

Anticipating The Need for Deep Sedation

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Scenario

- 51 year–old woman presents to the GI endoscopy suite for a routine screening colonoscopy.
- She has no medical problems and never had any surgeries.
- She takes alprazolam 0.5 mg orally 2–3 times daily for generalized anxiety disorder which was diagnosed 2 years ago.

Scenario

- Her pre-procedural evaluation including vital signs and physical examination is unremarkable.
- Intravenous sedation is started with fentanyl 50 mcg and midazolam 2 mg and increased in 25 mcg + 1 mg increments every 3 minutes to a total of 150 mcg and 6 mg.
- Patient is still wide awake and talking to the nurse.

Scenario

- The colonoscope is inserted but could only be advanced to the mid–sigmoid colon as the patient is screaming in pain.
- The colonoscope is withdrawn and the procedure aborted.
- Patient is given a future appointment for a colonoscopy with deep sedation.

Issue

- Could we have anticipated that she would require deep and not moderate sedation?
- Were there any clues in her medical record that would point towards that?
- What is the current medical evidence that could help identify those patients?

Factors Associated with Failure of Moderate Sedation

- Historical clues:
 - Prior failure of moderate sedation
 - Current heavy alcohol use
 - Use of anxiolytic medications
 - Use of narcotics
 - Psychiatric issues
 - Significant comorbidities [cardiac, pulmonary, seizure disorder, renal, hepatic]
 - Previous adverse reaction to sedatives
 - Extremes of age
 - History of heavy snoring/sleep apnea
 - Pregnant
 - Uncooperative/ Delirious

Factors Associated with Failure of Moderate Sedation

- Physical examination clues:
 - ASA class IV or V
 - Mallampati grade III or IV
 - Abnormal oropharyngeal, facial or neck anatomy
 - Facial dysmorphism
 - Nonvisible uvula
 - Short neck
 - Neck/oropharyngeal mass
 - Arched palate
 - Small oral opening (< 3 cm)
 - Trismus
 - Tracheal deviation
 - Obesity
 - Use of supplemental oxygen

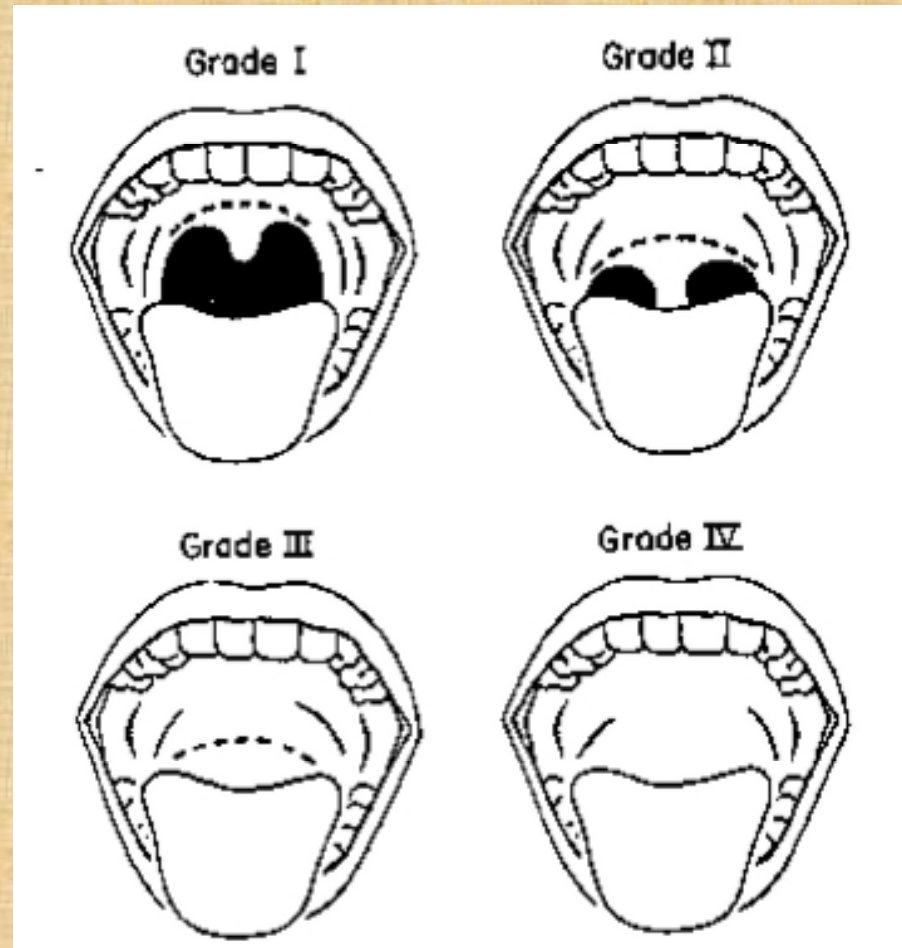
Additional Considerations

- Prolonged procedural time anticipated
 - ERCP
 - EUS
 - Enteral stent placement

