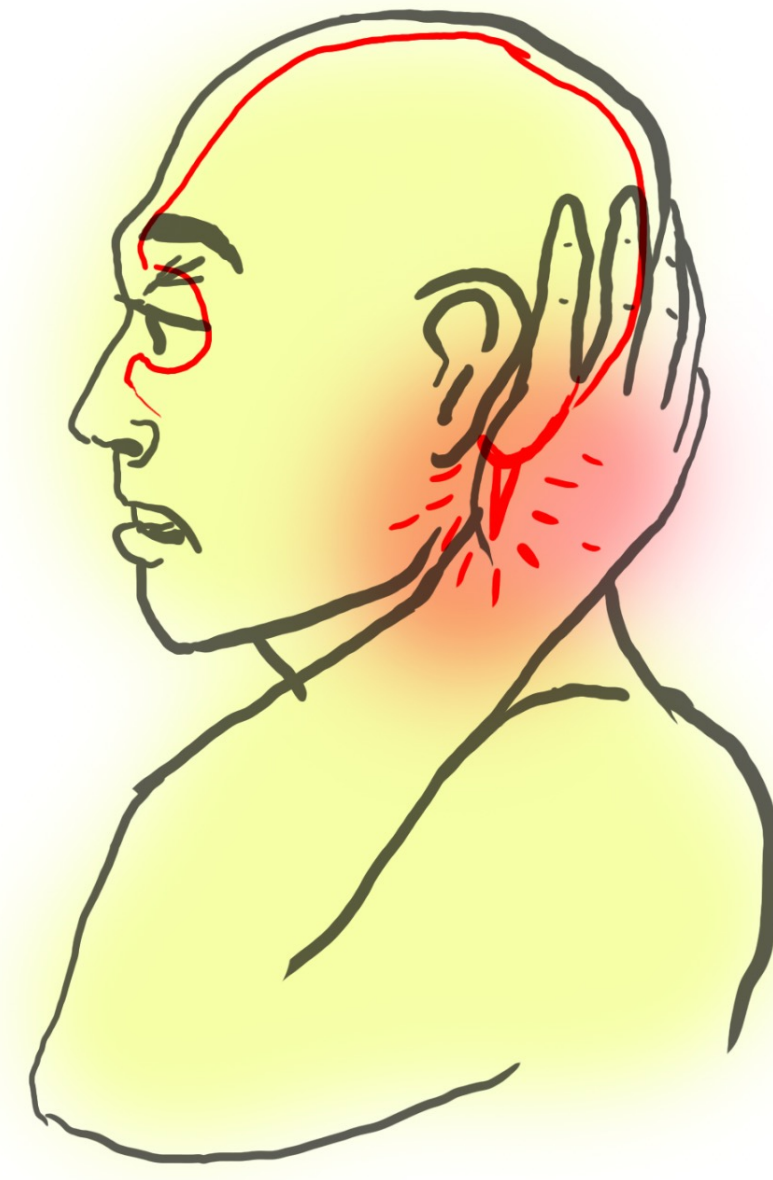


## BACKGROUND

### EAGLE SYNDROME

- Elongated styloid process or calcified stylohyoid ligament is thought to contribute to odynophagia and neck pain through compression of glossopharyngeal nerve.<sup>1</sup>
- Diagnosis: combination of history and physical exam, computed tomography (CT) imaging, and resolution of symptoms with injection of local anesthetic into the region.<sup>1</sup>



### TRANSORAL STYLOIDECTOMY

- Most common surgical treatment is excision of the styloid process and calcified portions of the stylohyoid ligament.
- Multiple approaches have been described, including transoral combined with tonsillectomy, tonsil-sparing transoral robotic surgery (TORS), and transcervical.<sup>2,3,4</sup>
- Minimal evidence confirming the safety or efficacy of any specific technique.<sup>4</sup>



## OBJECTIVE

To describe a sequential series of cases of styloidectomy for symptomatic Eagle Syndrome using a transoral approach.

