Comparative Outcomes of Transoral and Transcervical Drainage Approaches for Deep Neck Space Infections

Emma R. Thompson, MD,[1,2] Erin Go, BA[1], Hetal Lad, BS[1],
Kenneth Yan, MD, PhD[1]

[1] Department of Otolaryngology – Head and Neck Surgery, Rutgers New Jersey Medical School, Newark, New Jersey
[2] Department of Anesthesiology, Zucker School of Medicine at Hosftra/Northwell, Long Island, NY

Introduction

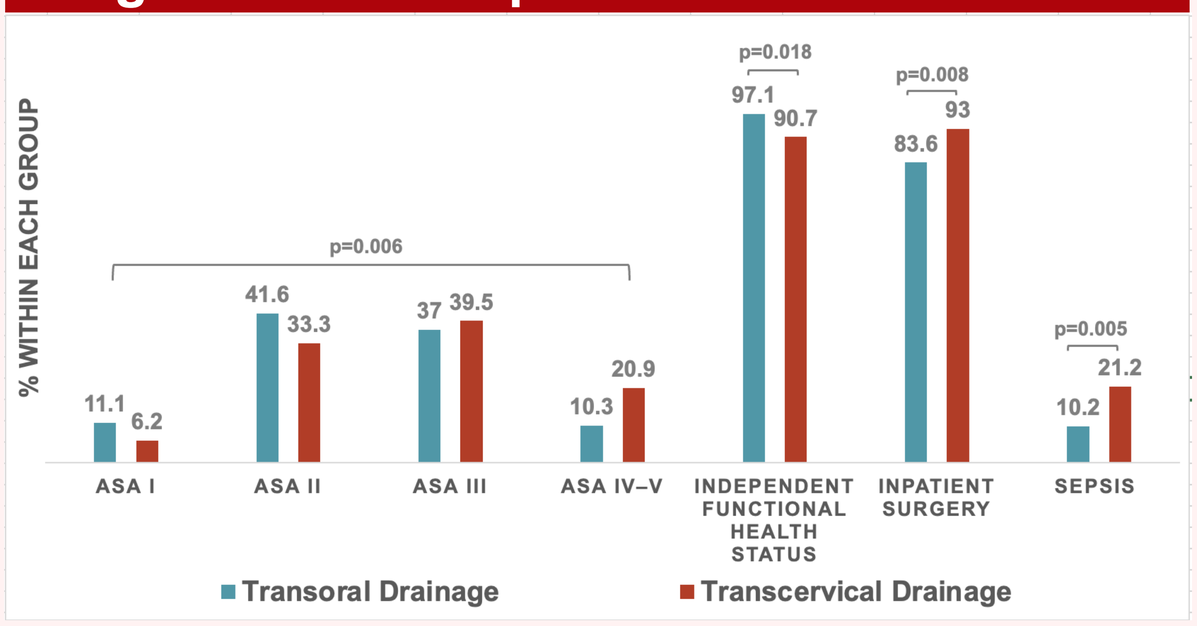
Deep Neck Space Infections (DNSIs): DNSIs, which include retropharyngeal and parapharyngeal abscesses, can carry significant mortality. These typically arise from more superficial sites, are usually polymicrobial, and can also lead to airway obstruction, sepsis, or necrotizing mediastinitis.[1]

Choice in Surgical Approach: Alongside antibiotics, drainage remains a cornerstone of treatment. Depending on the severity of the infection and the anatomical spaces involved, the approach may be transoral (TOD) or transcervical (TCD).

Knowledge Gap: While both TOD and TCD are valid options, national comparative data examining outcomes is sparse, leaving physicians without information to guide their selection.

Study Objective: This study utilized a 15-year national cohort to characterize trends in management of DNSIs and evaluate whether drainage approach is independently associated with differences in patient characteristics and clinical dispositions.

Significant Pre-Operative Characteristics



Significant Operative Characteristics and Outcome Measures

	Transoral Drainage	Transcervical Drainage	p-value
Specialty, n(%)			0.002*
Otolaryngology	335 (98.2)	119 (92.2)	
General Surgery	3 (0.9)	6 (4.7)	
Neurosurgery	1 (0.3)	3 (2.3)	
Orthopedics	0 (0)	1 (0.8)	
Plastics	2 (0.6)	0 (0)	
Operative length in minutes, mean ± SD	30.6 ± 39.6	60.2±54.3	<0.001*
Return to the OR, n(%)	31 (9.1)	23 (17.8)	0.014*
Length of stay in days, mean ± SD	1.49 ± 0.81	2.06 ± 0.83	<0.001*

*Statistically significant

Methods

Design: Retrospective cohort study utilizing the National Surgical Quality Improvement Program (NSQIP) database, identifying cases between 2005-2020.

Inclusion Criteria : Patients undergoing primary surgical drainage for a deep neck abscess, as identified by concurrent procedural codes 42720 (the transoral group) and 42725 (the transcervical group).

Variables: Demographics (age, sex, smoking status), preoperative comorbidities, surgical specialty, operative time, discharge destination, length of stay, and return to the operating room.

Analysis: Right-skewed continuous variables were log-transformed prior to analysis. Chi-squared or t-tests were performed in SPSS, with statistical significance set at $p<0.05$.

Patient Demographics

	Transoral Drainage	Transcervical Drainage	p-value
Sex, n (%)			
Female	147 (43.1)	63 (48.8)	0.27
Male	194 (56.9)	66 (51.20)	
Race, n (%)			0.76
American Indian/ Alaskan Native	1 (0.3)	0 (0)	
Asian	3 (0.9)	2 (1.6)	
Black/ African American	30 (8.8)	9 (7)	
Native Hawaiian or Pacific Islander	4 (1.2)	0 (0)	
Unknown	46 (13.5)	18 (14)	
White	208 (61)	80 (62)	
Current Smoker, n (%)	**Transoral Drainage**	**Transcervical Drainage**	**p-value**
Yes	102 (29.9)	36 (27.9)	0.67
No	239 (70.1)	93 (72.1)	

Results

A total of 470 cases were included, consisting of 341 (72.6%) transoral and 129 (27.4%) transcervical drainages.

- Preoperatively, transcervical drainages were associated with:
  - ↑ likelihood of undergoing inpatient drainage (p=0.008)
  - ↑ ASA class (p=0.006)
  - ↑ likelihood of having sepsis (p=0.005)
  - ↓ likelihood of having an independent functional health status at the time of the drainage (p=0.018)
- Compared to transoral drainages, transcervical cases also were associated with a longer mean operative time (p<0.001), a higher rate of returning to the operating room (p=0.014), and a longer average length of stay (p<0.001).
- Dispositions (p=0.275) and mortality rates (3.1% transcervical vs.1.8% transoral, p=0.47) did not significantly differ between approaches.

Discussion

- **Acuity and Resource Utilization:** Patients who underwent transcervical drainage were more likely to have several preoperative comorbidities, including a higher ASA class, sepsis at the time of surgery, or a functionally dependent status. Together, these likely represent sicker patients which may partially explain the associated longer operative lengths (roughly double) and length of stays observed in patients undergoing transcervical drainage. This agrees with a previous study in children that also found a longer length of stay in patients who underwent transcervical drainages.[2]
- **No difference in mortality or dispositions:** Despite a more severe initial clinical profile, patients who underwent transcervical drainages were no more likely to be be admitted, transferred, or experience death within 30 days than patients who underwent transoral drainages. These findings differ from a chart review of 84 patients, that found a higher rate of mortality in patients who underwent transcervical drainage.[3] This could be due to the larger sample size in our study.

References:

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