Superior orbital fissure syndrome due to Metastatic prostatic malignancy: A Case Report

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Abstract— *Superior orbital fissure syndrome (SOFS) is a rare disease. So when a case of this came at Aravind Eye Institute, a detailed case report was prepared to publish. A 56 years old male patient, a known case of prostatic malignancy with skeletal metastasis presented with ptosis, exotropia, diminished pupillary reflex and limitations in extraocular movements of left eye. MRI brain revealed diffuse skull base and leptomeningeal metastasis. Whole body CT scan showed metastasis in ribs, scapula and in pelvic bones. He was diagnosed to have superior orbital fissure syndrome due to metastatic prostatic malignancy and was offered steroids and radiotherapy.*

Keywords: Ptosis, Prostate, Metastasis.

I. INTRODUCTION

Superior orbital fissure syndrome (SOFS) is a rarely encountered entity in clinical practice. It can be caused due to trauma, infection, inflammation, neoplasms, and idiopathic causes. In most of the cases it presents as an extraocular muscle weakness. The causes for paresis may be direct compression, infiltration and ischemia. This case of SOFS was reported due to metastatic prostatic malignancy.

II. METHODOLOGY

A rare case of Superior orbital fissure syndrome (SOFS) with metastatic prostatic malignancy was reported at Arvind Eye Institute Madurai India. So detailed case report was prepared to publish.

III. CASE REPORT

A 56 years old male presented with the complaint of drooping of the left upper eye lid for the last 2 days. There was no associated double vision, pain or any complaint of defective vision. There was no history of headache, vomiting, seizures or giddiness, no history of back pain or joint paints. The patient was a non smoker, non alcoholic He was diagnosed to have prostate cancer with bone metastasis, 3 months back and was on treatment at a cancer institute in his city of residence. There were no other comorbid illness for him. His visual acuity was 6/6 in the Right eye and $6/6^{P}$ improving to 6/6 with -0.5 cylinder at 60^{0} in the left eye. Intraocular Pressure was 11 mm Hg in the right eye and 16 mm Hg in the left eye. Ocular examination revealed a near complete ptosis in the left eye. (Figure 1)

Lids and adnexa were normal in the right eye. Exotropia of the left eye was seen. Anterior segment was normal in both the eyes. Corneal sensations were normal in both the eyes. Pupil in the right eye was normal in size and reacting normally to light. The left eye however showed a sluggish reaction. Fundus showed normal disc and vessels and a bright foveal reflex indicating a healthy macula in both the eyes.

The left eye showed limitation of all extraocular movements (marked limitation of elevation, depression, adduction and mild limitation of abduction). Extraocular movements in the right eye were found to be normal.

Colour vision assessment by Ishihara's Pseudo-isochromatic chart was normal in both the eyes. Bjerrum's Central field evaluation was found to be normal in both the eyes. Hess and diplopia charting was done which were suggestive of an involvement of the 3rd and 6th cranial nerves.

The above clinical findings suggested the involvement of multiple cranial nerves, with the most likely site of lesion at the Superior Orbital Fissure. An MRI Brain was advised to confirm the same and identify the nature of the lesion.

MRI – Brain showed evidence of extensive skeletal metastasis replacing most of the axial and appendicular skeleton including skull vault, skull base, clivus, sternum and scapula with soft tissue mass formation encroaching into Dorello's canal, Meckel's cave and para cavernous region (Left > Right) with engulfement of 3rd, 4th and 6th cranial nerves and V1 and V on left side. (Figure 2)

It also showed ribs and vertibral metastasis (Figure 3 & 4).

It also showed evidence of leptomeningeal secondaries also noticed with trace of extra conal deposits seen adjacent to LR muscle on left side.

Figure 1
Near complete ptosis in the left eye

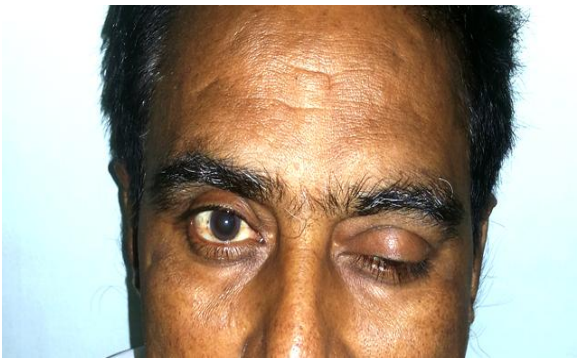


Figure 2
MRI Brain Coronal Section showing engulfment of the 3rd, 4th and 6th cranial nerves

