

## SPHENOID FISSURE SYNDROME - CASE REPORT

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**Keywords:** sphenoid fissure syndrome, superior orbital fissure  
**Abstract:** This paper presents a patient with a lower eyelid wound penetrating into the orbit with sphenoid fissure syndrome. There are presented the stages of the diagnosis and the evolution.

**Cuvinte cheie:** sindrom de fantă sfenoidală, fisura orbitală superioară  
**Rezumat:** Lucrarea prezintă cazul unui pacient cu plagă palpebrală inferioară penetrantă în orbită cu sindrom de fantă sfenoidală. Sunt prezentate etapele diagnosticului și evoluția pacientului.

## INTRODUCTION

Superior orbital fissure (fissura orbitalis superior) is a hole bounded by the small and large wings of the sphenoid bone. Superior orbital fissure is crossed by the oculomotor nerve (the upper and lower branches), trochlear, ophthalmic, abducens, superior ophthalmic vein, sympathetic fibers. Sphenoid fissure syndrome, also known as Rochon - Duvigneaud syndrome, is caused by a damage of the structures crossing the sphenoid slot, manifested by total ophthalmoplegia, which is secondary to the common oculomotor nerve damage, trochlear and external oculomotor, corneal anesthesia by affecting the upper branch of the trigeminal and sometimes exophthalmia by ophthalmic vein compression. There are 3 major causes that lead to the emergence of this syndrome: craniomaxillofacial trauma, orbital tumours: lymphoma, rhabdomyosarcom etc., infections or inflammatory diseases.

Superior orbital fissure syndrome of traumatic origin was first described by Herschfeld in 1858. In 1896, Rochon - Duvigneaud described the syndrome as a pathological entity in four patients with syphilis. Classically, sphenoid fissure syndrome is characterized by the paralysis of the three oculomotor nerves which are simultaneously damaged with the ophthalmic nerve. The patient presents: ptosis, ophthalmoplegia, pupil changes, hypoesthesia or anesthesia in the ophthalmic areas, abolished corneal reflex, pain in the area of the ophthalmic nerve, mild exophthalmia (reducible). If the ocular sympathetic fibers are affected, miosis may occur, which is not influenced by sympathomimetic fibers, which indicates the compliance with the ciliary ganglion, and therefore, an extraorbital injury. On the other hand, mydriasis draws attention to an orbital injury with the damage of the ciliary ganglion fibers. It represents fewer than 5 % of cases with painful ophthalmoplegia. It affects equally both genders. It can occur at any age, but mainly in the 5th decade of life.(6,7)

## CASE REPORT

We present the case of an 8-year-old patient who is admitted in the Ophthalmology Clinic within the Clinical County Emergency Hospital of Sibiu in 05.03.2013.

The patient, D.L., 8 years old, rural area, presents at the right eye a penetrating palpebral wound, as a result of a punctured trauma with a sharp object (fork). Upon admission, the patient presents on the right eye, decreased visual acuity, ptosis and homonymous diplopia.

Ocular examination: VA OD= 0.5, VA OS= 20/20 without correction, IOP OD= 20 mmHg, IOP OS= 20 mmHg, OD: lower eyelid wound penetrating into the orbit, mixed conjunctival hyperemia, severe ptosis (figure no. 1), complete limited movements of abduction, infraduction, supraduction (figure no. 2), fixed midriasis. Fundus examination shows no pathological changes. Medical history of the patient reveals a functional convergent strabismus at the left eye.

Figure no. 1. Severe palpebral ptosis



## Paraclinic and laboratory investigations:

CT skull: Bilateral maxillar and sphenoidal sinusitis.  
MRI skull: a slight right exophthalmia, minimal edema in the right retro-orbital fat, without damages of the eyeball, muscles and optic nerve, bilateral maxillary and sphenoidal sinusitis.

Neurological examination: complete cranial nerve III palsy.

ENT examination: maxillary sinus points without bilateral sensibility, nasal cavities without secretion, right ethmoid maxillary rinosinusitis with orbital phlegmon after punctured wound, with superior palpebral ptosis and external oculomotor palsy.

Neurosurgical examination: Cranio-facial trauma. Punctured wound in the right orbit.

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## CLINICAL ASPECTS

**Figure no. 2. Limited movements of abduction, sursumduction, deorsumduction, left infraduction, right supraduction and right infraduction**



After anamnesis, clinical examination and the paraclinical and laboratory investigations, the positive diagnosis is: RE- Sphenoid fissure syndrome. The differential diagnosis of the etiology of sphenoid fissure syndrome was made with: orbital tumours, infections or inflammatory diseases, neurogenic ptosis (common oculomotor nerve palsy - diabetes, aneurysms, brain tumours, strokes etc.), myogenic ptosis (myasthenia gravis, myotonia, myopathy).

### **Treatment and evolution:**

The treatment consisted in large spectrum antibiotics, steroidal and non-steroidal anti-inflammatory drugs, neurometabolic drugs and topical treatment with antibiotics and steroidal and nonsteroidal anti-inflammatory drugs. The evolution under the therapy was favourable with the improvement of neuro-ophthalmological deficits.

The ophthalmological follow up at 1 month showed: VA OD: 20/20 without correction, VA OS: 20/20 without correction, IOP OD = 17 mmHg, IOP OS = 19 mmHg. Posterior pole for both eyes was normal. OD – minimal palpebral ptosis, normal ocular movements in all directions, reflexive pupil, convergent deviation of the left eye (figure no. 3)

**Figure no. 3. OD-minimal palpebral ptosis**



## DISCUSSIONS

- Classically, the sphenoid fissure syndrome of posttraumatic background is produced by an „indirect” mechanism, through skull fractures with the involvement of the superior orbital fissure.
- The particularity of this case is given by the appearance of the sphenoid fissure syndrome through a „direct” mechanism with the direct damage of structures by the traumatic agent (the paraclinical investigations did not show fractures).
- In the neurosurgical practice, this syndrome is seen more frequently in the tumoural pathology of cranio-orbital junction, especially in the sphenoid wing meningiomas, and it appears more frequently in the fifth decade of life.
- The initial steroid therapy significantly improves the outcomes.(15,16,17)

- In our case, the evolution was very good under the therapy with the remission of neuro-ophthalmological signs in 3 months.

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