

Pseudoepiglottis and Dysphagia Following Total Laryngectomy



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ABSTRACT

Educational Objective:

At the conclusion of this presentation, the participants will be able to evaluate impact of pseudoepiglottis and closure technique on dysphagia following laryngectomy.

Objective:

Pseudoepiglottis (PE) is a common occurrence following total laryngectomy, named after its appearance on barium swallow. We wanted to determine if PE was associated with dysphagia in our laryngectomy patients.

Methods:

An IRB approved single institution retrospective review of video scope recordings and MBSS was performed on total laryngectomy patients between 2000-2014. Data from 51 laryngectomees were analyzed to determine factors significantly associated with dysphagia including PE.

Results:

PE was not significantly associated with dysphagia. Patients with and without PE had similar incidence for dysphagia (13/26, 50% vs. 12/25, 48%, $p=0.89$). Using multivariate analysis, odds of dysphagia among patients with and without PE are similar ($p=0.2$). PE occurred most commonly with vertical closure compared to horizontal or T closure (17/24, 70% vs. 2/6, 33% and 7/21, 33%, $p=0.03$).

Patients with vertical or horizontal closure had higher incidence of dysphagia than those with T closure (63.3% vs. 28.6%, $p=0.014$). Salvage laryngectomy had a higher incidence of dysphagia compared to primary laryngectomy (72.2% vs. 36.4%, $p=0.014$).

Multivariate analysis revealed vertical or horizontal closure and salvage surgery are also independent factors for dysphagia. The adjusted odds ratio of dysphagia for vertical or horizontal closure versus T closure was 3.76 ($p=0.04$) and adjusted odds ratio for primary versus salvage surgery was 3.95 ($p=0.04$).

Conclusions:

Pseudoepiglottis had no significant effect on dysphagia. Vertical or horizontal closure and salvage laryngectomy are independent significant predictors for dysphagia. T-shaped closure had the best outcome.

INTRODUCTION

Pseudoepiglottis is a mucosal fold at the junction of the tongue base and the reconstructed pharynx named after its appearance on modified barium swallow. They are often difficult to see at rest on endoscopy due to collapse of the fold against the tongue. Pseudoepiglottis forms a pocket as a result of pharyngeal contraction. They are typically composed of mucosa and scar tissue and may vary in size from 1 to 30cm.

Pseudoepiglottis may be an impediment to food bolus passage secondary to lack of muscular tissue. Patients may have complaints similar to those with Zenker's diverticulum including regurgitating undigested food, sensing material for a prolonged period after eating, and/or halitosis. If pseudoepiglottis is present, patient can often be treated conservatively. Patients may benefit from washing food through with liquid, changes in head posture, increasing effort of swallowing

Pseudoepiglottis is a common occurrence following total laryngectomy. We wanted to determine if pseudoepiglottis was associated with dysphagia in our laryngectomy patients.

METHODS

An IRB approved single institution retrospective review of video scope recordings and modified barium swallow studies was performed on total laryngectomy patients between 2000-2014. 69 laryngectomies were performed and 51 patients had recorded MBS. Data from 51 laryngectomees were analyzed to determine factors significantly associated with dysphagia including PE. MBS and scopes were reviewed for pseudoepiglottis by a Speech Pathologist and Physician.

Operative notes were reviewed for closure technique looking for vertical, horizontal or t-shaped closure. We also assessed via chart review the initial staging, primary site, age, and gender of the patient. In addition we also reviewed whether the patient received chemotherapy, radiation, and primary versus salvage laryngectomy. Pre and post op clinic visit notes were reviewed for evidence of dysphagia, continued need for g-tube, and the ability to eat desired foods.

Univariate and multivariate analysis was performed on the results of the chart review per Dr. Caldito to determine significant factors influencing dysphagia. Chi-square or fisher exact test was performed for categorical data. Multiple logistic regression analysis was performed to determine independent significant factors.

DISCUSSION

Literature review demonstrates past studies agree upon high rates of both pseudoepiglottis and dysphagia following laryngectomy

