

Prevalence of pneumocephalus in patients with idiopathic cerebrospinal fluid rhinorrhea who utilize continuous positive airway pressure for obstructive sleep apnea

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Background

- The prevalence of obstructive sleep apnea is disproportionately high in patients diagnosed with spontaneous cerebrospinal fluid (CSF) leak
- Due to the perceived risk of pneumocephalus, surgeons will recommend waiting 10 days after skull base surgery before resuming continuous positive airway pressure (CPAP) treatment.
- Pneumocephalus in the setting of CPAP use following skull base surgery is understudied in the literature.

Objectives

- Determine the prevalence of incidental pneumocephalus in patients diagnosed with spontaneous CSF leak and OSA using daily CPAP

Methods

- This observational case series involved a single-institution chart review of 27 patients who had references to both CPAP and CSF rhinorrhea in their medical history.
- Information on patient demographics, body mass index (BMI), location of CSF leak, etiology of CSF leak, history of OSA, AHI score, CPAP use, related surgical treatment, and both preoperative and postoperative computed tomography (CT) findings were recorded.
- Patients without PSG confirming OSA, CT imaging and adequate follow up were excluded.

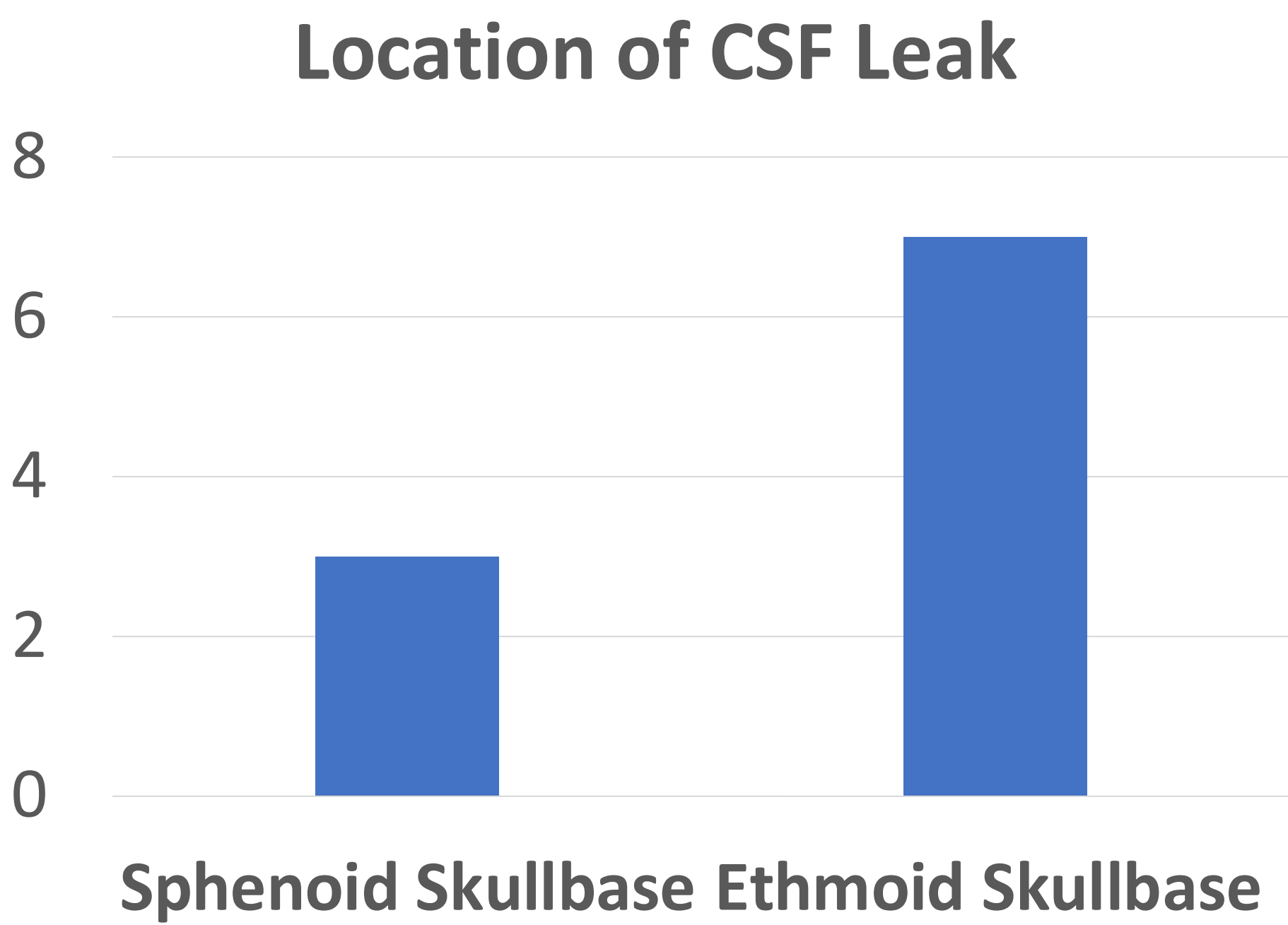
Table

Table 1. Demographics

Age	n
Mean	58.4
Gender	n (%)
Male	5 (50.0)
Female	5 (50.0)
Race	n (%)
White	4 (40.0)
Hispanic/Latino	2 (20.0)
Black	4(40.0)

Figures

Weight	n
Mean BMI	45.4
Obstructive sleep apnea	n
Mean AHI	34.3
Patients using daily CPAP	8
Patients not using daily CPAP	2
Pneumocephalus on CT	n
Patients using CPAP daily	0
Patients not using daily CPAP	0



Results

- 10 patients with OSA on CPAP and CSF rhinorrhea were included
- Mean age was 58 years and mean AHI was 34.3
- All patients had CT imaging confirming a skull base defect, however none exhibited pneumocephalus

Discussion/Conclusion

- No patients with spontaneous CSF rhinorrhea using CPAP had pneumocephalus on CT imaging despite having a compromised anterior skull base.
- This supports early resumption of CPAP in postoperative skull base patients who have OSA and are CPAP dependent
- These results align with previous studies suggesting that resuming CPAP therapy shortly following transsphenoidal surgery may be less dangerous than previously thought
- Being able to resume CPAP postoperatively without delay may reduce postoperative pulmonary complications
- Further multi-institutional studies with larger sample sizes are needed and will help establish definitive guidelines on the use and timing of positive airway pressure in postoperative skull base patients

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