

How I do it: Compressive neck dressing in immediate post-laryngectomy period to reduce pharyngocutaneous fistula rate?

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Background: Pharyngocutaneous fistula (PCF) is the most common complication of total laryngectomy (TL), ranging from 3 to 65% (1-4) and 29% in salvage TL (5). The dead space between the skin flap and the underlying tissue provides a holding reservoir to allow saliva from the pharynx to enter and accumulate which causes wound breakdown leading to PCF. We hypothesize that the compressive neck dressing reduces this dead space and prevents PCF formation.

Objective: To present our compressive neck dressing protocol and demonstrate its effectiveness in reducing the rate of PCF development in patients after primary TL and salvage TL.

Methods: Retrospective review of the clinical records of patients who underwent TL and salvage TL from 1/1/2009 to 12/31/2019 and who also received compressive neck dressing every day in the postoperative period until discharge.

Closure Technique: Pharyngeal mucosa was closed from inferiorly to superiorly with 3-0 Vicryl Connell stitches and reinforced with interrupted 3.0 Vicryl. The remaining stoma was sutured to the skin with 2.0 chromic

vertical mattresses. The platysma was reapproximated with 3-0 chromic sutures. The skin was closed with staples. Prior to closure, 7-mm fully perforated Jackson-Pratt (JP)s were placed on either side of the neopharynx.

Postoperative protocol:
Trickle tube feeds on POD2
Advancing tube feed on POD3
No bolus tube feeds
The JP drains were removed when the outputs were less than 30cc over 24 hours, but the JP drain at the anastomotic site remained until patients passed the oral trial. Oral trials on POD5 in nonradiated patients, POD7 in radiated patients, and at one week clinic visit in patients with PEG.

Compressive neck dressing:
A small fluff ball of Kerlix gauze sponge, Kendall 6-Ply, 2 1/4" x 3 Yards, was placed on submental area and Kling gauze Kendall 3"X2 were wrapped multiple times around the neck and over the head to secure it. The neck dressing stays until the day after discharge and is replaced if soiled. The image to the right demonstrates how to place the neck dressing.

Table 1: Comparison of risk factors and pathological data between fistula and non-fistula patients. *units are noted on the left-hand side column

	Fistula %(n)	Non fistula %(n)
Number of patients	6	39
Average Age*	57.17(±5.30)	64.44 (±9.88)
Gender (M:F)*	5:1	34:5
Race (White: others)*	5:1	38:1
Postop Hemoglobin*	10.48(±2.60)	11.15(1.76)
Prior Radiation	50.00(3)	35.90(14)
Prior chemoradiation	33.33 (2)	23.08(9)
Neck dissection		
Bilateral	33.33(2)	25.64(10)
Unilateral	16.67(1)	51.28(20)
None	50.00(3)	23.07(9)
Margin (mm)*	4.20(±3.76)	7.33(±7.43)
Tumor size (mm)*	28.2(±12.35)	29.9(±8.59)
Tumor stage		
T4	50.00(3)	56.41(22)
T3	33.33(2)	23.08(9)
T2	16.67(1)	10.27(4)
T1	00.00	05.13(2)
Nodal positive	16.67(1)	23.08(9)
Perineural invasion	33.33(2)	33.33(13)
Lymphovascular invasion	16.67(1)	33.33(13)
Site		
Glottic	50.00(3)	76.92(30)
Supraglottic	16.67(1)	15.38(6)
Subglottic	33.33(2)	07.69(3)
Prior tracheostomy	100.00(6)	46.34(19)



Result: There were 45 patients that met the inclusion criteria. Of these 45 patients, six developed PCF (13.33%). The incidence of PCF in patients who underwent primary TL and salvage TL was 9.09% and 17.86%, respectively. Comparison of risk factors and pathological data between fistula and non-fistula patients is found in Table 1. This is in the lower end of the current reported literature (1-5).

Conclusion: Compressive neck dressing is an easy and effective method to reduce the incidence of PCF post primary and salvage TL.

Reference:

1. Khafif RA, Prichep R, Minkowitz S. Primary branchiogenic carcinoma. *Head Neck*. 1989;11(2):153-163.
2. Jereczekfossa B, Casadio C, Jassem J, et al. Branchiogenic carcinoma – conceptual or true clinico-pathological entity? *Cancer Treatment Reviews*. 2005;31(2):106-114.
3. Micheau C, Klijanienko J, Luboinski B, Richard J. So-called branchiogenic carcinoma is actually cystic metastases in the neck from a tonsillar primary. *Laryngoscope*. 1990;100(8):878-883.
- 4.. Thompson LD, Heffner DK. The clinical importance of cystic squamous cell carcinomas in the neck: a study of 136 cases. *Cancer*. 1998;82(5):944-956.
5. Hasan Z, Dwivedi RC, Gunaratne DA, Virk SA, Palme CE, Riffat F. Systematic review and meta-analysis of the complications of salvage total laryngectomy. *Eur J Surg Oncol*. 2017;43(1):42-51.