

Nasopharyngeal Mirror Device

This technology is a visualization tool for nasopharynx procedures. This system includes a convex mirror with a camera behind it that increases the mirror field of view.

What is the Problem?

Adenoidectomy, the removal of adenoids from the nasopharynx, is a common, quick surgery that occurs primarily in children ages 4-6. With current visualization tools, the otolaryngologist can only see a fraction of the adenoids at a time, which increases the risk of tissue damage, time of the operation, and difficulty in teaching the surgery to residents. Because adenoidectomies are a high-volume surgery, otolaryngologists and residents can have difficulty ensuring adequate training time while trying to complete the necessary number of surgical procedures each day. Currently, otolaryngologists use three methods to see the adenoids: blind palpation, an endoscopic camera through the nose, or a laryngeal mirror. When performing the procedure blindly, the surgeon uses a curette to remove the adenoid tissue which increases the risks of collateral tissue damage, excess bleeding, and residual tissue which can cause the adenoids to become enlarged once again. Compared to this, the endoscopic camera has advantages like giving a clear view of the operation area and simultaneous viewing, which dramatically improves teaching. However, endoscopic cameras are costly when compared to other tools on the market and substantially increase operation time. The overwhelming majority of otolaryngologists use the laryngeal mirror to perform adenoidectomies. The laryngeal mirror is cost-effective, but it provides poor visualization of the operation area, fails to accommodate varying patient anatomies, and constantly needs to be cleaned of fog or blood, which disrupts the surgery and further limits visualization. Evidently, current visualization tools are inadequate for seeing the adenoids during adenoidectomy.

What is the Solution?

The solution is a new visualization tool for procedures involving the nasopharynx. This includes a convex mirror with a camera behind it, which increases the area that can be seen during the procedure as well as allowing multiple people to see the surgeon's perspective. The solution includes a camera module, which is connected to an external monitor which will allow observers to watch and to learn the procedures more efficiently. This includes enabling real time feedback or discussion during the operation. Fogging is prevented through electric coils that surround the mirror.

What Differentiates it from Solutions Available Today?

The laryngeal mirror was designed for viewing the larynx. The same mirror is turned around for viewing the adenoids during the surgical procedure, however, this has limitations due to the

Technology ID

BDP 8110

Category

Device/Other
Selection of Available
Technologies

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viewing angle. This low-cost solution can increase mirror field of view, enable simultaneous observation of the procedure, keep the mirror surface fog free, and increase the adaptability to patients' anatomy.