Extrinsic Obstructive Sleep Apnea After Total Laryngectomy Managed with Direct Neck Lift: A Case Report

Justin M. Soffer, MD[1]; **Alexia Paxton, BA[2]**; C. Burton Wood, MD[1]; Anas A. Eid, MD[1]

[1]Department of Otolaryngology–Head and Neck Surgery, University of Tennessee Health Science Center, Memphis, TN, USA

[2]College of Medicine, University of Tennessee Health Science Center, Memphis, TN, USA

Introduction

Background: Advanced laryngeal cancer affects 3,700–4,000 patients annually in the United States, most commonly squamous cell carcinoma.[1] Total laryngectomy (TL) remains a standard treatment for advanced (T3 or T4a) or recurrent disease, offering oncologic control and aspiration prevention but with major functional morbidity.[2,3]

Problem: By disconnecting the upper aerodigestive tract from the trachea, TL creates a permanent tracheostoma that bypasses the native airway and prevents conventional obstructive sleep apnea (OSA). Rarely, airflow can be compromised by extrinsic compression from submental adiposity or lymphedema, a phenomenon described in tracheostomy patients but poorly characterized in TL survivors. [4] Risk factors such as excess adiposity, increased neck circumference, and post-treatment lymphedema may predispose to this complication.[5]

Objective: We present a rare case of post-TL extrinsic OSA successfully treated with functional neck lift.

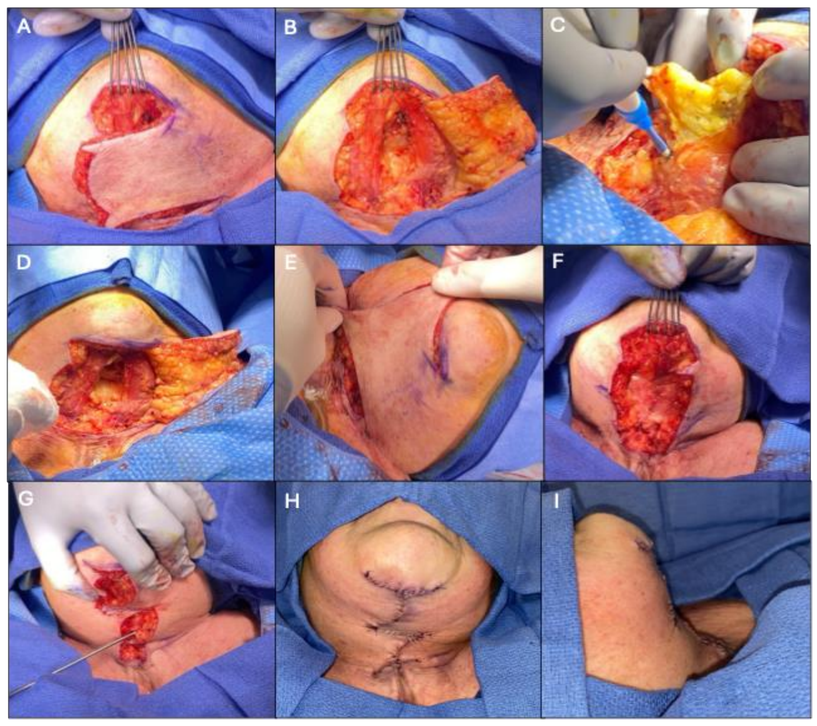

Figure 1: Intraoperative Photos
A) Hourglass incision; B) Supraplatysmal flap elevation with pedicled skin reflection; C) Submental lipectomy and lymphadenectomy; D) Post-resection field; E) Z-plasty planning; F) Platysma plication with digastric pexy; G) Lateral cervical liposuction; H) Immediate frontal view; I) Immediate lateral view.

Figure 2: Preoperative & 6 Months Postoperative Photos
Lateral view with flexion: A) preoperative showing complete stomal occlusion and B) postoperative showing no stomal occlusion. Lateral view: C) preoperative and D) postoperative. Frontal view: E) preoperative and F) postoperative.

Case Description

Initial Presentation: A 61-year-old woman with a history of OSA presented in acute respiratory distress from a laryngeal mass.

Workup & Primary Treatment: Direct laryngoscopy with biopsy revealed cT2N0M0 squamous cell carcinoma. She began radiation but soon developed worsening airway compromise from vocal cord immobility. Urgent tracheostomy upgraded her to cT3 disease, and she subsequently underwent TL with bilateral neck dissection.

Late Presentation: At 22 months post-TL, she developed nocturnal dyspnea and sleep disruption due to stomal occlusion by redundant submental tissue. Weight loss attempts failed to improve symptoms, and extrinsic OSA was diagnosed.

Surgical Management: At 23 months, she underwent direct excision neck lift with submental lipectomy, suprahyoid lymphadenectomy, lateral cervical liposuction, and Z-plasty closure.

Outcome: Postoperatively, she reported improved nocturnal breathing with decreased stomal obstruction.

Discussion

- Extrinsic OSA after TL is a rare complication caused by stomal compression from submental lymphedema or adiposity. Similar mechanisms are reported in tracheostomy patients, underscoring the importance of peri-stomal soft tissue in airflow.
- Management is not standardized and must be tailored to the altered anatomy of TL survivors.
- This case shows that functional neck lift with lipectomy, lymphadenectomy, and platysmal suspension can restore stomal patency, improve nocturnal breathing, and maintain acceptable cosmesis.
- Recognizing this entity is important, as post-TL dyspnea is often misattributed to other causes.
- Further study is needed to clarify prevalence and long-term outcomes.

Contact

Alexia Paxton, BSc
University of Tennessee Health Science Center
College of Medicine
910 Madison Avenue Suite 1002 Memphis, TN 38103
apaxton3@uthscdu
(540) 319-9332

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