

Ocena wybranych biomateriałów do rekonstrukcji perforacji przegrody nosa

Study of selected biomaterials for reconstruction of septal nasal perforation

Wojciech Ścierski, Aleksandra Polok, Grzegorz Namysłowski, Marta Błażewicz, Elżbieta Pamuła, Ewa Stodolak, Jerzy Nożyński, Krystyna Żwirska-Korczala, Krzysztof Szwarz, Maciej Misiótek, Eugeniusz Czecior, Lucyna Turecka, Grażyna Lisowska, Bogusława Orecka

Summary

Introduction. The septal nasal perforation is an important problem for the laryngologists and plastic surgeons. The reasons of septal nasal perforations are injuries, neoplasm, self-mutilation, chronic rhinitis, allergy, Wegener granuloma, sarcoidosis, tuberculosis, toxic metals (arsenic, chrome), some drugs (steroids), narcotizing agents (cocaine) and complications after endoscopic and septal nasal operations. The surgical treatment, especially in the cases of large septal perforation, is often difficult because of the atrophy of nasal mucosa and lack of suitable material for reconstruction. In the surgical treatment many of methods and reconstructive materials have been used. The following autogenous tissues were used in the reconstruction of septal perforation: alloderm, temporal fascia, septal and auricle cartilage, cranial periosteum, perichondrium, ethmoidal and hip bone. The defect of such materials is progressive resorption. For many years the suitable synthetic material for septal nasal reconstruction has been searched for. Among the biomaterials the following have been used without success: Dacron, porous polyethylene, dolomite, bioglass. The rejection of synthetic material was the reason of failure. The aim of our study was to evaluate two different biomaterials with proper mechanical and biological features for nasal cartilage replacement. **Material and methods.** We studied two types of biomaterials: biostable terpolymer PTFE/PVDF/PP and resorbable copolymer of glycolide and L-lactide (PGLA). The pilot studies were performed on two experimental animals (rabbits). The animals were operated in the general anesthesia. The biomaterials were implanted in the rabbit auricular cartilage because of its similarity to the septum and easy surgical access. Subperichondrially 1 x 1 cm fragment of the cartilage was removed. This fragment was then replaced with the biomaterial. The rabbits were painlessly sacrificed after 4 months of observation. **Results.** A very good integration of PGLA implant with auricular cartilage was observed. In the histological examination the lack of excessive inflammatory reaction as well as no cartilage necrosis were observed. **Conclusions.** 4 months after implantation of PGLA in the rabbit auricular cartilage very good macroscopic and histological results were achieved.