American Society for Anesthesiology (ASA) Classification

Class	Description
I	The patient is normal and healthy
II	The patient has mild systemic disease that does not limit their activities (eg, controlled hypertension or controlled diabetes without systemic sequelae)
III	The patient has moderate or severe systemic disease, which does limit their activities (eg, stable angina or diabetes with systemic sequelae)
IV	The patient has severe systemic disease that is a constant potential threat to life (eg, severe congestive heart failure, end-stage renal failure)
V	The patient is morbid and is at substantial risk of death within 24 hours (with or without a procedure)
E	Emergency status: in addition to indicating underlying ASA status (1–5), any patient undergoing an emergency procedure is indicated by the suffix "E"

Mallampati Scoring System



Mallampati et al. A clinical sign to predict difficult tracheal intubation: a prospective study. *Can Anesth. Soc. J.* 1985

AGA Institute review of endoscopic sedation. *Gastroenterology.* 2007 Aug;133(2):675-701

Results from the CORI Database

- A national study of cardiopulmonary unplanned events (CUEs) after GI endoscopy
- Retrospective database review of 324,737 unique procedures performed with the patients under conscious sedation, unplanned events were reported in 1.4% of procedures, 0.9% of which were CUEs.

Sharma et al. *Gastrointestinal Endoscopy*. Volume 66, Issue 1, July 2007, Pages 27-34

	Crude incidence	OR*	95% CI _{OR}
Age (continuous variable)		1.02	1.01-1.02
Age (groups)			
≤ 60 y	986/165410 (0.6%)	1	Reference
>60 y	2025/159,327 (1.3%)	1.8	1.6-1.9
Medications			
Fentanyl (μg)		0.99	0.99-0.99
Meperidine (mg)		1.0	1.0-1.01
Midazolam (mg)		0.93	0.91-0.95
Sex			
Female	1179/146,389 (0.8%)	1	Reference
Male	1832/178,348 (1.0%)	1.0	0.9-1.1

	Crude incidence	OR*	95% CI _{OR}
ASA class			
I	778/118,020 (0.7%)	1	Reference
II	1277/124,472 (1.0%)	1.1	0.95-1.16
III	558/30,197 (1.8%)	1.8	1.6-2.0
IV	106/2,864 (3.7%)	3.2	2.5-4.1
V	7/92 (7.6%)	7.4	3.2-17.6
Location			
Outpatient	2210/259,297 (0.9%)	1	Reference
Inpatient	452/24,399 (1.9%)	1.5	1.3-1.7

	Crude incidence	OR*	95% CI _{OR}
Trainee			
Not involved	1980/247,538 (0.8%)	1	Reference
Involved	1031/77,199 (1.3%)	1.3	1.2-1.4
Type of site			
University	703/81,051 (0.9%)	1	Reference
Nonuniversity practice	1371/180,672 (0.8)	1.2	1.1-1.4
Veteran's hospital	930/62,463 (1.5%)	1.4	1.2-1.5
Droperidol			
Not used	2867/310,458 (0.9%)	1	Reference
Used	144/14,279 (1%)	1.16	0.96-1.4

	Crude incidence	OR*	95% CI _{OR}
Procedure			
EGD	852/139,840 (0.6%)	1	Reference
Colonoscopy	1995/174,255 (1.1%)	2.1	1.9-2.3
ERCP	129/6,092 (2.1%)	2.4	2.0-3.0
EUS	35/3,698 (0.9%)	1.7	1.2-2.5
Race			
White	2224/225,147 (1.0%)	1	Reference
Black	210/22,912 (0.9%)	1.0	0.9-.2
Other	572/75,201 (0.8%)	1.2	0.9-1.7

References

- Delegge MH. The difficult-to-sedate patient in the endoscopy suite. *Gastrointest Endosc Clin N Am*. 2008. Oct;18(4):679-93.
- American Society of Gastrointestinal Endoscopy: Guidelines for the use of deep sedation and anesthesia for GI endoscopy. *Gastrointest Endosc* 56. 613-617.2002
- Gross J.B., Bailey P.L., Connis R.T., et al: Practice guidelines for sedation and analgesia by non-anesthesiologists. *Anesthesiology* 84. 459-471.1996
- Sharma et al. *Gastrointestinal Endoscopy*. Volume 66, Issue 1, July 2007, Pages 27-34

Case

- Our patient was taking an anxiolytic on a chronic basis.
- This would have predicted a requirement for deep sedation.

Questions?



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