Case Report

Maxillary Sinus Carcinoma Presenting as Trochlear Nerve Palsy

Muhammad Sohail Ajmal Ghoauri[1], Nauman Ismat Butt[2], Abdul Samad[3], Muhammad Bilal Rasheed[4], Mutahra Khaliq[5],
[1,3,5]*Bahawal Victoria Hospital, Quaid e Azam Medical College, Bahawalpur*
[2,4]*Azra Naheed Medical College, Superior University Lahore*

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ABSTRACT

We present a case of 21-year old gentleman presented with diplopia for last 4 months. There was history of protrusion of left eye ball, abnormal head posture causing head tilt and turning face towards right side and a painless lump in mouth over hard palate on left side. On examination, there was torticollis of the head with proptosis and partial ptosis of the left eye. There was impairment of in torsion, depression and adduction of the left eye with binocular diplopia which worsened when the left eye was directed downwards and medially. There was sensory loss in ophthalmic and maxillary divisions of the left Trigeminal nerve. CT scan of the paranasal sinuses revealed a locally aggressive mass in the left maxillary sinus with erosion and extension to left temporal bone. Biopsy confirmed it as Maxillary Sinus Carcinoma and a multidisciplinary management with ENT, neurosurgery and oncology was planned.

Key Words: Maxillary Sinus, Squamous Carcinoma, Trochlear Nerve, Diplopia, Torticollis.

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Correspondence: Nauman Ismat Butt
Azra Naheed Medical College, Superior University Lahore
Email: Nauman_ib@yahoo.com

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INTRODUCTION

Trochlear Nerve, the 4th cranial nerve, originates in the midbrain at level of inferior colliculus ventral to the Sylvian aqueduct. Being the sole cranial nerve that arises from dorsal aspect of the brainstem. It decussates to supply the superior oblique muscle of the contralateral side which is responsible for in torsion, depression and adduction of the eye ball. Causes of trochlear nerve palsy may be idiopathic, congenital, traumatic especially frontal head trauma, vascular, post-neurosurgery, hypertension, diabetes mellitus and rarely neoplasms.[1] Trochlear nerve palsy is seen more commonly in men and the likely explanation for this is higher frequency of trauma in males as compared to females.[2] The clinical features of trochlear palsy include diplopia which is usually worse when the affected eye looks downwards and medially, ptosis, proptosis and impairment of eye in torsion, depression and adduction. Detailed history, clinical examination and presence of additional neurological findings aid in identifying underlying causes. Further investigation and treatment depend upon the etiology.

CASE REPORT

We present the case of a previously-healthy 21-year old gentleman who presented with insidious onset, gradually worsening diplopia affecting the left eye for last 4 months. Detailed informed consent was taken from the patient prior to data collection and manuscript writing. History revealed gradual protrusion of left eyeball, abnormal head posture causing head tilt and turning face towards right side and a painless lump in mouth over hard palate on left side. On further exploration, there was no history of limb weakness, numbness or tingling of limbs, trauma, fits, psychiatric symptoms, weight loss, night sweats, urinary or fecal incontinence, altered bowel habits,

joint pains or skin rashes. He was unmarried and denied sexual contact. He was a cigarette smoker (10 pack years) but did not use other illicit drugs or alcohol.

There was torticollis of the head with proptosis and partial ptosis of the left eye. On examination of the eye movements, there was impairment of in torsion, depression and adduction of the left eye as shown in Figure 1. The patient complained of binocular diplopia

Figure 1: Eye examination findings.

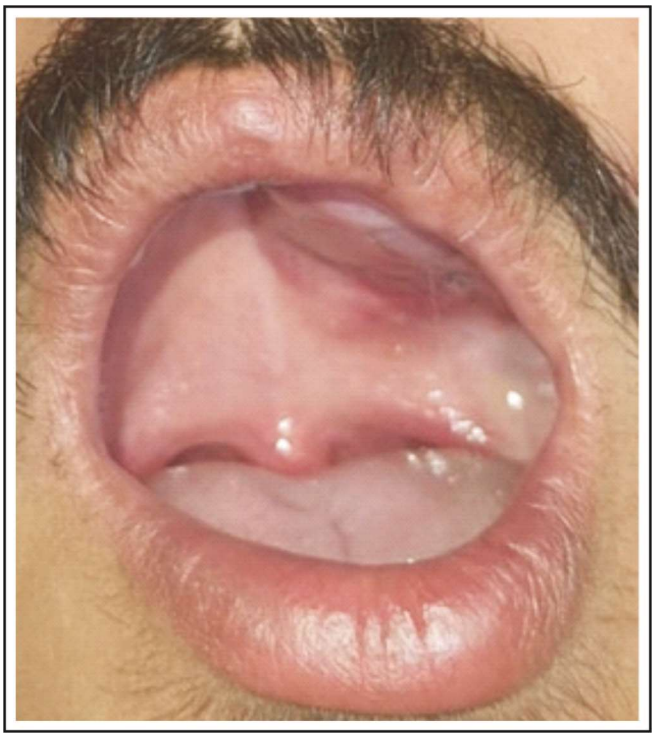

Figure 2: Oral cavity examination findings.

which worsened when the left eye was directed downwards and medially. There was sensory loss in ophthalmic and maxillary divisions of the left Trigeminal nerve. The remaining cranial nerves were intact. Higher motor functions were intact with no motor, sensory or cerebellar loss in the limbs. There was a non-tender lump seen in the examination of oral cavity over the left aspect of hard palate as shown in Figure 2.

