ABSTRACT

The use of balloon sinus osteal dilation, or balloon sinuplasty, for the treatment of chronic rhinosinusitis has grown tremendously despite the paucity of large, randomized and controlled clinical trials supporting its efficacy. This trend may be partly explained by a limited number of studies demonstrating improved postoperative morbidity outcomes with balloon catheter dilation alone versus traditional FESS.

In spite of the increased volume of procedures, there are few reports of major complications such as significant postoperative bleeding, cerebrospinal fluid leaks and orbital injury. We describe a case of a 51-year-old female referred to our practice after undergoing maxillary balloon catheter dilation complicated by medial orbital wall disruption confirmed by postoperative CT scan. The patient presented with severe left orbital swelling, pain on eye movement as well as left lateral gaze diplopia which largely resolved after one month. Although her acute symptoms subsided she subsequently developed recurrent sinus infections and unilateral epiphora over the course of the year. CT and MRI imaging revealed a new frontoethmoidal mucocele with resultant opacification of the left frontal sinus and disruption of the nasolacrimal duct. These injuries required FESS and orbitotomy for correction.

The mechanism of this injury from balloon catheter dilation and suggestions for avoiding, recognizing and treating such complications are discussed.

INTRODUCTION

Otolaryngologists should promptly recognize the manifestations of injury to the medial orbital wall after balloon sinus ostial dilation. Prompt ophthalmologic consultation should be obtained. Conservative management, such as warm compresses to the eye, as well as oral and ophthalmic steroids in conjunction with prophylactic antibiotics, can be utilized as the primary treatment modality for such injury. Furthermore, physicians should be encouraged to repeat imaging and arrange for closer outpatient follow-up for these patients.

Persistent or worsening ocular symptoms, new symptoms (i.e. epiphora) and/or recurrent sinus disease must alert the primary Otolaryngologist to the need for further imaging and evaluation for revision surgery.

Thorough preoperative evaluation with special consideration to imaging studies detailing the anatomical relationships between the uncinate process and the medial orbital wall, skull base, ethmoid bulla and Haller cells is crucial in determining suitable candidates for balloon sinus ostial dilation. Surgeons should know that cannulation of the maxillary ostia is often unsuccessful. Cannulation attempts may be further complicated by the presence of several natural and acquired accessory sinus ostia and drainage pathways in the paranasal sinus system that can form alternative tracks for the sinus guidewire. Finally, Otolaryngologists using balloon dilation catheters, or any new surgical device, must be aware of the importance of reporting complications from such devices to the FDA.

CASE REPORT

A 51 year old female with a history of asthma and chronic rhinosinusitis was referred to us after undergoing bilateral maxillary balloon sinus ostial dilation complicated by injury to the left medial orbital wall in July 2010. No preoperative CT was obtained.

The surgeon reported transillumination of the maxillary sinuses after insertion of the guidewire bilaterally, suggesting appropriate positioning. Uneventful dilation and irrigation of the maxillary sinus was performed. Upon awakening from anesthesia, significant left eye discomfort and swelling was noted. The patient was given steroids and transferred to the Wills Eye Hospital for evaluation. She was found to have diffuse left-sided subconjunctival hemorrhage, severe left orbital swelling, pain on eye movement as well as left lateral gaze diplopia. There was no true loss of visual acuity but both intraocular pressures and afferent pupillary reflexes were normal.

The patient’s left sided swelling, discomfort and diplopia largely resolved within one month with oral and ophthalmic steroid treatment in addition to conservative management. Although her acute symptoms subsided, she subsequently developed progressively worsening left eye discomfort and swelling was noted. The patient was given steroids and transferred to the Wills Eye Hospital for evaluation. She was found to have diffuse left-sided subconjunctival hemorrhage, severe left orbital swelling, pain on eye movement as well as left lateral gaze diplopia. There was no true loss of visual acuity but both intraocular pressures and afferent pupillary reflexes were normal.

In November 2011, the patient required revision FESS with left sided frontal sphenoidectomy and placement of a frontal sinus spacer containing Tramcinolone, left anterior ethmoidectomy, left maxillary antrostomy and left transnasal orbitotomy with drainage and marsupialization of frontoethmoidal mucocele. The mucocele was found to be adjacent to but free of the periorbita intraoperatively.

The patient’s condition has since clinically and radiologically improved.

DISCUSSION

REFERENCES