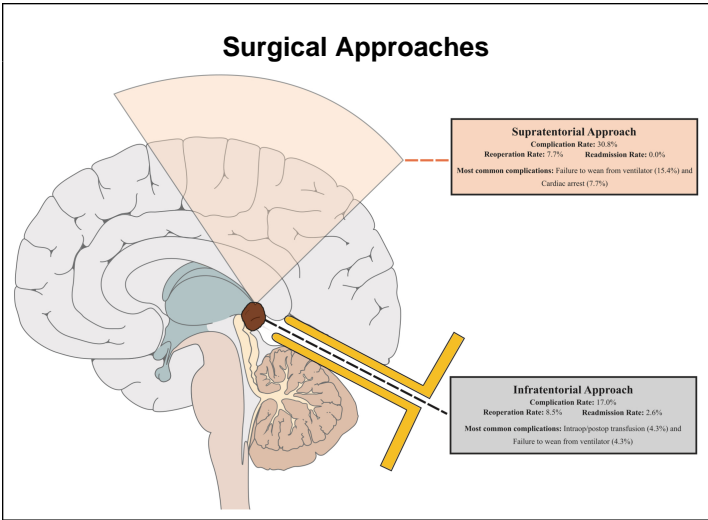


Introduction

To compare risk factors, outcomes, and complications for adult patients undergoing pineal gland tumor resections using infratentorial and supratentorial approaches.

Methods

- The 2005-2016 American College of Surgeons National Quality Improvement Program (ACS-NSQIP) was queried for patients undergoing supratentorial or infratentorial pineal gland tumor resections.
- Risk factors and comorbid conditions were compared between approaches.
- Thirty-day readmission, reoperation, and complication were calculated and compared between approaches.



Results

- 60 patients from 2005-2016 were identified undergoing pineal gland surgery, with 13 representing the supratentorial approach and 47 representing the infratentorial approach.
- Patient demographics were similar between groups.
- Overall complication rates for the supratentorial and infratentorial approaches were 30.8% and 17.0% respectively. This difference was not statistically significant.
- The most common medical complications encountered respiratory and hematologic.

Table 1: Demographics for patients undergoing pineal surgery					
		Total	Supratentorial	Infratentorial	p-value
Total patients		60	13	47	
Race	Male	30 (50.0%)	10 (76.9%)	20 (42.6%)	.058
	Female	30 (50.0%)	3 (23.1%)	27 (57.4%)	
Age ^a	Black	6 (10.0%)	3 (23.1%)	3 (6.4%)	0.363
	White	45 (75.0%)	8 (61.5%)	37 (78.7%)	
	Asian	2 (3.3%)	1 (7.7%)	1 (2.1%)	
	Unknown	7 (11.7%)	1 (7.7%)	6 (12.8%)	
Age ^a	Mean ± SD	36.4 ± 13.7	29.7 ± 13.6	38.2 ± 13.1	0.168
	16-35	31 (54.4%)	9 (75.0%)	22 (48.9%)	
	35-55	18 (31.6%)	2 (16.7%)	16 (35.6%)	
	55-75	8 (14.0%)	1 (8.3%)	7 (15.6%)	
	>75	0 (0.0%)	0 (0.0%)	0 (0.0%)	
BMI ^b	Mean ± SD	28.5 ± 6.0	27.0 ± 4.7	28.9 ± 6.3	0.060
	<25	17 (28.8%)	5 (38.5%)	12 (26.1%)	
	25-30	23 (39.0%)	4 (30.8%)	19 (41.3%)	
	30-35	10 (16.9%)	3 (23.1%)	7 (15.2%)	
	35-40	6 (10.2%)	1 (7.7%)	5 (10.9%)	
Obesity ^b	>40	3 (5.1%)	0 (0.0%)	3 (6.5%)	1.0
Obesity ^b	Not Obese	40 (67.8%)	9 (69.2%)	31 (67.4%)	1.0
	Obese	19 (32.2%)	4 (30.8%)	15 (32.6%)	
Smoker		16 (26.7%)	6 (46.2%)	10 (21.3%)	0.088
Hypertension		14 (23.3%)	2 (15.4%)	12 (25.5%)	0.713
Diabetes		5 (8.3%)	2 (15.4%)	3 (6.5%)	0.295
ASA Class	1-2	24 (40.0%)	5 (38.5%)	19 (40.4%)	1.0
	3-5	36 (60.0%)	8 (61.5%)	28 (59.6%)	
Functional Status	Independent	59 (98.3%)	12 (92.3%)	47 (100.0%)	0.217
	Partially/Totally Dependent	1 (1.7%)	1 (7.7%)	0 (0.0%)	

^a: Of available data (n=57, 12 supratentorial, 45 infratentorial)
^b: Of available data (n=59, 13 supratentorial, 46 infratentorial)

Table 2: Surgical Outcomes and Complications				
Operative Outcome	Total	Supratentorial	Infratentorial	p-value
Total Complications	12 (20.0%)	4 (30.8%)	8 (17.0%)	0.271
Readmission ^a	1 (2.1%)	0 (0.0%)	1 (2.6%)	1.0
Return to OR	5 (8.3%)	1 (7.7%)	4 (8.5%)	1.0
Complications: Infection	1 (1.7%)	0 (0.0%)	1 (2.1%)	1.0
Deep incisional surgical site	1 (1.7%)	0 (0.0%)	1 (2.1%)	1.0
Complications: Respiratory	5 (8.3%)	2 (15.4%)	3 (6.4%)	0.295
Unplanned re-intubation	1 (1.7%)	0 (0.0%)	1 (2.1%)	1.0
Failure to wean from ventilator	4 (6.7%)	2 (15.4%)	2 (4.3%)	0.202
Complications: Hematologic	4 (6.7%)	1 (7.7%)	3 (6.4%)	1.0
Pulmonary embolism	1 (1.7%)	0 (0.0%)	1 (2.1%)	1.0
Intraop/postop transfusion	3 (5.0%)	1 (7.7%)	2 (4.3%)	1.0
Complications: Cardiovascular	2 (3.3%)	1 (7.7%)	1 (2.1%)	1.0
Cardiac arrest	1 (1.7%)	1 (7.7%)	0 (0.0%)	1.0
Myocardial infarction	1 (1.7%)	0 (0.0%)	1 (2.1%)	1.0
Hospital Length of stay (days) ^b				
0-5	36 (75.0%)	6 (46.2%)	30 (66.7%)	
5-10	13 (27.1%)	4 (30.8%)	9 (20.0%)	
>10	9 (18.8%)	3 (23.1%)	6 (13.3%)	
Mean Hospital Length of stay ± SD	6.8 ± 8.4	8.5 ± 9.2	6.3 ± 8.1	0.4124

^a: Of available data (n=48: 10 supratentorial, 38 infratentorial)
^b: Of available data (n=58: 13 supratentorial, 45 infratentorial)

Conclusions

- Supratentorial approaches to pineal gland surgery are less common than infratentorial approaches.
- Readmission, reoperation, overall complication rates, and total length of stay is similar between the two approaches.
- Clinical decisions regarding which approach to use should depend upon anatomical considerations and physician preference.