Sellar Abscess Following Endoscopic Sinus Surgery: A Case Series

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Abstract

Sellar abscess is an uncommon finding that can be attributed to iatrogenic causes. Here we report our experiences with two cases of intracranial abscesses following endoscopic sinus surgery (ESS). Neither patient had undergone sphenoid sinusotomy previously. Both patients developed symptoms of intracranial pathology within two weeks of their primary ESS, and both presented to us within five weeks of ESS with visual changes and systemic symptoms. MRI was performed which revealed fluid densities within the sella extending into the cavernous sinus in one case, and in the other case, a paraseptal fluid density within the cavernous sinus was revealed. An endoscopic approach to drain the abscesses was employed for both patients. In both cases, cultures yielded polymicrobial growth. Complete resolution of symptoms were seen within six weeks for both patients. Although rare, sellar abscesses can occur following endoscopic sinus surgery, resulting in significant morbidity and risk for mortality.

Introduction

Sellar abscess is an uncommon finding and can sometimes be attributed to an otolaryngologic cause such as sinusitis, mastoiditis, or an otogenic source. In particular, sellar abscess can present in a variety of ways. Whole body symptoms due to hormonal imbalance and infection as well as specific symptoms due to involvement of local structures are common at presentation (2). The well protected and secluded anatomical location of the sella leaves only several modes of origin for primary abscesses. These include hematogenous spread to the pituitary gland, extension of a neighboring infection, and transsphenoidal seeding by iatrogenic cause or congenital defect (3). While transsphenoidal seeding by iatrogenic cause, especially transsphenoidal pituitary surgery, has been commonly reported, sellar abscess following endoscopic sinus surgery (ESS) has not (4). Paraseptal abscess is another form of intracranial abscess that is in close proximity to the sella but predominantly presents with focal symptoms from mass effect to the structures running through the cavernous sinus (6). Although some symptoms are the same or similar, paraseptal abscess and cavernous sinus thrombophlebitis are distinct entities. Here we present two cases of intracranial abscesses soon after ESS; one sellar and one paraseptal abscess. We postulate specific reasons for the cause of each case and review the current literature.

Methods

Following approval from Thomas Jefferson University’s Institutional Review Board, we reviewed our institution's endoscopic skull base surgery experience between 2012 – 2016 for sellar and paraseptal abscesses. The medical records were reviewed for presenting image, presentation, diagnosis, and outcomes.

Case 1 Imaging

Case 1

Age/Sex Presentation Diagnosis Outcome
63/F Headache, Diplopia Paraseptal Abscess Complete resolution at 4 weeks

Case 2 Imaging

Case 2

Age/Sex Presentation Diagnosis Outcome
28/M Headache, Neck Pain Parasellar Abscess Complete resolution at 4 weeks

Discussion

Determining the source of a sellar or paraseptal abscess can be difficult. In these cases, abscesses as a complication from ESS is feasible. In our first case, the sellar abscess had not been previously opened during the initial ESS procedure. Direct spread of infection may occur during instrumentation of the sphenoid sinus or presumably if residual sphenoid disease is left to progress. The second case, a paraseptal abscess following ESS was thought to have been caused by inadvertent direct seeding of microbes from the initial procedure. Direct spread of infection may occur during instrumentation of the sphenoid sinus or if residual septal disease is left to progress. Very few studies report sellar, paraseptal, or other intracranial abscesses as a complication of ESS (8).

Conclusions

ESS has long been considered a safe procedure, but there are risks and the occasional complication. Sellar and paraseptal abscesses can result from endoscopic sinus surgery in different ways. If the sphenoid sinus is not adequately addressed, or alternatively if the sphenoid sinus seeded during routine limited ESS, microbial infection may lead to spread of the infection to the sellar or cavernous sinus.

References