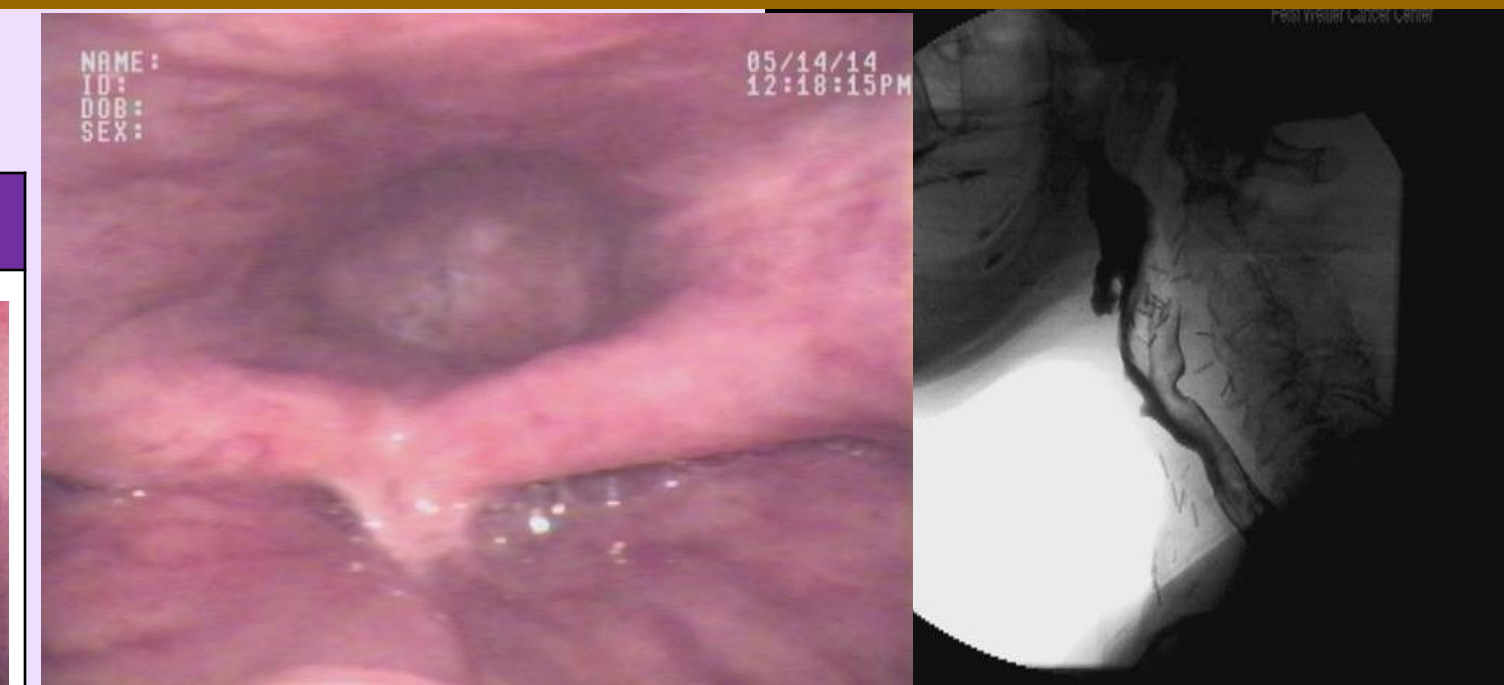
- Muller-Miny 1993 report 47% rate of pseudoepiglottis amongst 51 laryngectomees
- Davis 2009 report 21/28 laryngectomees with pseudoepiglottis, in all patients with vertical closure and 67% of T closures
- Grochowska-Bohatyrewicz 2009, report 80 laryngectomees, 34 (43%) with pseudoepiglottis, correlating primarily with surgeries without hyoid bone resection, no correlation with type of closure, shape of closure or radiotherapy

RESULTS

Characteristic /Outcome	Number (%) or Mean±SD, Median, Range
Pseudo Epiglottis (PE)	26 (51)
Closure:	
Vertical	24 (47.1)
Horizontal	6 (11.8)
T-shaped	21 (41.2)
Male	38 (74.5)
Subsite:	
Supraglottis	21 (41.2)
Other	30 (58.8)
Stage:	
Grade 1, 2	7 (13.7)
3	11 (21.6)
4	33 (64.7)
Primary vs. Salvage:	
Primary	33 (64.7)
Salvage	18 (35.3)
Chemotherapy	25 (49.0)
Radiation treatment	45 (88.2)
Dysphagia	25 (49.0)
Age (years)	57.0 ± 10.4, 54.7, 39.1 – 85.4



Modified barium swallow studies and associated endoscopic images



DISCUSSION (continued)

- Several case reports demonstrate the resolution of dysphagia following repair of pseudoepiglottis
- Oursin 1999 report series of 20 laryngectomees, 12 with pseudoepiglottis, 8 with complaints of dysphagia treated successfully with endoscopic laser therapy
 - Sobol 1990, Deschler 1996, Davis 2009 report improvement in dysphagia in 7 cases total with correction by endoscopic, transoral and laser excision respectively
- Past studies are mixed on the correlation between pseudoepiglottis and dysphagia
- Kirchner 1963 first reported increased incidence of post op pharyngocutaneous fistula and dysphagia with pseudoepiglottis
 - Szczeniak 2009 report in 24 laryngectomies, 11 with pseudoepiglottis that dysphagia did not correlate with anatomical problems

CONCLUSIONS

- Pseudoepiglottis has no significant effect on dysphagia
- Vertical closure and horizontal closure are independent significant predictors for dysphagia
- T shaped closure had the best outcome with regard to dysphagia
- Salvage laryngectomy is an independent significant predictor for dysphagia

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Table 1: Summary Statistics on Patient characteristics and Outcomes (N=51)

Factor	Dysphagia: Number (%)	p-value
Closure:		
Vertical/Horizontal (N=30)	19 (63.3)	0.014*
T-shaped (N=21)	6 (28.6)	
1 ^o vs. Salv:		
Primary (N=33)	12 (36.4)	0.014*
Salv (N=18)	13 (72.2)	

*Significant at 5% level (0.01<p-value<0.05)

Table 2: Factors Significantly Associated with Dysphagia (Univariate Analysis)

Factor	Adjusted Odds Ratio (95% CI)	p-value
Closure:		
Vertical/Horizontal vs. T	3.76 (1.07 – 13.24)	0.04*
Salvage vs. Primary	3.95 (1.07 – 14.60)	0.04*

Table 3: Independent Significant Factors for Dysphagia (Multivariate Analysis)



Assorted MBS and endoscopic images of pseudoepiglottis