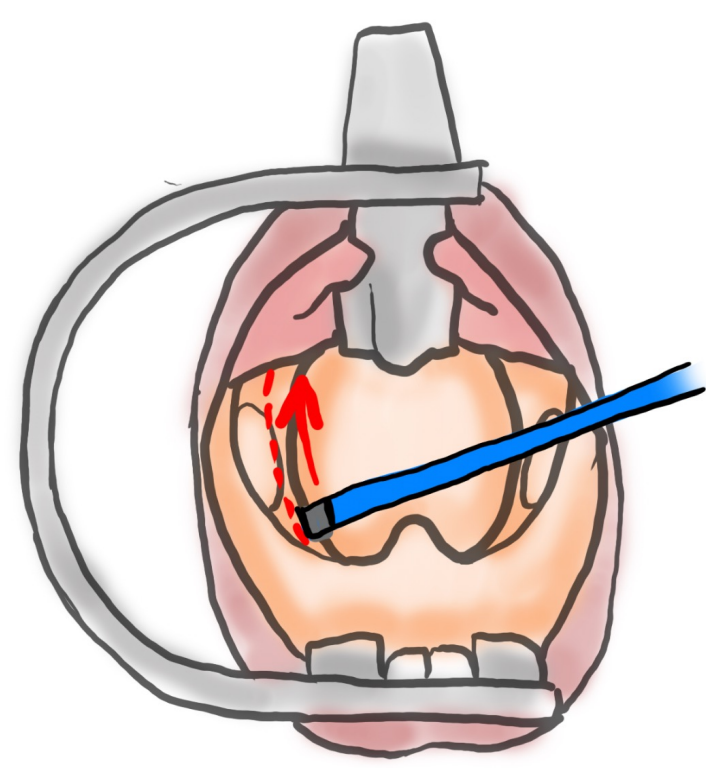
## METHODS

- Retrospective chart review of a single fellowship-trained head and neck oncology surgeon’s academic practice between 2015 and 2021
- Five consecutive patients between the ages of 28 and 69 underwent surgical transoral styloidectomy.
- All 5 patients attended follow up visits 4 weeks after each procedure.
- Outcomes were assessed in terms of intraoperative and postoperative complications and patient satisfaction postoperatively.

### TRANSORAL STYLOIDECTOMY TECHNIQUE:

If bilateral styloidectomy desired, a staged procedure is arranged:

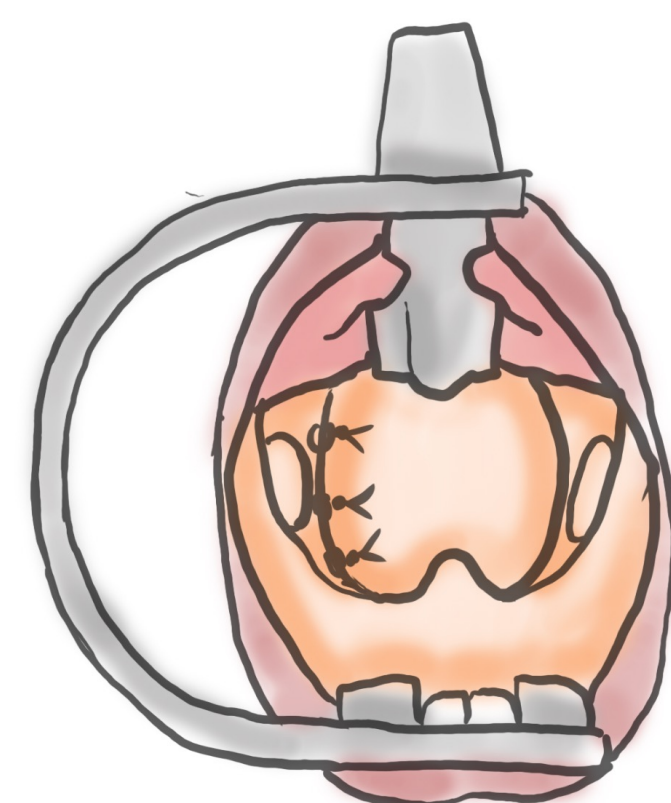
First, ipsilateral to more symptomatic side, then contralateral after several weeks’ recovery.



