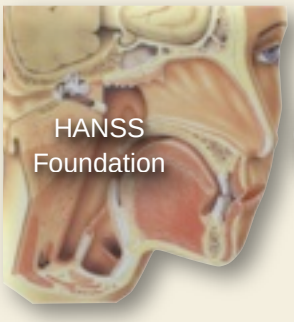


Cutting Edge...

Head & Neck and Skullbase Surgery

Issue No. One

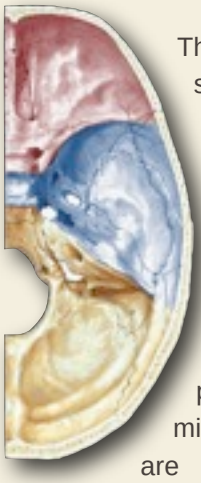
January 2009

Surgical treatment for tumours involving head & neck region and those reaching skull base, has evolved tremendously. What was considered inoperable and therefore incurable are being operated routinely with minimal morbidity in highly specialized centers. Current trend is towards functional reconstruction to regain the functions *viz*. chewing, swallowing and speech that were lost following tumour surgery.

We, at Apollo Speciality Hospital, Chennai, work as a team (ENT - Head & Neck Surgeon, Neurosureon and Plastic Surgeon) and practice state of the art surgical techniques to achieve cure and better functional restoration.

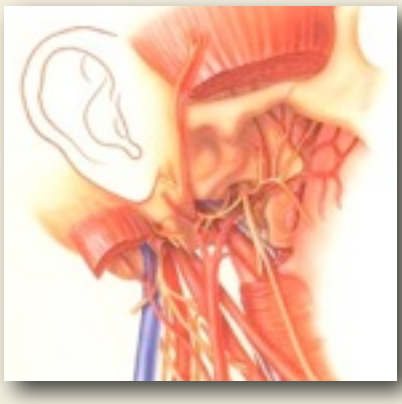
The aim of this newsletter is to share our experience with the medical community. This monthly newsletter will let the readers know the myths and facts in head & neck and skull base surgery.

SKULL BASE SURGERY



The skull base is a complex bony structure made of frontal, ethmoid, sphenoid, temporal and occipital bones. It is divided into 3 parts viz. anterior, middle and posterior cranial fossae. Brain rests on the intracranial surface. Extracranially, anterior cranial fossa is related to nasal cavity, paranasal sinuses and orbit. The middle and posterior cranial fossae are related to infratemporal fossa, nasopharynx and the ears.

Skull base has a number of foramina through which internal carotid arteries and vertebral arteries enter the cranial cavity while the veins draining the blood from the brain exit the cranium. Cranial nerves which are essential for functions like smell, vision, hearing, swallowing and speech pass through these foramina.



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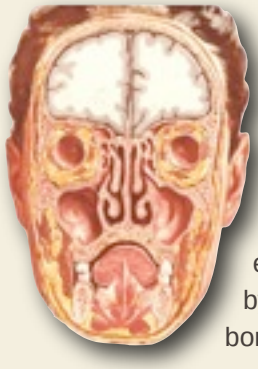
Tumours in this area arise from extracranial areas such as nose, sinuses, orbit, ear, nasopharynx or parotid gland and extend to the skull base. They can also originate from skull base bones or from intracranial structures like meninges, blood vessels and nerves and extend outside the cranium by destroying the skull base bone.



Clinical picture of these tumours are highly variable and are usually due to compression of important nerves and blood vessels or due to their mass effect.

These lesions are difficult to reach because they are located below the brain and behind the facial skeleton and aerodigestive tract. Until recently, many of these deep seated tumours were either entirely inoperable, or could be exposed only through excessive brain retraction. This could result in brain injury affecting movement, feeling, speech, mental abilities, and other neurological consequences.

In the past, surgical resection of these tumours were incomplete. The neurosurgeon, find the extracranial extension of intracranial neoplasms leading him/her to unfamiliar anatomy and potential of haemorrhage. The otolaryngologist operating on neoplasms close to brain or extending intracranially invoked possible specter of CSF leak, meningitis or intracranial haemorrhage.

> "That the execution of an operation is difficult is no reason why it should be shirked or scramped."
>
> *Charles A. Ballance*

Skull base surgery is a relatively recent innovation. With high resolution imaging, such as CT and MRI, the surgeon is able to precisely map the tumour location and its relationships to the surrounding brain, nerves and bony landmarks, and plan a rational approach for tumour removal.

Close collaboration between the ENT - Head & Neck Surgeons, Neurosurgeons and Plastic surgeons has given rise to many innovative surgical approaches to skull base as well as to the technique for reconstructing complex surgical defects. The morbidity of the surgery has been reduced through significant developments in related fields such as intraoperative neurophysiological monitoring, advanced neuroanaesthetic technique and postoperative rehabilitation of cranial nerve deficits through speech and swallowing therapy.


Nerve Integrity Monitor

The recently arrived computer assisted surgical navigation system helps to give the surgeon a three dimensional perception as to where he is operating with respect to the tumour as well as to the adjacent neurovascular structures. These devices allow the surgeon more accuracy and safety in removing disease. This not only improves tumour clearance but also helps to reduce the morbidity.


Navigation System

About the Editor

Dr. C. Rayappa, FRCS, DLO,
ENT - Head & Neck
and Skull base Surgeon

Dr. C. Rayappa graduated from Madras Medical College, Chennai, India in 1982. He completed his post graduation in Otolaryngology (ENT) from the same institution and had his advanced training at U.K. from 1987 to 1992. He qualified to become a Fellow of the Royal College of Surgeons [FRCS] of Edinburgh in 1989.

After gaining practical experience in Micro Ear Surgery, Functional Endoscopic Sinus Surgery and Head & Neck Tumour Surgery, he visited many leading centers in Europe and USA learning the finer aspect of skull base surgery from the experts, including, Prof. Ugo Fisch of University of Zurich, Switzerland, who is a pioneer in lateral skull base surgery and Mario Sanna of Italy. From 1992 to 1994 he worked at King Faisal Specialist Hospital in Riyadh, Saudi Arabia which is a tertiary care hospital, that specializes in Head & Neck tumour surgery and skull base surgery.

He started the Department of ENT - Head & Neck and Skull Base Surgery at Apollo Speciality Hospital, Chennai, India, in 1995. His multidisciplinary team which includes Neurosurgeons, Plastic & Reconstructive surgeons, Radiation Oncologist, and Medical Oncologist work together to develop treatment plans using the latest technology and the most advanced surgical techniques and therapies for patients with head & neck cancer and skull base tumours. Continued efforts of the team to improve the quality of care has made this unit one of the best in head & neck tumour surgery and skull base surgery in the Indian Subcontinent.

He also specializes in minimally invasive endoscopic skull base surgery through the nose without a skin incision since 1997 for conditions like pituitary adenoma, clival chordoma, meningocoele (herniation of brain and its covering into the nose) and CSF leak (all of which earlier needed opening of the skull for access).

If you think the newsletter is informative, kindly forward this to others or send me their e-mail ID to include them in the mailing list.

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Forthcoming Issues

Feb 2009
Anterior craniofacial resection

March 2009
Maxillary Ca involving Pterygoid muscle and Orbit

April 2009
Maxillary Ca involving Dura and ITF