

Case study and literature review

Abstract

A very rare case of sphenoid sinus foreign body, presented with entering right nasal bone near right canthal region, it is a bullet in the sphenoid sinus from a gunshot. Because of the close proximity with vital structures, early diagnosis and treatment of the case is essential to prevent complication and symptoms and morbidity. A case of a sphenoid sinus foreign body with repeated drowsiness and fall down when riding a bike or running. As patient said removed through trans-septal trans-sphenoidal. Approach and assisted by endoscope and operative microscope.

Keywords: sphenoid, foreign body, skull, endoscope

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Introduction

A close proximity of the sphenoid sinus to a vital structure at the base of skull and a rare incidence of foreign body, there are high risk of damage and infection where a possible closing of sphenoid osmium with a possible pressure necrosis and leading to optic nerve impairment. So diagnosis and treatment is necessary to avoid complication and morbidity. Chronic sinusitis, coetaneous fistula, meningitis, chronic pain syndrome or even malignancy. Long-time observation may increase the risk of poisoning because most retained metallic foreign bodies are made from lead. There have only been a few reports of paranasal sinus foreign bodies observed without sequelae sitis.

The decision to remove the foreign body should balance the risks of removal with the potential benefit. In the past, external procedures were used to remove foreign bodies of the paranasal sinuses. With the advent of endoscopic techniques in the 1980s, physicians are able to accomplish this same task with minimally invasive surgery. Furthermore, with the advent of image guidance systems, these procedures can be performed with great precision.

Results

Case Report

An 11years old male child coming to end clinic referred from Al Assyria state to Baghdad after discharged from emergency department. Complaining from repeated drowsiness and falling from a bike, trauma started before 22days, symptoms started after few days. The past medical history was unremarkable. Vital signs were within normal limits. Neurological examination was normal and there were no focal neurologic deficits, ophthalmoscopes were normal bilaterally. Extra ocular movements of the both eyes were normal.

Anterior rhinoscopic examination was normal. Nasal endoscopic examination revealed nasal middle turbinate swelling in the region of the right middle meatus.¹ The computerized tomography (CT) scan of the sphenoid sinus reveals a foreign body in the right side anterior to sella turcica as in Figure 1. Other section gives a shadow to posterior ethmoidic sinus.

Under GA and local injection of adrenaline, cutting lateral wall of middle turbinate, no ulcer or adhesion were detected in the path

of bullet even bulla ethmoidalis was normal, so trans-septal trans-sphenoid approach was done and by operative microscope and after repeated pictures was taken by C-arm x-ray to detect the site of bullet as seen in Figure 2. Alternatively with rigid zero degree 4mm endoscope used to reach the bullet. Coronal CT scan showing air pellet in the sphenoid sinus. Anterior wall of sphenoid was opened and sinus mucosa opened then with suction we seen the bullet base floating, repeated trials to enlarge opening and pulling bullet by forceps, it was an air pellet of a gun.² The area of the optic nerve and posterior wall of the sphenoid sinus was visualized. The thin bony covering over the optic nerve and internal carotid artery was intact. There were no postoperative complications. The patient's symptoms resolved after surgery and he maintained asymptomatic three month after surgery follow up.

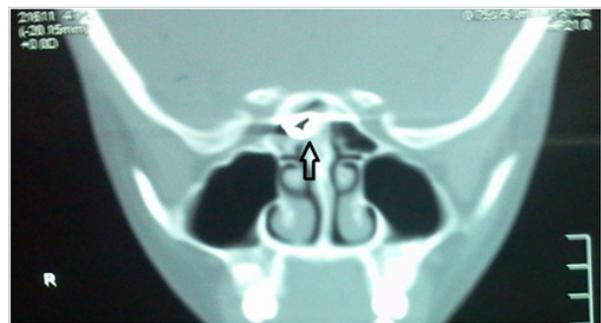


Figure 1 coronal CTscan showing air pellet in the sphenoid sinus.

Discussion

The sphenoid sinus has complex anatomical relations. The sinus has close proximity with the optic nerve, internal carotid artery, maxillary nerve, cavernous sinus, cranial nerves (III, IV and VI), the vidian nerve and the pituitary fossa. Clinical manifestations of the disease depends upon the impacted metallic Foreign body in relation to surrounding structure and may closing sinus osmium or damaging vital structure in addition to CSF leak that may happened and need to repair site of injury³. Diagnosis was made by history, physical examination and C-T scan.

The differential diagnosis; involving the sphenoid sinus in addition to Foreign body, mucoceles, pituitary adenoma, cranio-pharyngioma,

malignant sinus lesion, meningoencephalocele, nasopharyngeal tumor, sphenoid osteoma, and chordoma. These lesions can usually be differentiated from clinically and radiologically by the presence of contrast enhancement and an invasive pattern of bone destruction. As in Figure 3. We noted the bullet with large base and empty core filled with air.⁴

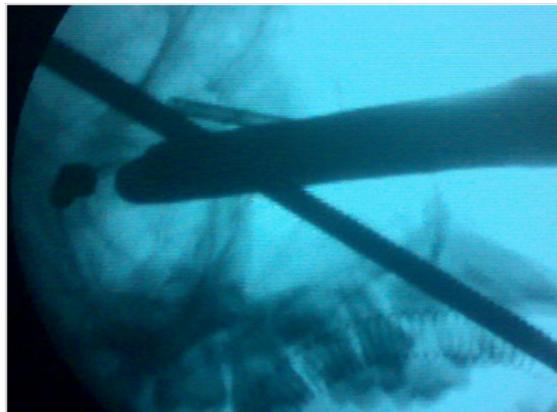


Figure 2 Transtheoretical Stages of Change Model.¹⁴



Figure 3 Air pellet after removal.

All cases of air gun injuries should be evaluated and managed as gunshot wounds.⁵ Foreign bodies and missile have been shown to cause longest sequelae and should be removed when possible. The site of missile is best detected by C-am x-raying multiple pictures after evaluated with CT scan and predict associated injuries and potential risk of removal. Endoscopic techniques aided by operative microscope are the safest method practically to remove foreign bodies in such cases.

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Conflicts of interest

Author declares there are no conflicts of interest.

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