

Peroral Epiglottectomy in a laryngopharyngeal stenosis following acid ingestion

Manish Gupta^{1*}, Sagar Chandra², Ankita Yadav³

¹Professor and Head, ²Senior Resident, ³Post Graduate 3rd Year, Dept. of ENT, Maharishi Markandeshwar Institute of Medical Sciences and Research, MMDU, Ambala, Haryana, India

*Corresponding Author: Manish Gupta
Email: manishgupta1217@gmail.com

Abstract

Strictures in the food passage are well known late complication of corrosive injury. We hereby report a rare case of post corrosive ingestion laryngopharyngeal stenosis. The epiglottis was retroverted and adhered on both lateral pharyngeal walls. Peroral direct laryngoscopy with microscope was used and Epiglottectomy was done with the help of diathermy and microlaryngeal instruments. The etio-pathogenesis, clinical presentation and treatment modalities available are being discussed.

Keywords: Corrosive, Pharynx, Stricture, Epiglottectomy, Dysphagia, Epiglottis.

Introduction

Corrosive acid ingestion is often associated with diffuse injury to the lips, tongue, buccal mucosa, pharynx and the supraglottis. Usually it is esophagus injury which has more serious complications. Acutely it may cause perforation and death, while delayed complications may be stricture and oesophageal carcinoma.¹ Delayed presentation of stricture, may have permanent morbidity in basic life functions like breathing, swallowing and phonation, depending on the site.

Initially it was thought that epiglottis participates in protecting the airway during swallowing, but now it is evident that respiration, deglutition and phonation can take place almost normally even if the epiglottis is removed or destroyed.²

Case Report

A 16 year male patient, presented in our out-patient department with complaint of difficulty swallowing solids which was gradually progressive, with nasal backflow of liquids and mild difficulty breathing, on exertion, for 3 months. He gave history of accidental acid ingestion 3 months back. On general physical examination he was thin and looked malnourished. There was old tracheostomy scar on anterior low neck, done at the time of acid ingestion. 70 degree endoscopic examination revealed retroverted epiglottis with adhesion between its lateral edges and lateral pharyngeal walls on both sides (Fig. 1). Epiglottis tip was almost touching the posterior pharyngeal wall with momentary opening on respiration. Endolarynx was not visible. X-ray soft tissue neck lateral view revealed retroverted epiglottis with supraglottic laryngopharyngeal obstruction and widened vallecula (Fig. 2).

Patient was taken up for temporary tracheostomy under local anaesthesia and peroral excision of dysfunctional epiglottis under general anaesthesia in same sitting. Kleinsasser direct laryngoscope held with laryngostat was used under microscopic illumination and magnification. Adhesionolysis was done using monopolar diathermy and microlaryngeal scissors and lateral fibrous bands were cut and epiglottis detached. Finally stiff and thickened suprahyoid epiglottis i.e. above the floor of the vallecula,

was held and cut. Also any bare cartilage i.e. demucosalized was removed to prevent perichondritis or necrosis. Endolarynx was visualized intraoperatively.

Patient was given intravenous antibiotics, analgesics and steroids to avoid airway oedema. He started swallowing solids without any difficulty or aspiration same evening, with resolved symptoms. Patient was decannulated on fifth day and tracheostomy wound closed. The 70 degree examination showed good pharyngeal lumen and endolarynx (Fig. 3). The patient was discharged on tapering steroids. There were no complications or recurrence of symptoms in one year follow-up.



Fig. 1: Preoperative 70 degree endoscopic picture showing retroverted epiglottis with wide vallecula, adhesions lateral wall and narrowed pharyngeal lumen posteriorly.



Fig. 2: Preoperative X-ray soft tissue neck lateral view, showing retroverted epiglottis and compromised air and food passage.



Fig. 3: Postoperative 70 degree endoscopic picture showing good pharyngeal lumen and endolarynx.

Discussion

Accidental corrosive ingestion is more common in children whereas in adults it is more of suicidal intention³. It is usually the benign stricture that patient presents with late. It occurs in majority i.e. 90% patients with third degree and only 15-30% of patients with second degree burns.³ In the study by Haller et al, they found that 70% of patients with pharyngeal burns had no serious oesophagus destruction.⁴ It was explained by immediate spitting or vomiting of accidentally ingested material before it passes to oesophagus.

The grade of the injury caused by swallowing caustic is decided by variety of things together like identity of the

agent, the amount consumed, the concentration, and the length of time the agent is in contact with a tissue.⁵ Caustic materials are generally acidic or alkali. Alkali in liquid form are tasteless, thus cause more pronounced distal injuries.⁶ Alkali once in contact with tissues leads to liquefactive destruction and thus deeper penetration. It causes denaturation of proteins, blood vessel thrombosis and saponification of fats.⁶ While acids due to poor and irritating taste may lead to suffocation and predispose the patient to aspirate the caustic material, with successive airway obstruction.⁶ The tissue protein in contact with acid undergo coagulative necrosis, forming eschar, thus prevents deep tissue damage⁶. Similarly, in our patient acid ingestion injury was limited to laryngopharynx.

