

Computer Assisted Endoscopic Sinus and Skull Base Surgery

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The surgical anatomy of the paranasal sinuses and the skull base is considered to be one of the most complex anatomies of the human body, with great morphological differences among individuals. The development of technology in endoscopic sinus and skull base surgery can be divided in two directions. On the one hand, they are increasingly developing powered instruments that make surgery easier and faster, but also make it potentially more dangerous. On the other hand, there is improvement in the devices that enhance the security by better visualization and orientation within the operative field. Among them, computer-assisted navigation (CAN) is particularly important. Originally developed for neurosurgery, CAN was rapidly accepted by endoscopic sinus and skull base surgeons. Thus, by 2010, it became available in the USA to almost all otorhinolaryngologists dealing with this branch of surgery. The main reason for using CAN is the reduction of operative risks and complications, especially reduction of major and orbital complications. It should be noted that CAN also serves as a great educational tool for young surgeons, but one should be aware that it cannot replace surgical skills and knowledge. CAN has no absolute contraindications other than the lack of surgical experience and training. Our experiences with CAN, which we have routinely used for over 10 years, are also presented.

Key words: computer-assisted surgery, image-guided surgery, sinus surgery