Evaluation of complications of functional endoscopic sinus surgery

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Introduction: Functional endoscopic sinus surgery (FESS) is a minimally invasive, sophisticated surgical technique, using an endoscope or microscope to restore the drainage and ventilation of the nasal cavity and paranasal sinuses. It has been used for over 20 years to treat diseases of the nasal cavity. The most common indications for FESS are: chronic sinusitis refractory to medications and polyps in the nasal cavity [1,2]. The major complications associated with FESS include severe hemorrhage, leakage of cerebral spinal fluid, visual disturbances. Examples for minor complications are mild hemorrhage, periorbital hematoma and cellulitis, subcutaneous emphysema, epiphora. Most orbital complications are classified as major because of the potential vision loss, but orbital emphysema is considered minor complication. [2,3]

The objective of this study is to evaluate the complications after FESS in the Department of Otorhinolaryngology at the University hospital St. Marina, Varna.

Materials and methods: The records of all patients subjected to FESS were retrieved from the digital patient record system of a single institution, St Marina University Hospital, in Varna, Bulgaria and evaluated retrospectively [4]. With regard to patient characteristics, patients’ birth date and examination date information was included in the file indexing system, and the sex of each patient was contained in their personal identification number. The complications were classified as major (severe hemorrhage, leakage of cerebral spinal fluid, visual disturbances) and minor (mild hemorrhage, periorbital hematoma and cellulitis, subcutaneous emphysema, epiphora).

Results: A total of 65 patients aged 11-77 (2 children, mean age 13±2.8 years and 63 adults, mean age 46.5±13.9 years, 41 men and 24 women), who were subjected to FESS, were evaluated. The indications for surgery included nasal polyposis (56.9%, 37/65), chronic sinusitis (21.5%, 14/65), polyposis with sinusitis combined (9.2%, 6/65), benign tumors (10.7%, 7/65) and malignant tumors (1.5%, 1/65). The types of FESS interventions performed included polypectomy (10.9%), endoscopic incision of multiple sinuses (29.6%), combined interventions (48.4%) and excision/extraction of other lesions (10.9%). Ten cases were classified as minor complications (15.3%). They included postoperative minimal bleeding (n=9, 13.8%) and subcutaneous emphysema (n=1, 1.5%). (Fig. 1). Four cases were classified as major complications (6.1%). They included severe hemorrhage, requiring transfusion, nasal packing or rehospitalization (n=3, 4.6%) and visual disturbances (n=1, 1.5%).

According to literature reviews the average rate of major complications is between 2.6% (9/260) and 10.5% (28/266). [5,6]

The complication rate of postoperative minimal bleeding is described to be 2% (6/300) and the scientific data about cases with subcutaneous emphysema is 0.1% (4/3,402). [7,8]. The overall major complications rate according to published reports is between 0.36% (288/78,944) to 1 % (630/62,823), including severe hemorrhage requiring transfusion or nasal packing (0.14%, 75/50,734 to 0.76%, 478/62,823) and orbital injury - 0.07% (45/62,823) to 0.7% (25/3,402). [1,7,9,10] Sayaka Suzuki et al. reported a 0.02% (12/50,734) cases with toxic shock syndrome. [1]

The literature based results about leakage of cerebral spinal fluid are between 0.09% (50/50,734) and 0.17% (108/62,823). [1,10]

Conclusion: Functional endoscopic sinus surgery may be considered a relatively safe method with low rate of the complications, but as with any surgical intervention, it carries risks. According to other published reports the average rate of minor complications is about 2.6% to 10.5% and the rate of major is about 0.36% to 1%. [5,6,9,10] Functional endoscopic sinus surgery is one of the most common performed operations in otorhinolaryngology and is generally a safe procedure, but major complications may occur.

References:

Fig. 1: Indications for FESS

Fig. 2: Evaluation of minor complications

Fig. 3: Evaluation of major complications

Fig. 4: Emphysema

Fig. 5A,B: Epistaxis & Nasal packing

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