Video-endoscope versus endoscope for paranasal sinus surgery: influence on stereoacuity

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A matter of debate is whether the use of a video-endoscope impairs visual orientation and manual precision in endonasal surgery. We investigated the influence of video-endoscopy compared to endoscopy on stereoacuity in a model of the nasal cavity. Twenty medical staff members were asked to touch defined points in a spatial model of the nasal cavity as quickly as possible and in correct order using 0 degree and 30 degrees endoscopes, looking directly through the endoscope or looking at a video monitor connected to a CCD camera on the endoscope. Time, number of omissions of points and faults in point sequence were recorded. Manipulations were significantly quicker when the "operative field" was seen directly through the endoscope compared to orientation from the monitor for both 0 degree endoscope 96 +/- 4.7 s. vs. 108 +/- 5.6 s. and 30 degrees endoscope 84 +/- 3.9 s. vs. 96 +/- 5.5 s. (+/- SEM). There was no difference in number of omissions and faults in sequence between "endoscope" and "video-endoscope." The fact that the use of a video-endoscope did not increase the number of faults in our experiment does not support the notion that performing endoscopic sinus surgery using a monitor is unsafe. In the hands of the participants who were experienced with the endoscope, however, the use of a video-endoscope slowed down manipulations to a significant degree. To which extent this may be due to the effect of training or to superiority of the endoscope per se will remain a matter of discussion until a group of experienced video-endoscopists will have repeated the study.

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