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THE EMPLOYMENT OF AUTOLOGOUS DENTIN GRAFT AS A SUBSTITUTION MATERIAL AFTER REMOVAL OF PERIODONTALY COMPROMISED TEETH

ЗАСТОСУВАННЯ АВТОЛОГІЧНОГО ДЕНТИН-ГРАФТУ ЯК СУБСТИТУЦІЙНОГО МАТЕРІАЛУ ПІСЛЯ ВИДАЛЕННЯ ПЕРІОДОНТАЛЬНО СКОМПРОМЕТОВАНИХ ЗУБІВ

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Introduction. Healing of the alveolar socket of the removed tooth is accompanied by significant spatial changes of the alveolar bone, which creates unfavorable conditions for future dental implantation and prosthetic rehabilitation [1]. Currently, all teeth that are extracted due to marginal or apical periodontitis are generally considered clinical waste, therefore, are discarded. Recently, however, several studies have reported that extracted teeth, which undergo a process of cleaning, grinding and sterilization, can be an effective graft for substitution of postextraction alveolar bone defects in the same patient [2; 3].

The aim of the study was to test and clinically evaluate the effectiveness of autologous dentin graft in the replacement of alveolar socket after tooth extraction with periapical pathology.

Methods. During 2020–2021 in the Department of Oral & Maxillofacial Surgery, Danylo Halytsky Lviv National Medical University 18 patients (men – 10, women – 8; aged 17-35) with marginal/apical periodontitis were treated surgically: closed extraction of incisors (7 cases), premolars (5 cases), molars (6 cases). A thorough mechanical and chemical curettage of alveolar sockets was carried on. Teeth restorations (crowns, fillings), carious lesions, apical granulomas, remnants of periodontal ligament were removed by carbide bur. Clean teeth were dried, placed into a sterile chamber of a "Smart Dentin Grinder" device (KometaBio Inc., NJ, USA), grinded (3 sec.) and sorted (10 sec.) automatically to get dentin particles 300-1200 μm in size which were sterilized according the protocol. Prepared dentin particulate was placed into postextraction socket, the wound was tightly sewed with nonresorbable material. Stitches were removed after 10 days. Control clinical and roentgenological follow-up visits were performed 1, 3, 6 months postoperatively.

Results. Within the follow-up period in all patients no signs of socket inflammation were revealed. In the study of vertical bone loss, it was found that before surgery, this figure averaged 8.49±0.67 mm, after 3 months post-op – 8.59±0.69 mm ($p>0.05$), and after 6 months – 10.52±0.75 mm ($p<0.05$). The width of the alveolar process at the middle of the defect was

on average 7.38±0.36 mm before surgery, after 3 and 6 months – 7.13 ± 0.40 mm and 6.98±0.44 mm respectively (p>0.05). Radiologically the bone structure in the substituted area was not differ from the surrounding native bone since the 3rd month postoperatively.

Conclusions. In the frame of this preliminary study, autologous dentine may be considered a promising material for use in socket preservation even in cases of periodontally compromised teeth extraction.

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