

Complications of Percutenaous Endoscopic Gastrostomy in Patients with Head and Neck Cancer

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Introduction

Percutaneous endoscopic gastrostomy (PEG) is the most commonly performed method of durable enteral access; a necessity often found in patients with head and neck cancer (HNC). While the overall complication rate of PEG placement is well established, patients with HNC may have inherently higher risks due to their immunocompromised state and comorbid conditions such as tobacco abuse. This study compares PEG placement in HNC patients with non-HNC patients to identify patient or disease-related factors associated with complications.

Methods

An institutional review board approved retrospective evaluation was performed of adult patients undergoing PEG for HNC at an academic medical center from September 2004 to February 2020. Preoperative risk factors, cancer characteristics, operative details, and postoperative and long-term outcomes were collected via electronic medical records. Complication rates in HNC patients were subsequently compared to a previously collected dataset of non-HNC patients using a two-sample t-test. Patient risk factors and cancer characteristics were analyzed for association using a univariate model.

Results

A total of 223 patients with HNC undergoing PEG met inclusion criteria (mean age 59 years, 80.7% male). Squamous cell carcinoma was the most common diagnosis (n=201, 90.1%) with majority Stage 4, (n=131, 58.7%). The vast majority of patients (n = 214, 95.9%) had at least one comorbidity beyond their HNC.

Overall, 46 (20.6%) patients had complications, including 19 (8.52%) surgical site infections and 10 (4.48%) PEG dislodged.

Nine patients (4.04%) required reoperation for PEG-related complications, but there were no mortalities.

When compared to historical dataset of 420 patients undergoing PEG for non-HNC indications, patients with HNC had a statistically higher rate of complications (20.6 vs 12.9 %, p=0.0097).

Univariate analysis demonstrated no significant associations between complications and comorbidities (smoking, cardiac, diabetes, COPD), cancer staging, chemoradiation timing, and timing of PEG (Table 1).

Table 1 Comparison of PEG Tube Complications to Risk Factors

Variable	No Complications (n = 177)	Complication (n = 46)	p-Value
Age, years, mean (SD)	59.9 (11.0)	60.5 (10.0)	0.7206
BMI, kg/m2, mean (SD)	25.5 (6.0)	25.7 (7.7)	0.9252
Sex			0.1892
Male	146 (82.5%)	34 (73.9%)	
Female	31 (17.5%)	12 (26.1%)	
Smoking History	121 (68.4%)	32 (69.6%)	0.8755
Cardiac History	51 (28.8%)	18 (39.1%)	0.1775
Diabetes	39 (22.0%)	8 (17.4%)	0.4916
COPD	38 (21.5%)	10 (21.7%)	0.9683
Pathologic Stage			0.9394
Unknown	14 (7.9%)	4 (8.7%)	
Stage 1	6 (3.4%)	2 (4.4%)	
Stage 2	14 (7.9%)	2 (4.4%)	
Stage 3	29 (16.4%)	8 (17.4%)	
Stage 4	114 (64.4%)	30 (65.2%)	
Chemoradiation			0.1203
None	11 (6.2%)	4 (8.7%)	
Before PEG	67 (37.9%)	10 (21.7%)	
After PEG	99 (55.9%)	32 (69.6%)	
PEG Timing			0.6703
Prophylactic	99 (55.9%)	24 (52.2%)	
During CRT	12 (6.8%)	2 (4.4%)	
After Symptoms	66 (37.3%)	20 (43.5%)	

Conclusion

In this single center study, patients with HNC had a higher rate of complications following PEG compared to a cohort of non-HNC patients.

We identified no specific patient or disease factors associated with the higher complication rate.

The higher complication rate in HNC patients suggests that evidence-based risk mitigation practices (for example oral decontamination or endoscopic gastropexy) could be applied in this population.

Further study is indicated to delineate the effectiveness of these interventions.

References

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