Advances in the Surgery of Maxillary Sinus Cancer

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Maxillary sinus cancer, representing approximately 80% of paranasal sinus origin malignant tumors, is mostly diagnosed in advanced stages due to lack of early symptoms. The major structures that are invaded in advanced maxillary sinus cancer are orbital fossa and anterior cranial fossa superiorly, cheek skin anteriorly, and pterygoid fossa and infratemporal fossa posteriorly. In cases of orbital invasion, orbital exenteration should be performed together with maxillectomy and when anterior cranial fossa is involved, craniofacial resection should be performed. For cases with skin invasion, reconstruction using free flaps needs to be considered and radical maxillectomy which includes the resection of pterygoid plates and muscles is to be performed in cases of pterygoid or infratemporal fossa invasion. For most of these cases, a surgical approach can be achieved with the conventional maxillectomy. However, in cases of infratemporal fossa involvement, surgery can be very troublesome owing to the complex anatomy, difficulty in surgical approach, and high risk of bleeding which can explain the high incidence of recurrence in this region. Among the various types of infratemporal fossa approach, lateral facial approach is the most appropriate method for excision of maxillary sinus cancers involving posterior wall or infratemporal fossa. In radical maxillectomy performed through the lateral facial approach, the classical maxillectomy skin incision is extended posteriorly and the buccal flap is transposed. This approach is relatively easy to perform and less time consuming due to the shorter distance and less vital structures that need to be sacrificed. Also, pterygoid muscles and plates can be more easily resected when performing radical maxillectomy with this approach since wide visual field is provided which enables the tumor to be removed en bloc while leaving sufficient safety margins. Sufficient excision of the tumor mass is very significant considering that most of the recurrences are caused by local failure. Therefore, radical maxillectomy through lateral facial approach should be considered in cases of advanced maxillary sinus cancers invading the posterior wall of maxillary sinus, pterygoid fossa, and infratemporal fossa or recurred maxillary cancers involving the posterior wall of maxillary sinus despite its disadvantages of longer operation time, higher risk of bleeding, and postoperative trismus.