A Review of the Role of the Endoscopic Sinus Surgery in the Management of Sinusitis Complicated by Extradural Vs. Subdural Brain Abscesses

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ABSTRACT

Objective: To review the literature comparing management of extradural and subdural complications of acute sinusitis and the role of the rhinologist in managing these complications.

Patient Population: Adult and pediatric patients presenting with acute sinusitis complicated by brain abscesses.

Intervention: Role of Endoscopic Sinus Surgery (ESS) in managing patients with sinusitis complicated by brain abscesses.


Conclusions: The results suggest an aggressive approach to sinusitis complicated by subdural collections with a select role for conservative management in treatment of extradural collections.

KEYWORDS: Patients; Sinusitis; Rhinosinusitis; Sinus surgery.

INTRODUCTION

Rhinosinusitis ranks among one of the most common ailments in the United States, with the prevalence of chronic sinusitis estimated at 1 in 8 individuals.1 While serious intracranial complications of sinusitis are uncommon due to their decreased incidence in the antibiotic era, approximately 0.5 to 24 percent of hospitalized individuals with rhinosinusitis will progress to develop intracranial complications.2 About 3 to 17 percent of patients hospitalized with acute sinusitis will develop intracranial complications.3 Neurological consequences such as epidural abscess, subdural abscess, intracerebral abscess, meningitis, and venous sinus thrombosis, can be life-threatening if left untreated.

While prior studies have illustrated the necessity of neurosurgical drainage of subdural abscesses, the role of Endoscopic Sinus Surgery (ESS) in conjunction with the neurosurgical procedure has not been clearly defined.1 Furthermore, it is unclear whether there is any difference in management for a subdural or extradural abscess with respect to sinus drainage. We aim to review the role of ESS in sinusitis complicated by intracranial complications looking at disease free outcomes and patient complications. The results of this study will delineate the role of ESS for sinusitis complicated by extradural and subdural collections and will provide insights for the role of sinus drainage in conjunction with medical management and neurosurgical intervention.
MATERIALS AND METHODS

We reviewed the literature from 1960-2015 by performing Pubmed, Excerpta Medica dataBASE (EMBASE), Medical Literature Analysis and Retrieval System Online (MEDLINE), and Cochrane searches using the search terms “intracranial”, “sinusitis”, “complications”, “abscess”, “extradural”, “epidural”, “subdural”, and various combinations of the terms.

Randomized Control Trials (RCTs), experimental studies without randomization, and observational studies with and without control groups examining the role of ESS in neurologic complications of acute sinusitis, in both adults and pediatric patients, were included in the study. Patients with no other source of intracranial infection besides the sinuses were also included. Case reports, non-full text articles, and studies written in a language other than English were excluded.

RESULTS

A total of 18 papers were identified that met our inclusion criteria, which included 320 patients. Table 1 summarizes the demographic data in these studies. Of these patients, there were 94 extradural abscesses and 156 subdural abscesses (Table 2). Generally, all patients regardless of whether they had an extradural or subdural abscess underwent surgical intervention. Gallagher et al performed a case series of 15 patients with suppurative intracranial complications of sinusitis in which all patients underwent sinus procedures. They argue that sinus drainage is necessary in conjunction with a neurosurgical procedure for adequate treatment regardless of the type of abscess, given that the sinuses are the original source of infection.17 Many of the papers did not stratify the type of surgical proce-

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Table 1: Author information.
In this review article, we summarize the literature regarding management of sinusitis complicated by extradural versus subdural complications. While the majority of these cases require ESS as well as a neurosurgical procedure, good coordination is necessary between the otolaryngologist and the neurosurgeon as well as infectious disease specialists to provide optimal management of sinusitis with intracranial complications.9
ACKNOWLEDGEMENT

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES


