx.doi.org/10.13201/j.issn.1001-1781.2018.23.013>
4. John CW, Raymond WC. *Scott-Brown's Otorhinolaryngology Head and Neck Surgery*. 3:1081-92.