

ROLE OF CBCT IN DIAGNOSIS OF SINONASAL CARCINOMA: CASE REPORT AND BRIEF LITERATURE REVIEW

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ABSTRACT

Oral cancer can involve any site which includes cancers of the lips, tongue, buccal mucosa, gingiva, floor of the mouth, hard and soft palate, maxillary sinuses. Sinonasal carcinoma can be life threatening if not diagnosed and treated early. Since decade the use of Cone Beam Computed Tomography (CBCT) images has been greatly increased to rule out the maxillofacial pathologies. The efficacy of CBCT images in detecting bone invasion and extension of oral cancer is essential for treatment plan and to improve the prognosis. The current case report describes the carcinoma involving the left maxillary sinus & palate in 45 years old female presented with growth on the left side of the palate and alveolar mucosa highlighting its CBCT features. This case stresses the significance of CBCT in early identification of maxillary sinus cancer to improve the prognosis.

KEYWORDS: Carcinoma, CBCT, Diagnosis, Maxillary sinus, Sinonasal.

INTRODUCTION

Sinonasal malignancies are uncommon & accounts for 3% of all head and neck cancer.^[1] This disease chiefly affects men in the sixth or seventh decade of life and most of the time lesions stay asymptomatic or imitate sinusitis for extended periods while the tumor grows to fill the sinus.^[2] Therefore, judgment may not be made until the lesion has perforated through the adjoining bone, and the majority of patients were diagnosed with advanced disease.^[2]

The most frequent histopathological variant which represents more than half of all sinonasal malignancies is squamous cell carcinoma.^[3]

The most important purpose of radiographic diagnosis is to evaluate the extension of the tumors, bone involvement and destruction of boundaries of maxillary sinus by the sinonasal carcinoma. With the advent of CBCT more patients are being referred for maxillofacial imaging to dental institutes in India for the precise diagnosis of such pathologies in this region with significant dose reduction as compare to CT scan. Some

imaging features are hallmark for some pathology still histopathological assessment is mandatory to establish the exact diagnosis. The CBCT features will assist to condense the list of differential diagnosis.

CASE REPORT

A 45 year old female patient reported to the department of Oral Medicine & Radiology with the chief complaint of non healing growth on left side of maxilla since 1 month. Patient was apparently all right one month back. Shortly she developed a growth which was gradual in onset, initially small in size and gradually progressed to attain the present size.

There were no extra oral findings. On intraoral examination, there was proliferative growth seen on the alveolar mucosa of left side of maxilla partly involving the palate and the buccal vestibule in the same region. Surface of the growth was granular and distinguishable in color from surrounding normal mucosa [Fig 1]. Upper left second molar was grade III mobile (Miller's classification).



Fig. 1: Proliferative growth seen on the alveolar mucosa of left side of maxilla.

IOPA showing distal caries with Upper left second molar with severe bone loss around it giving hanging tooth appearance [Fig. 2].



Fig. 2: IOPA showing sever bone loss around Upper left second molar giving hanging tooth appearance.

CBCT examination was performed using CS9300 scanner with acquisition protocol as follows: 80kVp, 4.00 mA, 10.23 seconds and field of view (FOV) of 17x13. Multiplanar reconstruction was done and images were acquired in axial, coronal, sagittal views [Fig.3,4,5].

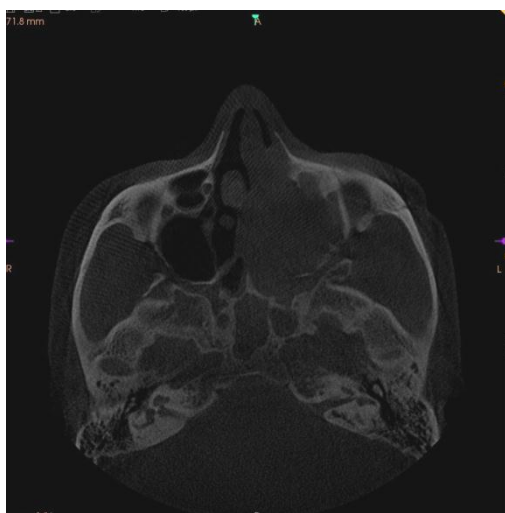


Fig. 3: Axial section of CBCT.

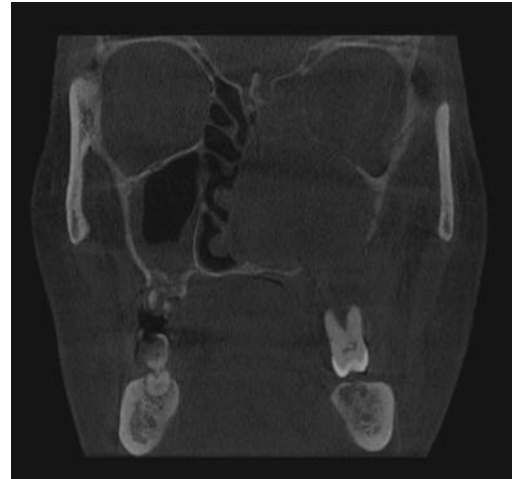


Fig. 4: Coronal section of CBCT.

