

EDITORIAL

CRANIOFACIAL OSTEOTOMIES FOR HIDDEN HEAD & NECK LESIONS

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A plethora of various pathologies occur in the skull base and deep spaces of the neck. The surgical resection of these hidden lesions often poses a great surgical challenge to a Craniomaxillofacial surgeon owing to the anatomical complexity, difficulty in accessibility and proximity of vital structures. A multidisciplinary approach is often required in these situations for the debulking/removal of the lesion and preventing damage to the adjacent vital anatomic structures. This Editorial describes access osteotomies of craniofacial region that can facilitate a complete/near total removal of the lesions.

A myriad of various typed access osteotomies are described to specific anatomic areas of the skull base and neck. The choice and type of access osteotomy to these hidden lesions of the cranial base like Infratemporal fossa/ Sphenopalatine fossa and /or deep spaces of neck is most often based on the anatomic extent of the lesion, vascularity of the lesion and involvement of neurovascular structures in and around it. The main idea of the Craniomaxillofacial surgeon must be not only to debulk the lesion but also to prevent inadvertent damage to the adjacent vital anatomic structures.

Skull base can be approached anteriorly and laterally. Anterior skull base approaches include: Fronto- naso – orbital osteotomy, Trans nasal, orbitozygomatic osteotomy, naso frontal osteotomy. These osteotomies are done to have a

straight line access to remove intracranial lesions. S.M. Raza et al¹ reported that Frontal–nasal–orbital craniotomy provides access to the floor of the anterior and middle cranial fossa while avoiding excessive brain retraction and oedema. In addition, this approach is associated with a lower incidence of postoperative complications, such as Cerebrospinal Fluid leak and infection.

Middle cranial base approaches include Le Fort I maxillary downfracture osteotomy, sometimes combined with median or paramedian mandibulotomy and Fronto-Naso-Orbital osteotomy. When compared with other popular approaches, Lefort I osteotomy provides excellent exposure for angiofibromas, clivus tumors, and the tumors of the nasopharynx, nasal septum, and nasal cavity. In 1988 Belmont et al² performed a midsagittal osteotomy and divided the inferior segment in two halves so as to obtain better access to the pituitary gland in middle cranial fossa.

Approaches to infra temporal region include zygomatic arch osteotomy with inferior orbital rim extensions, pedicled or non pedicled and inverted L Zygomatic bone osteotomy with or without involvement of lateral orbital rim. In these cases, zygomatic arch osteotomy is pedicled inferiorly on masseter & was swung laterally & inferiorly .This permitted stripping temporalis muscle from temporal bone & swinging it latero-

inferiorly thus exposing infratemporal fossa & the lesion. Terasaka et al³ and Honeybul et al⁴ have put forward that zygomatic arch osteotomy is necessary to provide access to infratemporal fossa and multiple regions of skull base. Zygomatic arch osteotomy can be combined with vertical ramus osteotomy of mandible with median or paramedian mandibulotomy for better exposure of the inferior extent of the lesion in the infratemporal space. The zygomatic arch osteotomy in combination with Fronto temporal craniotomy provides a good surgical access to intracranial tumors with Middle cranial fossa. The transfacial lateral rotation technique as described by Altmier⁵ gives good access to the retro maxillary area but access is very minimal if the interorbital area has to be approached.

Hidden lesions located of parapharyngeal, lateral pharyngeal spaces and deep spaces of neck, posterior oral floor and retromaxillary region can be accessed by mandibular osteotomies. They include median or paramedian step or vertical mandibulotomy with mandibular swing approach. This osteotomy can be done at symphysis and parasymphysis region anterior to the mental foramen to preserve the neurovascular structures. The advantage of the latter osteotomy is that it avoids the need for dissecting genioglossus, geniohyoid and anterior belly of digastric muscles. The osteotomy if given in the form of step, improves the stability. Sanjiv Nair et al⁶ reported that mandibulotomy to access tumors of the maxilla & infra temporal fossa, greatly improved the access & there by facilitating good clearance margins of tumors. The Anterolateral approach for better exposure parapharyngeal space, infratemporal space and pterygomaxillary space was originally described by Attia et al in 1984 and is called as Attia⁷ approach.

The advantages of these craniofacial osteotomies are the simplicity and reduced amount of time taken for the surgery. The advent of low profile miniplates and screws has made the re-

establishment of facial skeletal anatomy easier & faster by giving a very good esthetics. Though a multidisciplinary approach is often required, maxillofacial surgeons play a vital role in providing access to these hidden lesions for their removal. These types of cases will encourage the maxillofacial surgeons to develop newer techniques of access osteotomies reaching lesions in various parts of the skull base and neck.

REFERENCES:

1. Shaan M. Raza, A modified frontal–nasal–orbital approach to midline lesion of the anterior cranial fossa and skull base: technical note with case illustration. *Neurosurgery* rev(2010)33:63-70.
2. Belmont JR. The Le Fort 1 osteotomy approach for nasopharyngeal and nasal fossa tumors. *Arch Otolaryngol Head Neck Surg* 1988; 114:751-754.
3. Shunsuke tersaka et al , A lateral transzygomatic transtemporal approach to the infratemporal fossa : technical note for the mobilization of the second and third branches of the trigeminal nerve , skull base surgery, Volume 9 , number 4 , 1999.
4. Honeybul S, Neil –Dwyer G, Lang DA et al . The transzygomatic approach:A long term clinical review. *Acta Neurochir(Wein)*1995;136:111-116.
5. Hernandez Altemir F. Transfacial access to the retromaxillary area. *J Maxillofac Surg* 1986;14:165-70.
6. Sanjiv Nair et al , Maxillectomy through mandibulotomy – A retrospective clinical review , *J Oral Max Surg* 2001.
7. Attia , EL et al , A new external approach to the pterygomaxillary fossa and the

parapharyngeal space , Head and Neck
surgery 6,884-9.

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