Study on goat as animal model for endoscopic sinus surgery training

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Abstract:

Background: endoscopic sinonasal surgery (ESS) is a technically challenging surgery and concerns exist regarding patient safety early in the surgeon's learning curve because of its complications. Developing models with endoscopic appearance of the nasal airway closely resembling real human tissue was necessary to allow the same ESS steps to be performed as in real life. Objective: to carry out anatomical study on paranasal sinuses in goats, by means of computerised tomography and endoscopic dissection technique to assess possibility of using goats as a model for ESS training to allow trainees in nasal and sinus endoscopy to develop basic instrument handling and psychomotor skills. Methods: Computerized tomography was done for the goat skulls. ESS is done in the form of uncinectomy, maxillary sinus opening, ethmoidectomy and frontal sinus exploration with a special focus on the possibility of its use in training. Results: The endoscopic appearance of the nasal airway and paranasal sinuses of goats is reasonably similar to humans in morphological anatomy and structure. The thickness of goat sinus mucosa also showed enough consistency to carry out the endoscopic sinus surgical technique. Conclusions: Goat is suitable study model in learning endoscopic sinus surgery.

Keywords:

Functional Endoscopic Sinus Surgery (FESS), animal model, residency training, paranasal sinuses in goats

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