1. Tonsillotomy on the affected side. Tonsil spared if still present.



2. Dissection through the superior constrictor muscle until the styloid process and stylohyoid ligament is identified and excised.



3. Intraoral defect is closed primarily. Tonsil placed back into anatomic plane

**DISCHARGE** ✓

4. Patients are discharged the same day after a short period of observation.

## RESULTS

- Five patients underwent eight styloidectomy procedures via a transoral approach.

Characteristic	Measure
Women, no. (%)	4 (80 %)
Age, mean (range) yrs	48 (28– 69)

#	Side	Length of L, R Styloid (mm)	Symptoms	Symptoms resolved	Complications	30 Day ER Visits	Notes
1	Right	32, 50	Mild throat, ear pain	Full	None	7	Admitted post-op day #1-5 days for fluid resuscitation, pain control
2	Both	26, 26	Moderate neck, ear pain + globus	Full	None	0	Normal styloid process length, but stylohyoid ligament calcified more distally
3	Both	54, 40	Moderate neck, ear pain	Full	Dehiscence managed conservatively	0	Dehiscence healed by secondary intention
4	Right	38, 37	Severe throat pain	No improvement	Small bleed managed conservatively	3	Monitored in ER after history of minor intraoral bleed, no rebleeding. Contralateral procedure abandoned after no benefit from initial procedure.
5	Both	46, 25	Severe throat pain	Full	None	0	

## DISCUSSION

- No patients required reoperation
- All patients were discharged home the same day as surgery
- Complications were minimal and managed conservatively
- Patient #2 benefited despite styloid process length within normal limits – calcifications of the stylohyoid ligament were a factor in this case and must also be considered.
- These cases are limited to a 4-week follow up period – patients were invited to follow up as needed after this visit. No further follow up was requested after initial post surgery assessment.
- Procedure does carry potential risks including postoperative pain and risk of hemorrhage. Patient must be aware that intervention may not significantly improve symptomology (failure as high as 45% in some studies)<sup>4</sup>.
- In this study population 80% of patients had significant resolution of symptoms with no significant long-term complications identified.
- Careful patient selection is required to determine who may benefit, and shared decision-making is recommended.

## CONCLUSION

Transoral styloidectomy as a same day surgery procedure is a safe and viable option for treating appropriately selected symptomatic Eagle syndrome patients.

## References

1. Badhey A, Jategaonkar A, Anglin Kovacs AJ, et al. Eagle syndrome: A comprehensive review. Clin Neurol Neurosurg. 2017;159:34-38. doi:10.1016/j.clineuro.2017.04.021
2. Pigache P, Fontaine C, Ferri J, Raoul G. Transcervical styloidectomy in Eagle’s syndrome. Eur Ann Otorhinolaryngol Head Neck Dis. 2018;135(6):433-436. doi:10.1016/j.anorl.2018.05.001
3. Matsumoto F, Kase K, Kasai M, Komatsu H, Okizaki T, Ikeda K. Endoscopy-assisted transoral resection of the styloid process in Eagle’s syndrome. Case report. Head Face Med. 2012;8(1):21. doi:10.1186/1746-160X-8-21
4. Fitzpatrick TH, Lovin BD, Magister MJ, Waltonen JD, Browne JD, Sullivan CA. Surgical management of Eagle syndrome: A 17-year experience with open and transoral robotic styloidectomy. Am J Otolaryngol. 2020;41(2):102324. doi:10.1016/j.amjoto.2019.102324
5. Hardin FM, Xiao R, Burkey BB. Surgical management of patients with Eagle syndrome. Am J Otolaryngol. 2018;39(5):481-484. doi:10.1016/j.amjoto.2018.05.003