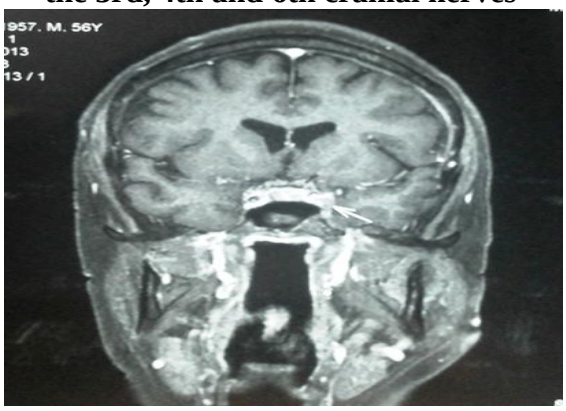


Figure 3
Metastatic lesions involving the ribs

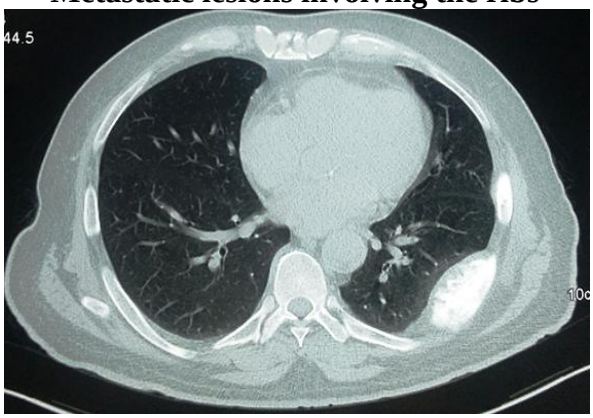
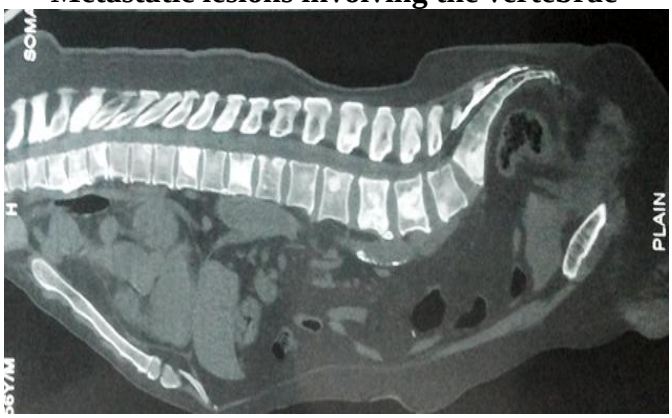


Figure 4
Metastatic lesions involving the vertebrae



Multislice CT of skull/ chest/abdomen/pelvic bones showed evidence of large expansile and destructive lesions involving left iliac bone and most of the ribs with invasion of iliacus muscle (anteriorly) and gluteus minimus (posteriorly).

Based on these findings, the patient was diagnosed to have prostatic malignancy with extensive skeletal metastasis presenting as superior orbital fissure syndrome. He was offered steroids and palliative radiotherapy.

IV. DISCUSSION

Superior Orbital Fissure syndrome (SOFS), first described by Hirschfield in 1858[1] is an infrequently described and reported symptom complex. SOFS consists of the following signs: ptosis of the upper eyelid, proptosis of the globe, ophthalmoplegia, fixation and dilatation of the pupil and anesthesia of the upper eyelid & forehead.[2.]

The superior orbital fissure serves as a pathway allowing communication between the orbit and the middle cranial fossa.[4]It is reported to be 3 X 22 mm^2 and transmits the oculomotor, trochlear, and abducens nerves (cranial nerves III, IV, and VI), as well as the first three branches of the trigeminal nerve: the frontal, lacrimal and nasociliary nerves. Also contained in the fissure are the inferior andsuperior ophthalmic veins and the sympathetic filaments from the cavernous plexus.[4] Numerous etiologies of the syndrome have been reported in the literature. These include syphilis, craniofacial fractures, hematoma of the cavernous sinus or retrobulbar space, infection, neoplasm, aneurysm of the internal carotid artery orarterio-venous fistulae along with idiopathic etiologies.[1–9] Regardless of the etiology, the clinical symptoms are primarily the result of inflammation and compression of adjacent nervous tissue.[6]

Lid ptosis is caused by either the involvement of the sympathetic fibers arising from the cavernous sinus, resulting in loss of tone of Muller muscles, or the involvement of the somatic efferent fibers that course along the superior branch of the oculomotor nerve, resulting in loss of tone of the levator-palpebrae-superioris muscle.[4,6] The ophthalmoplegia is secondary to impairment of cranial nerves III, IV, and VI.[1–9] Disturbance of the lacrimal and frontal nerves leads to anesthesia of the forehead and upper eyelid.[4,6] In SOFS secondary to facial trauma, a complete or partial recovery can be expected without any intervention aimed at the fissure itself as long as the nerves are intact.[7] Varying doses of systemic corticosteroids have been advocated.[4, 5, 8, 9] The benefits of steroids appear to be from the antioxidant mechanism and/or the ability of such high doses to reduce edema and subsequent ischemia at the affected sites.[10]

V. CONCLUSION

The ophthalmologist should take a careful history including neurological symptoms foramen with cranial nerve palsies. Those patients with multiple progressive or persistent cranial nerve palsies merit further investigation including PSA levels and possibly a contrast CT scan with bone windows to rule out underlying causes of these symptoms.

CONFLICT OF INTEREST

None declared till now.

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