Abstract

Although most skull base lesions are benign tumors, in many cases a gross total resection is preferred to reduce the risk of tumor progression; including in clival chordomas, chondrosarcomas, and jugular foramen tumors. Achieving total resection is technically challenging in many of these complex tumors. Conventionally, posterior petrosectomy, transsigmoid, transjugular approach have used for in these lesions. Recently, the transnasal endoscopic approach has been developed and extended transnasal approach provides wide visualization and other possibilities of resection of the clival lesions. We propose five approaches to medial jugular complex lesions with using endoscopic assisted multi portal transnasal of transcranial approaches. 1. Transmastoid presigmoid Approach, 2. Extended transnasal lower and lateral clivus approach, 3. Anterolateral Approach, 4. Extended Farlateral transcondylar approach, 5. Extended Anterior petrosectomy approach, 6. Retrosigmoid extended infratemporal approach.

Results & conclusion

Results: During the years 2005 and 2016, 131 cases of chordoma (98) and chondrosarcoma (47) were operated in our hospital. 28 cases (20/8) of the tumor extended to the medial jugular bulb which is lateral mid clivus lesion. The approaches were chosen carefully depends on the tumor location and extension. The endoscope provided better exposure of portions of the tumor extending medially, anteriorly, superiorly or inferiorly to the JF, the jugular bulb (JB) and to the hypoglossal nerves. Near-total resection (≥90%), as documented by postoperative MRI, was achieved in all cases. Postoperative outcome was favorable in all cases with no new cranial neuropathy. Conclusion: Surgical approaches to deep-seated tumors of the craniovertebral junction should be tailored to each lesion’s specific location and extensions. Use of the endoscope may increase the transcranial corridor and allow for more radial resection of chordomas, chondrosarcomas and jugular foramen schwannomas safely.

Methods and Materials

We reviewed our recent experience with surgical treatment of clival chordomas, chondrosarcoma operated on through these approaches during which there was a need for endoscopic assistance. Our surgical strategy was to obtain maximal safe resection with conventional microscopic techniques and then, when tumor consistency and location were favorable, complete the resection under endoscopic visualization. The selection of the approaches depends on tumor size, tumor extension, tumor axis, pathology, origin of tumors, sinus occlusion, sinus dominance, and patient’s symptoms.

Six different Approaches for lesions of medial jugular foramen

Case 1 Farlateral Transcondyle, Infrajugular Approach, endoscopic assisted

Case 2 Unilateral Uninostoril, Transnasal, Trans laterum Approach

Case 3 Transmastoid Presigmoid, Anterolateral high cervical, combined approach

Case 4 Extended Farlateral transcondyle + RS approach

Case 5 Extended Anterior petrosectomy

Case 6 Extended Retrosigmoid, Infra and Supra meatus Approach

We could arrive at the level of the tumor of the middle fossa, but small piece of tumor was remained. 96% of the tumor was resected.