

Editorial

Advances in instrumentation, plays a key role in evolution of any surgical discipline. During this process, there are certain key junctures where the state of the art in technology truly augments the surgeon's ability to manage higher levels of pathology. The present era of endoscopic sinus surgery has been hallmarked by extension of minimally invasive techniques to complex pathologies including advanced inflammatory disease, and pathology involving the orbit, skull base, and brain. Evolution of the armamentarium for endoscopic visualization has been a central feature in this. The nasal endoscope has revolutionized surgery since its development in 1950s. In the past, the surgical strategy in sinus surgery was to remove all sinus mucosa from the major sinuses. The use of an endoscope is linked to the theory that the best way to obtain normal healthy sinuses is to open the natural pathways to the sinuses. Once an improved drainage system is achieved, the diseased sinus mucosa has an opportunity to return to normal.



A number of other technological advancements have had a significant impact on our ability to improve endoscopic sinus surgery. The improved endoscopes, microdebriders, improved charge-coupled device (CCD) camera technology, and the development of suction irrigation drills have enhanced our ability to remove disease completely and to extend the surgery beyond just the treatment of rhinosinusitis and also expand it to reach skull base and orbit. Although there is very limited evidence to suggest that the use of computer-assisted surgical navigation reduces complications, it clearly improves the surgeon's ability to perform a complete surgical procedure and is a superb teaching tool.

The demonstrated ability of rhinologists to close skull base defects and cerebrospinal fluid leaks with greater success rate than by craniotomy has already significantly extended the potential for endoscopic transnasal approaches. Treatment may involve evaluation by several medical specialties including otolaryngology, radiation oncology, neurosurgery, medical oncology and others. The treatment decisions are based on the type of lesion, its location and extent and overall health of the patient. The decision to use an open versus endoscopic approach is individualized based on a patient's needs. Increasingly, endoscopic approaches are used when possible.

Benign and even selected malignant skull base tumors, can now be approached by skilled endoscopic surgeons with major reductions in patient morbidity and improved surgical visualization. Yet we have to see what else can be done and how to expand horizons using endoscopic approach.

Endoscopy provided improved visualization of sinonasal anatomy and pioneered the way for sinus surgery to safely extend beyond the nasal cavity and paranasal sinuses. Hence, the development of expanded endonasal approaches to skull base and orbit took place which was further empowered by the development of high resolution computed tomography scans and image-guided navigation system

Navigations system also helps in dealing with petrous apex lesions via transsphenoidal and transpalatine approaches.

Transsphenoidal approaches to pituitary lesions and clivus are also enhanced with navigation system. Endoscopic orbital procedures like orbital and optic nerve decompression and orbital apex lesions, have revolutionized the field.

Pediatric sinonasal surgery also got influenced with the introduction of endoscopes and navigation system. Allergic fungal sinusitis, choanal atresia repair, juvenile nasopharyngeal angiofibromas and various other pediatric tumours are dealt with the help of endoscopes with much ease and less risk of complications.

The morbidity of external approaches is avoided now with the development of endoscopes and its expanded applications.

In the future, surgical robot which has shown excellent utility in transoral surgeries, can be expected to have potential to deal with skull base lesions, which requires precision and skill. It is still too large for transnasal surgery but may have potential in the future applications.

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