Following stricture formation in pharynx, a patient with patent lumen of 10mm or more is usually asymptomatic and doesn't need any intervention.⁷ While in our case, the pharyngeal lumen of 5mm, with difficulty swallowing, required surgical intervention. Complications of stricture include nutritional compromise, hospitalization, chronic anaemia and repeated dilatations.⁶ Usually if not surgically intervened the corrosive stricture undergoes complete fibrosis within 1 year.⁸

Though many cases of pharyngeal strictures are been reported in literature, but they had been managed by serial dilatations, electrosurgical knife, LASER ablation or major surgeries such as flap repair, bypass and replacements.⁹ Harries and Randall described a surgical remedy that fixed the epiglottis back to the tongue i.e. epiglottopexy, in floppy epiglottis.¹⁰ It was associated with sequel like discomfort in the throat, thus not recommended. Our case with corrosive laryngopharyngeal stricture, treated with Epiglottectomy is unique and first in world literature.

Earlier epiglottis was considered to play a role in swallowing, but now it is known to be mostly controversial.¹¹ It is in early infancy that epiglottis protects the lower airway, while the infant suckles milk and breathes simultaneously.¹² However, role of epiglottis in adults is not clear. Also, the resection of epiglottis for supraglottic carcinoma does not cause any disability, thus epiglottis is not indispensable to have a safe and functional swallow in the long term. Numerous authors have described performing epiglottectomy to treat obstructive sleep apnea in floppy epiglottis, laryngomalacia and even globus pharyngeus, with improvement in symptoms without compromising deglutition.¹³

The preoperative temporary tracheostomy, in our patient, helped a lot. The tubed laryngoscope though displaces endotracheal tube posteriorly but the bulk inhibits manipulation and dissection of epiglottis. Moreover in our case endolarynx was not visible so trial of endotracheal intubation not possible. Application of monopolar diathermy at pharyngoepiglottic folds helped in controlling ooze from branches of superior laryngeal vasculature and provided dry operative field. The 400mm focal length operating microscope improved the accuracy of the procedure.

Excessive resection of the epiglottis may lead to false passage and aspiration, insufficient resection risks being ineffective.¹⁰ Thus, as in our case partial Epiglottectomy i.e till the level of hyoid is recommended.

The interest of the current case lies within the rarity of the pathology and the easiness of the technique utilized.

Conflict of Interest: None.

References

- Lupa M, Magne J, Guarisco JL, Amedee R. Update on the diagnosis and treatment of caustic ingestion. *Ochsner J* 2009;9(2):54-9.
- Weir N. Anatomy of the larynx and tracheobronchial tree. In: Gleason, M, ed. *Scott-Brown's Otolaryngology*, 6th edn. Oxford: Butterworth-Heinemann, 1997;12:1-28.
- Gumaste VV, Dave PB. Ingestion of corrosive substances by adults. *Am J Gastroenterol* 1992;87(1):1-5.
- Haller JA Jr, Andrews HG, White JJ, Tamer MA, Cleveland WW. Pathophysiology and management of acute corrosive burns of the esophagus: results of treatment in 285 children. *J Pediatr Surg* 1971;6(5):578-84.
- Browne J, Thompson J. Caustic ingestion. In: Bluestone CD, Stool SE, Kenna MA, eds. *Pediatric Otolaryngology*. 4th ed. Philadelphia, PA: WB Saunders Co; 2003:4330-42.
- Schaffer SB, Hebert AF. Caustic ingestion. *J La State Med Soc* 2000;152(12):590-96.
- Sarfati E, Gossot D, Assens P, Celerier M. Management of caustic ingestion in adults. *Br J Surg* 1987;74(2):146-8.
- Hna Y, Cheng QS, Li XF, Wang XP. Surgical management of esophageal strictures after caustic burns: a 30 year of experience. *World J Gastroenterol* 2004;10(19):2846-9.
- Kuppurajan KK, Sachithanandam ST. Endoscopic coblation assisted laryngo pharyngeal corrosive stricture adhesiolysis-the first of its kind. *Int J Res Med Sci* 2017;5:1142-4.
- Harries PG, Randall CJ. Adult floppy epiglottis: a simple surgical remedy. *J Laryngol Otol* 1995;109:871-2.
- Leder SB, Burrell MI, Van Daele DJ. Epiglottis is not essential for successful swallowing in humans. *Ann Otol Rhinol Laryngol* 2010;119:795-8.
- Sasaki CT, Levine PA, Laitman JT, Crelin ES. Postnatal descent of the epiglottis in man: a preliminary report. *Arch Otolaryngol* 1977;103:169-71.
- Jamal N, Erman A, Chhetri DK. Transoral partial epiglottidectomy to treat dysphagia in post-treatment head and neck cancer patients: a preliminary report. *Laryngoscope* 2014;124:665-671.

How to cite this article: Gupta M, Chandra S, Yadav A. Peroral Epiglottectomy in a laryngopharyngeal stenosis following acid ingestion. *J Otorhinolaryngol Allied Sci* 2019;2(2):50-52.