PEG Tube Dislodgment: A Thorough Analysis of an Unfortunately Common Complication

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INTRODUCTION

- Percutaneous endoscopic gastrostomy tubes (PEG) are the most used access worldwide for long-term enteral nutrition and generally considered low risk
- PEGs are recommended as preferred enteral feeding access for patients with need for enteral nutritional support > 6 weeks
- PEG tube dislodgement can lead to devastating sequalae with pneumoperitoneum and peritonitis that may require laparotomy

METHODS

- Retrospective, IRB approved single institution cohort analysis
- N= 150 patients, 59% male, mean age 62.7 years, average BMI of 29.4
- Evaluated parameters
  - Patient specific: BMI, abdominal wall thickness on CT, nutritional status (albumin), evidence of agitation (nursing/physician documentation), withdrawal prevention treatment, immunosuppression, evidence of intracranial hemorrhage
  - Procedural details: procedure time, surgeon experience, dislodgement management, Early (< 7 days postop) vs late (> 30 days postop) dislodgement, minimally invasive management of dislodgement
  - Circumstantial: patient location at time of dislodgement (MICU, CVTU, SICU, floor, outpatient)
- SPSS statistics 25 (IBM Corp. Released 2017) was used for data analysis, Chi-square with Cramer's V and Phi were used for initial correlation assessment, were needed given low expected counts Fisher's exact test was utilized

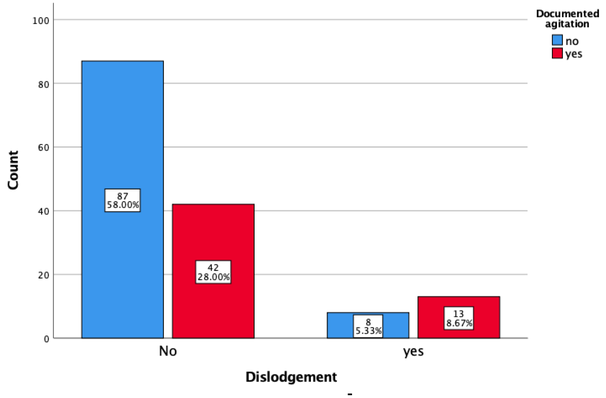
Figure 1: Treatment algorithm for esophageal perforations

RESULTS

Demographics	All (n=150)	Dislodged (n=21)	Not-Dislodged (n=129)
Sex (Female (F) v. Male(M))	40.7% (61F) 59.3%(89M)	40.9%(8F) 61.9%(13M)	40.8%(53F) 58.9%(76M)
Average Age (years)	62.7 ± 16.6	62.5 ± 15.5	62.6 ± 16.7
Average Height (cm)	170.2 ± 17.3	169.4± 8.6	170.3± 18.3
Average Weight (kg)	86.5 ± 28.3	90.5± 32.8	85.9 ± 27.7
Average BMI	29.4 ± 9.3	31.5 ± 11.1	29.1 ± 9.0

- Dislodgement was reported in 21 patients (14%)
- Dislodgement occurred between postop day 5-322
- 9 cases of dislodgement were managed endoscopically
- 3 dislodgements in the immediate postop period (< 10 days postop) required laparotomy
- Only 8.7% of patients had a normal albumin at the time of PEG placement

Dislodgement Potential Risk Factors	Dislodged	Not Dislodged	p-value
Head Injury (SDH, EDH, IPH, SAH) (n=53)	12.6%(8)	15.1%(45)	0.31
Documentation of patient as combative/agitated in EMR (n=55)	23.6%(13)	76.4%(42)	**0.01**
Phenobarb protocol/CIWA protocol ordered (n=9)	22.2%(2)	77.8%(7)	0.46
Ativan ordered (n=70)	17.1%(12)	82.9%(58)	0.35
Immunosuppressed (steroids, chemo, etc) (n=33)	15.2%(5)	84.8%(28)	0.83



LIMITATIONS

- Single institution review
- Retrospective nature of data

CONCLUSIONS

- Majority of patients is malnourished at the time of PEG placement
- No significant correlation between gender, obesity, BMI, malnutrition, patient location, presence of brain injury, withdrawal prevention treatment and immunosuppression to PEG dislodgement was demonstrated
- Patients with documented agitation were much more likely to experience dislodgement (p = 0.01, Phi 0.211)
- Surgeon experience did not influence risk of dislodgement, but minimally invasive fellowship training was associated with a higher likelihood of endoscopic management of dislodgement (p = 0.005).