Maxillary Antrum Carcinoma - A Wolf in Sheep's Clothing

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INTRODUCTION

Maxillary sinus squamous cell carcinoma is an invasive tumour that is usually diagnosed at an advanced stage, where the majority of patients have a very low prognosis and survival rate. We present a case of maxillary sinus carcinoma that affected the entire orbit, resulting in proptosis of the eye and nasal cavity. The patient was recommended for palliative treatment due to the high degree of its involvement and proximity to vital structures. It manifests with very mild to no signs, resulting in a late diagnosis. As a result, physicians must be mindful of maxillary sinus pathologies to make an early diagnosis.

Paranasal sinuses are air-filled spaces located close to vital structures such as visual organs and the face. Maxillary, ethmoidal, frontal, and sphenoidal are the 4 paranasal sinuses that are named according to the bones in which they are situated. Nasal cavity and paranasal air sinus malignancies are uncommon. According to the literature, paranasal sinus malignancies account for less than 1 % of all human malignancies and 3 % of the total malignancies of the head and neck region. However, the maxillary sinus is the most frequent site of origin of primary malignant tumours amongst the paranasal sinuses.[1] we need to raise general awareness among the oral stomatologists as Asian countries report a very high incidence of maxillary sinus carcinoma.[2]

The incidence of malignancies in maxillary sinus is high (60 % - 70 %) and less in the nasal cavity (12 % - 25 %), the Ethmoid (10 % - 15 %) and very rare in sphenoid / frontal sinuses (1 %).[3] Further, not only the malignancies of maxillary sinuses are common, but they also incur the worst prognosis. Maxillary sinus carcinomas have very few symptoms and are similar to those of chronic paranasal sinusitis. They usually present themselves as locally advanced diseases.[4,5] Paranasal sinus malignancies are difficult to diagnose in the early stages and 90 % of cases are reported in T3 / T4 advanced stage.[6] Environmental factors such as industrial pollutants, dust, smoke, and adhesives are the leading causes for the development of disease.[7] Thus, sinonasal malignant tumours are rare and pose a challenge in diagnosis as well as treatment. Therefore, maxillofacial specialists should be aware of the signs and symptoms of this rarely occurring disease. This article presents a rare case of a 45-year-old female who reported to our OPD with a complaint of swelling in the right zygomatic area and proptosis of the right eye.

PRESENTATION OF CASE

A 45 - year - old female patient reported to the outpatient department (OPD) with the chief complaint of pain and swelling in the right zygomatic region for few weeks. Her history of present illness revealed that the patient had pain for a few weeks. She also noticed swelling extra orally over the same region which had gradually increased. (fig 1).

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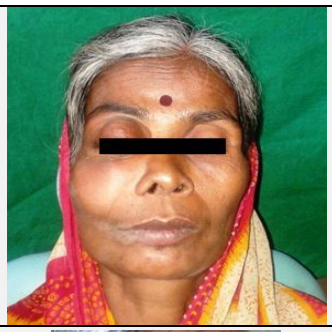

Figure 1. Extraoral Swelling on Right Zygomatic Region with Obliteration of Right Nasolabial Fold and Flaring of Right Nostril

Figure 2. Proptosis of Right eye

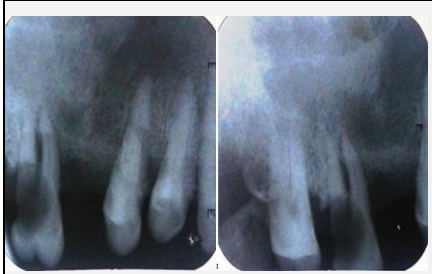

Figure 3. Intraoral Periapical Radiograph Reveals Severe Proximal along with Furcation Involvement with 17. Haziness Seen on Floor of Maxillary Sinus

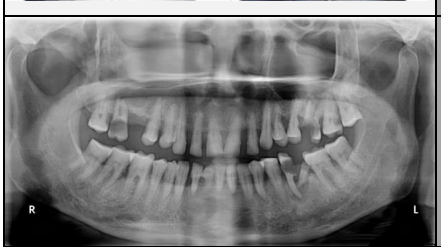

Figure 4. Panoramic Radiograph Showing Opacification of Right Maxillary Sinus

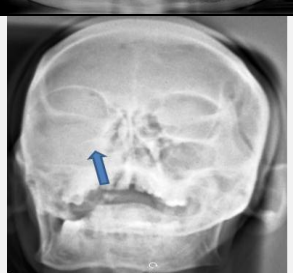

Figure 5. Water's View Showing Opacification along Right Maxillary Sinus

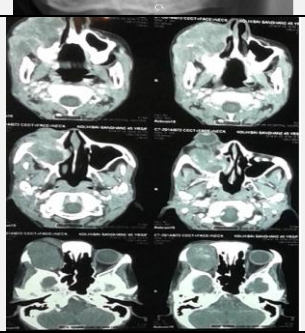

Figure 6. CT Image Showing Massive Lesion Extending into Nasal Cavity, Invading Right Orbit

