Malignant tumors of the sinonasal tract

Malignant tumors of the sinonasal tract are extremely rare, accounting for 0.2% of all invasive cancers and 3% of head and neck cancers. The majority arise in the maxillary sinus, approximately 20% arise in the ethmoid sinuses, and the remainder (<1%) originate in the frontal and sphenoid sinuses. Squamous cell carcinoma is the most common histology. For such a rare tumor, a great deal has been documented concerning its etiology. Nickel and chrome refining processes have been implicated in the development of carcinoma of the paranasal sinuses, and exposure to wood dust has been implicated specifically in adenocarcinoma of the ethmoid. Other industrial agents associated with sinonasal malignancies are thorium dioxide, isopropyl oils, lacquer paint, solder and welding materials, and radium watch dial paint. Interestingly, tobacco was previously thought to not play a role in sinonasal carcinogenesis. However, up to a 5-fold increased risk of sinonasal carcinoma has been observed with heavy smoking. Rarely, sinonasal cancers may present as a second primary tumor in tobacco users with other head and neck cancers.

As discussed in the present study by Panchal et al, clinical presentation of sinus malignancies is non-specific and often mimics benign disease. Indeed, 9-12% of patients with sinonasal malignancies are asymptomatic. It is not surprising that delay in diagnosis is common; 75% of all paranasal sinus tumors are Stage T3 or T4 at the time of diagnosis. Involvement of cranial nerves is a manifestation of advanced disease and indicates a poor prognosis. A palpable neck mass signifies metastatic adenopathy in the jugular chain and is also a sign of advanced disease.

Patient evaluation should include history, complete head and neck examination with nasal endoscopy, imaging and biopsy. Special attention should be paid to cranial nerve function since evidence of cranial neuropathies compared with inflammatory or neoplastic disease, and is under active investigation.

Currently, most Stage T1 or T2 maxillary sinus carcinomas are treated by surgery alone, provided adequate resection margins are obtained, while T3 and T4 lesions are treated by combination therapy with surgery and radiation. The issue regarding whether radiation is more effective before or after surgery remains controversial. Chemotherapy alone is generally used as a palliative measure. Despite improvements in surgical ablative and reconstructive techniques, radiation delivery modalities, and imaging technologies, disease-free survival at five years remains less than 50%, independent of stage. Disease-free survival for patients with advanced stage cancer drops to 25%. The key in the diagnosis and treatment of sinonasal cancers remains a high index of suspicion and early diagnosis.

The retrospective review by Panchal et al provides a nice summary of the ten-year experience with sinonasal tumors at one institution. Although other large series have been reported, this paper does add to that literature and provides histopathological data from an Indian patient population.

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References