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cmm at the Royal National Throat Nose and Ear Hospital London impressed by these improved cure rates and started to apply the triple of planned craniofacial resection for all tumours of the nose, paranasal sinuses that involved the skull base. Initially the action used a combination of neurosurgical and rhinological aques, but our early success encouraged us to modify the auge to make it more cost effective and appropriate as a primary ture for the majority of cases. This entailed using a small low craniotomy for access to the floor of the anterior fossa and a rhinotomy for access to the nasal cavities. Subsequent ence with over 250 cases of sinus neoplasia has resulted in modification of the craniofacial approach and we currently use different approaches for tumours of this part of the skull base.

I Craniofacial Approach. This is essentially an extended lateral tomy using a wide trans-orbital approach to facilitate a localised tion of the skull base in early ethmoidal tumours, particularly lowily.

II Craniofacial Approach. This is the original approach that we ed using a small window craniotomy for access. Its main aution is moderately advanced tumours particularly of the rior ethmoids.

III Craniofacial Approach. This combines a more conventional surgical procedure with some type of trans facial approach and for extensive tumours of the nose and sinuses as well as an each for a variety of different skull base problems.

A series is now approaching 300 cases and in the first ten years we 1445 cases with at least a five year follow up. This series has the early promise of improved cure rates and low.

The overall crude 5 year survival is 63%, for squamous inoma 45%, adenocarcinoma 50% and olfactory ma 82%.

al approaches complications and results will be discussed.


MANAGEMENT OF THE CAVERNOUS SINUS

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any years the Achilles heel of skull base surgery has been to be the cavernous sinus. This is especially true of vant disease. Because of its highly vascular nature, its manifold onnections to its fellow on the opposing side, and the problem agement of the internal carotid artery contained within, tumors ing the cavernous sinuses have been thought by many to be able and incurable. At the UCD Center for Skull Base Surgery, n 1983 and 1996, 24 cases of cavernous sinus resection for tant tumors of various cellular types have been done. There 15 males and nine females in the study. The predominant cell was squamous cell carcinoma (15/24), but six other cell types encountered. The two-year and better survival rate was 28.4%.

Not surprisingly, those with lesser amounts of invasion and nonsquamous carcinomas did best.

COLLEGIUM OTO-RHINO-LARYNGOLOGICUM

AMICITAE SACRUM

IN172

CURING SENSORINEURAL HEARING LOSS: BASIC SCIENCE ADVANCES FOR THE 21ST CENTURY

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During the past decade substantial advances have been made in understanding the biology of the reception and neural cells of the inner ear. These cells had been considered 'end state' cells that, once they died, could be replaced. Basic science investigation of cartilaginous fish and then of the birds demonstrated that the hair cells of these species either had the ability to continue to proliferate during life or to be replenished once there were destroyed. These observations led to the investigation of the processes of protection, repair and replenishment of the sensory and neural structures of the mammalian inner ear.

The results of experiments in organ cultures (in vitro) and live animals (in vivo) are presented. These illustrate various methods now being used in the laboratory to protect the hair cells of the inner ear from destruction from ototoxic entities, ways the inner ear can be treated so as to be repairable after it has suffered damage, and data which demonstrates how some mammalian hair cells of the inner ear can be replenished.

Three techniques used to deliver the appropriate biochemical substances to the inner ear are presented. These: osmotic pumps introduced into the scala tympani; infection of the inner ear with genetically engineered viruses; and the application of biochemical entities to the inner ear through the round window.

The rationale for selection of patients for clinical trials is presented.

The problems of human genetic defects and life long compensation strategies will be discussed.

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AUDITORY NERVOUS SYSTEM PLASTICITY: APPLICATION TO COCHLEAR IMPLANTATION

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There are two types of plasticity in the central auditory nervous system. The first type is due to the development of neural connections during a critical period after birth. The second type results from a change in the responsiveness of neurones in the mature animal after neural connectivity has already been established. Developmental plasticity is important for cochlear implantation in children and adult plasticity for implantation in older children as well as adults. Plasticity in children is being studied with electrical stimulation and it has been shown that there is a critical period for speech perception. Speech perception is significantly better the younger the child. Further support for developmental plasticity is the fact that children with some residual hearing obtain better speech perception results than those without residual hearing. This study carried out in Melbourne suggests that some prior experience during the critical period leads to a more normal neural connectivity which can be better utilized with electrical stimulation from a cochlear implant.