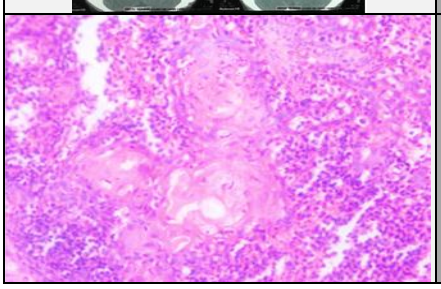

Figure 7. H & E Stain Reveals Increased N:R Ratio, Keratin Pearl Formation and Dysplasia

The patient also gave a history of bulging of the right eye for few weeks. She further reported watery discharge from the same eye which had suddenly increased in the last 1 week. The patient had the habit of chewing tobacco without lime for 10 – 15 yrs, 1 packet, 2 - 3 times and a day. No habit of quid keeping. The clinical evaluation revealed a roughly oval swelling on the right zygomatic area of size approximately 3 X 4 cm. The swelling was firm in consistency. It was mildly tender on palpation. Right eye proptosis was present. Right submandibular lymphadenopathy was present. Also, the patient's right nostril was flared along with the obliteration of the right nasolabial fold. (fig. 2) Intraoral examination revealed grossly carious 17 and 16 was missing. Generalised severe periodontitis was present. However, there was no evident swelling intraorally in the right maxillary posterior area.

RADIOLOGICAL DISCUSSION

Intraoral periapical radiograph examination showed haziness in the floor of the maxillary sinus. (fig. 3) Panoramic radiograph and water's view revealed opacification with the right maxillary sinus. (fig. 4, 5) CT scan was performed to know the exact extent of the lesion. The lesion showed extension in the maxillary antrum and nasal cavity. In the maxillary sinus and retrobulbar region on the right side, a heterodense soft tissue lesion with heterogenous contrast was seen which had led to the destruction of the medial wall, anterolateral wall, and floor of maxillary sinus extending into the floor of the right orbit with thinning of posterior wall of the orbit. The mass had pushed the eyeball out leading to proptosis, medially the mass extended into the intranasal cavity involving the nasal cavity and obliterated all meatuses, along with the destruction of all nasal turbinates. The features of the CT scan thus reported malignancy of the right maxillary sinus. (fig 6)

HISTOPATHOLOGICAL DISCUSSION

A biopsy of the lesion was performed. Histopathologic examination showed epithelial islands with features of dysplasia arranged in sheets and nests invading the underlying fibrovascular stroma. The dysplastic epithelial cells satisfied the features of dysplasia with the presence of an increased nuclear-cytoplasmic ratio, increased mitotic figures and individual cell keratinization. Keratin pearl formation was also seen. The features thus suggested the presence of well-differentiated squamous cell carcinoma. (fig 7) Thus, well-differentiated squamous cell carcinoma of the right maxillary sinus was given as the final diagnosis. A multidisciplinary treatment approach including surgery and chemoradiation was planned. However, the patient died within 1 month of reporting to our OPD.

DISCUSSION OF MANAGEMENT

The oropharyngeal malignancy is the sixth most common malignancy in the world and the third most common malignancy in India.[8] The annual incidence rate per 1,00,000 population is 0.5–1.0.[9] Only about 3 % of head and neck

cancers are paranasal sinus carcinomas, with the majority occurring in the maxillary antrum and being diagnosed as squamous cell carcinomas in 60–90 % of cases. Oncologists and maxillofacial surgeons face a difficult challenge when treating maxillary sinus carcinoma. They are uncommon, and the prognosis is bleak.[10,11] This very less incidence rate and the great variations in histologic types[12] explain the fact that extensive experience with the treatment of patients with these tumours is not much.

Furthermore, the location of the maxillary sinus is complex anatomically and the proximity of the eye, brain, and cranial nerves make radical surgery[13] and radiation therapy[14] difficult. Surgical treatment of nasal and paranasal carcinomas for a long time used to be piecemeal extirpation which was associated with a high rate of recurrence and low success rates, although the first resections of the maxilla were described nearly 200 years ago.[15] Numerous studies have highlighted the lack of improvement in disease mortality.[16] Improved survival for patients with nasal and paranasal carcinomas is hypothesised because of advances made in the last few decades in treating such tumours.

Over the last 30 years, advances in treatment modalities for these patients have included a more extensive and radical base of the skull surgical procedures.[17] The use of treatments combining surgery and radiotherapy; developments in radiation therapy, such as hyper fractionation[18] and proton therapy;[19] as well as better preoperative assessment of the extent of the disease by imaging modalities[20] The ideal treatment protocol for patients suffering from sinonasal tumours is still somewhat controversial. However; a combined approach including surgery and radiation therapy of patients is recommended. Further investigations are a must for more optimal treatment of maxillary sinus tumours.

CONCLUSIONS

Invasive carcinoma of maxillary sinus may be difficult to identify in the initial stages and seldom mistaken as facial pain syndrome such as Trigeminal Neuralgia as it shows symptoms such as unilateral sharp shooting pain and commonly involving trigeminal nerve branches. Oral and maxillofacial specialists can detect antral carcinomas early if they thoroughly examine the symptoms and choose the right imaging modalities such as CT and MRI.

In advanced cases, patient education and follow-up are more challenging. This report insists that the training on oral medicine and maxillofacial radiology should be aimed at a sufficient degree of knowledge and competence in interpreting the symptoms of patients and in analysing modern imaging methods for early identification of rare and dangerous maxillofacial illnesses.

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