Angled endoscope

Despite the widespread popularity of navigation and angled endoscopes in endonasal endoscopy, there are hardly few studies on their efficacy with the extent of resection or retreatment. This is probably the first study to assess the independent impact of these adjuncts among pituitary tumors. Patients with pituitary tumors undergoing endonasal endoscopy were prospectively studied for their demographics, clinico-radiological features, intraoperative use of navigation, and angled endoscopes, in relation to gross total resection (GTR), near total resection (NTR), endocrine remission, and retreatment. Pertinent statistical analyses were performed. Among a total of 139 patients, navigation and angled endoscopes could be used in 54 and 48 patients, respectively, depending upon their availability rather than chosen as per the case. There was no significant difference in baseline characteristics in relation to their use. The surgeon's perception of immediate benefit was noted among 51.9% while using navigation. The use of angled endoscopes towards the end of resection could help with additional tumor removal in 62.5% of patients. Overall, the use of navigation resulted in a significantly higher GTR (80.8% vs. 59.7%, OR 2.83, p = 0.01), a higher GTR/NTR (86.5% vs. 70.8%, OR 2.65, p = 0.04), and a lower retreatment rate (7.7% vs. 20.8%, OR 3.15, p = 0.05) than the others. In functioning tumors with cavernous sinus invasion, navigation had significantly increased remission rates (69.2% vs. 0%, p = 0.03). The use of angled endoscopes yielded a significantly higher GTR/NTR (91.7% vs. 70.6%, p = 0.04) and a lower retreatment rate (0% vs. 15.7%, p = 0.05) among only non-functioning adenomas. In multivariate analyses, the use of neuronavigation had a significant association with both GTR and retreatment rates (p values 0.005 and 0.02 respectively), independent of other confounding factors. The elective intraoperative use of navigation has a significant independent impact on the extent of resection and retreatment overall. While navigation results in better remission rates among functioning tumors with cavernous sinus invasion, angled endoscopy has a significant association with surgical outcomes in non-functioning tumors [1)].

1)

Patil NR, Dhandapani S, Sahoo SK, Chhabra R, Singh A, Dutta P, Walia R, Verma R, Gupta R, Virk RS, Ahuja CK, Dhandapani M, Chaudhary H, Jangra K, Gupta SK. Differential independent impact of the intraoperative use of navigation and angled endoscopes on the surgical outcome of endonasal endoscopy for pituitary tumors: a prospective study. Neurosurg Rev. 2020 Oct 22. doi: 10.1007/s10143-020-01416-x. Epub ahead of print. PMID: 33089448.