As shown in Figure 3, CT scan of the paranasal sinuses revealed a soft tissue density locally aggressive mass in the left maxillary sinus with erosion of adjacent bones and extension to the left temporal bone causing cranial nerve palsy. A biopsy of the mass revealed Squamous cell carcinoma. He was diagnosed as Maxillary Sinus Carcinoma and a multidisciplinary management with ENT, neurosurgery and oncology was planned based on surgery and post-operative radiotherapy.

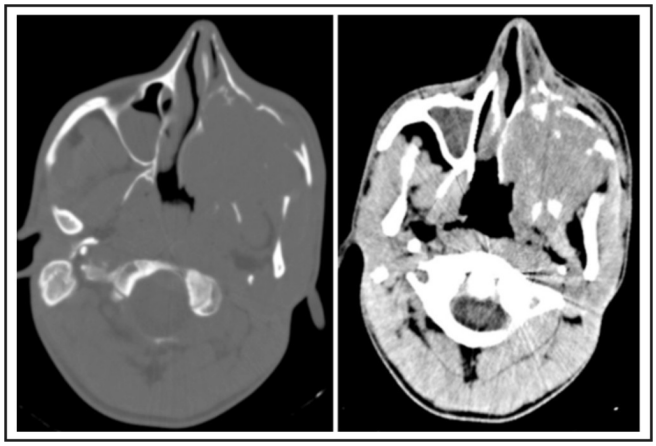

Figure 3: CT scan of the paranasal sinuses.

DISCUSSION

Accounting for up to 1.5% of all head and neck malignancies, carcinoma of maxillary sinus is relatively an uncommon tumor but has a grave outcome.[3] With more than 95% cancers occurring in patients older than 40 years, maxillary sinus carcinoma is two-fold more common in men than women.[4] Smoking and chronic sinusitis are the most common risk factors for maxillary sinus carcinoma with other risk factors being air pollution and occupational exposure to chemicals like formaldehyde, chromium and nickel.[5] In the present case, the identifiable risk factors for maxillary sinus carcinoma were male gender and cigarette smoking with a 10 year pack history.

The initial clinical features are inconsistent and variable leading to delay in diagnosis and an adverse prognosis. The presence of a large air space in the maxillary sinus permits asymptomatic expansion of the mass leading to symptom production only when it

erodes and expands beyond the walls of sinus.[6]Symptoms depend on the wall perforated by the malignancy and often it may be misdiagnosed as dental caries and infections, chronic sinusitis, lacrimal gland obstruction or nasal polyps depending on the size, location and extent of the maxillary mass.[7] Sinus floor penetration causes dental symptoms like dental pain, swelling, loose teeth or alveolar ridge enlargement.[8] In case of medial wall extension, the predominant symptoms involve nose such as nasal bleed, discharge or obstruction.[8] In case of lateral wall extension, there will be face asymmetry with swelling and vestibular symptoms. Sinus roof extension causes displacement or protrusion of the eyeball, cranial nerve palsies, skull base invasion and eventually intracranial extension. Our patient presented with trochlear nerve palsy and proptosis as a presentation of maxillary sinus carcinoma, caused by maxillary sinus roof erosion and extension of the mass as evidenced on CT scan.

A marker of poor prognosis, lymph node metastasis is generally uncommon in maxillary carcinoma due to relatively poor lymphatic drainage of the maxillary sinus. Erosion and extension of the tumour to adjacent structures like oral cavity and nasopharynx which have abundant lymphatic supply elevates the risk of lymph node metastases.[7] Surgery is the mainstay of treatment of maxillary sinus carcinoma and a neck dissection needs to be done in patients with neck metastasis. In advanced disease, chemotherapy and radiation therapy also have a role in addition to surgery.[9] The anatomy and proximity of maxillary sinus to various organs such as cranial nerves, eyes and the brain make total surgical resection of the mass challenging and may result in treatment failure or relapse. Furthermore, facial cosmetic reasons and ocular functional aspects are other concerns that should be considered when planning treatment.[10] In the present case, there was advanced disease with local extension but without lymph node involvement and a multidisciplinary management with ENT, neurosurgery and oncology was planned consisting of surgery and post-operative radiotherapy.

In conclusion, trochlear nerve palsy is a rare presentation of underlying maxillary sinus mass. Early diagnosis and prompt management can lead to better outcomes. A multidisciplinary approach is necessary for optimal management of such cases.

Conflict of Interest: Authors declared no conflict of interest.

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Authors' Designation and Contribution

Muhammad Sohail Ajmal Ghoauri; Resident: *Concepts, Design, Data Acquisition, Manuscript Editing.*

Nauman Ismat Butt; Assistant Professor: *Concepts, Design, Literature Search, Manuscript Editing.*

Abdul Samad; Resident: *Data Acquisition, Manuscript Review.*

Muhammad Bilal Rasheed; House Physician: *Literature Search, Manuscript Editing.*

Mutahra Khaliq; Resident *Data Acquisition, Manuscript Review.*