

The intraoperative accuracy of maxillary balloon dilation: a blinded trial.

Jensen BT, et al. Int Forum Allergy Rhinol. 2019.
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Abstract

BACKGROUND: Balloon sinus dilation (BSD) is a commonly performed sinus procedure in the United States. Several cadaveric studies have evaluated BSD accuracy and the maxillary sinus has consistently been shown to be the most challenging to cannulate. We designed an independent study to evaluate the intraoperative accuracy of maxillary sinus BSD.

METHODS: A prospective, single-blinded trial evaluating the accuracy of maxillary sinus BSD was performed using 2 commercially available BSD systems (guidewire- and probe-based systems) randomly assigned to patients undergoing endoscopic surgery for chronic rhinosinusitis without nasal polyps (CRSsNP) or a skullbase approach in patients without sinus disease. All patients underwent maxillary BSD followed by uncinectomy to reveal dilation of the natural maxillary sinus ostia. The recorded procedures were reviewed by 3 fellowship-trained rhinologists from different institutions blinded to the BSD system utilized. The primary endpoint compared accuracy of maxillary BSD attempts. The secondary endpoint compared accuracy between the 2 systems.

RESULTS: Twenty-nine maxillary BSD procedures were performed in 18 patients (age range, 20-79 years; mean, 51 years) without nasal polyposis undergoing maxillary antrostomy as part of a more extensive procedure. BSD was successful in 18 of 29 (62%) attempts and unsuccessful in 9 of 29 (31%) attempts, with statistically "almost perfect" interrater agreement ($\kappa = 0.86$). There was no statistical difference between the 2 BSD systems ($p = 0.81$).

CONCLUSION: Maxillary BSD appeared to be less accurate in living patients when compared with findings from previously published cadaver studies. There were no differences in accuracy between the probe- and guidewire-based systems. This is the first non-industry-sponsored study evaluating maxillary sinus BSD in living patients. Further studies are needed to investigate the clinical implications of our findings.

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