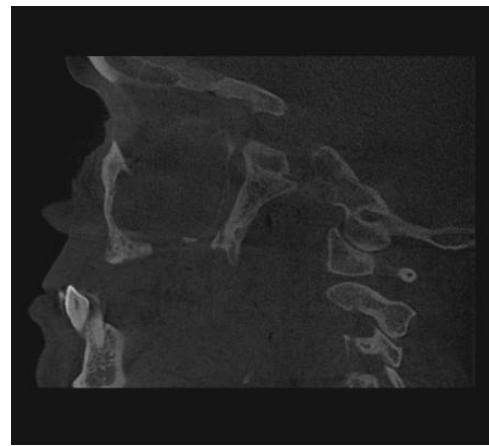


Fig. 5: Sagittal section of CBCT (left side).

The axial, coronal & sagittal views of CBCT showed expansive lesion involving whole of the left maxillary sinus. Destruction of left lateral wall of the nose, left infraorbital margin, maxillary alveolar bone and palate was evident. The lesion was infiltrating into the maxillary sinus, ethmoid sinuses and sphenoid sinus.

The CBCT scan established the destruction of walls of the left maxillary sinus supporting the diagnosis of carcinoma of left maxillary sinus with invasion into the left nasal cavity and hard palate.

DISCUSSION

Paranasal sinus malignancies are uncommon neoplasm that presents a threatening prognosis.^[4] There are various risk factors associated with development of carcinoma involving the maxilla but repeated contact with nickel, chlorophenol, formaldehyde, textile dust, wood, cigarette smoking have been commonly reported.^[4] Studies have exposed the strong relationship between the development of squamous cell carcinoma with wood dust exposures that enhances the risk of occurrence of this malignancies upto 21 times.^[5] It also have been reported that infection by human papilloma virus and Epstein-Barr virus can causes the malignant conversion of inverted papillomas of the maxillary sinuses.^[5]

In the majority of cases of carcinoma of the maxillary sinus, the most frequent clinical features includes pain or swelling of the face, growth in the oral cavity and nasal obstruction.^[6]

The symptoms produced by malignant neoplasm in the maxillary sinus depend on the walls of the sinus which are involved by the lesion. The medial wall is typically the first to become eroded by the lesion, leading to such nasal sign and symptoms as obstruction, discharge, bleeding, and pain. Lesion that originating from the floor of the sinus may first produce dental sign and symptoms in the form of expansion of the alveolar process, unexplained pain and altered sensation of the teeth, loose teeth, swelling of the palate or alveolar ridge. The neoplasm may erode the sinus floor and enter into the oral cavity. When the lesion goes through the lateral wall, facial and vestibular swelling becomes apparent. Involvement of sinus roof and the floor of the orbit can lead to sign and symptoms related to eyes: diplopia, proptosis, pain, and hyperesthesia or anesthesia and pain over the cheek and upper teeth. Posterior wall involvement lead to invasion of the muscles of mastication, causing painful trismus.^[6]

A soft tissue growth in sinonasal compartment with significant destruction of adjacent bone and destruction of the walls of maxillary sinuses are the prominent CT findings in sinonasal carcinoma.^[7] This signature CT features were also present in our case which were confirmed by CBCT.

The differential diagnosis includes all the conditions that may cause radiopacity of the maxillary sinus, such as sinusitis, large retention pseudocysts, and odontogenic cysts and malignancy. It is important to note that bone destruction may also occur in infectious and some benign conditions. Neoplasms should be suspected in any elder patient in whom chronic sinusitis develops for the first time without an obvious cause.^[6]

Resection of the part affected by sinonasal tumour followed by radio therapy is usually the treatment of choice for resectable malignant tumor.^[8] Reconstructive alternative differ from a nonbiologic obturator (a modified denture that extends to replace the resected tissue) to complex, microvascular, free-tissue transfer (composite fibula, scapula, deep circumflex iliac artery, or softtissue rectus transfer), depending on the degree of resection as well as patient factors.^[10]

In spite of enhancement in surgical procedure and radiotherapy the prognosis is poor for the carcinoma involving the maxillary sinus, nasal & oral cavity.^[8] The presence of big air spaces within the sinus allows the asymptomatic development of sinus tumors. At the premature stages, these tumors are often asymptomatic or imitate inflammatory diseases, leading to a delay in diagnosis or misdiagnosis.^[9]

Depending on the stage of the malignancy, the probability of 5-year survival can range from 40% to 60%.^[10] The existence of cervical nodal metastasis reduces the survival by 50% and requires therapeutic neck dissection followed by radiotherapy.^[10]

CONCLUSION

Due to anatomical nature of the maxillary sinus and their nonspecific symptoms most sinonasal malignancies are diagnosed at late stage. Therefore, all patients with nonspecific symptoms, especially older males, should be evaluated clinically and radiologically for extensions of lesion for sinonasal malignancies. CBCT examination for diagnosis in sinonasal carcinoma has hardly been documented until now. More frequent use of CBCT as first line of imaging will be helpful for medical and dental professionals to establish the diagnosis and start treatment at earliest.

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