同類脫鈣冷凍乾燥骨併用組織導引再生法的齒槽骨再生促進作用

The Osteogenic Effects of Demineralized Freeze-dried Bone Allografts in Periodontal Bony Deffects Treated with Guided Tissue Regeneration Technique

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摘要

口腔領域裡，常見各種原因而導致的骨缺損，在臨床上運用骨移植 (Bone graft)與組織導引再生法(Guided tissue regeneration, GTR)等積極性手術療法，常獲得比傳統治療好的骨再生結果。但在齒槽骨缺損併閉上述 兩種手術法局部組織的反應變化及骨再生機轉仍不十分清楚。本實驗採討以同類脫鈣冷凍乾燥骨(demineralized freeze-dried bone allograft， DFDBA，商品名爲 Dembone)併用 GTR 注移植於牙周病齒糟骨缺損處的局部組織變化。Dembone 先經蛋白質電泳成分分析。臨床上，選擇 6 名小臼齒區有齒 槽骨缺損之自願牙周爲忠者，經初期治療後，接受牙周翻辦手術。手術時在骨缺損處移植 Dembone 並以鐵弗龍膜作 GTR 處理。3 過後將植入的鐵弗龍膜取出作掃描式電子顯微鏡觀察，並取出膜下的骨移植組織，以光學顯微鏡、組織化學和穿透式電子顯微鏡等形態學方法作骨再生研究。結果發現 Dembone 的主要蛋白質成分呈三個區成的分怖，分別在 49.5 KD，80 KD 以及 116.5KD 附近。組織切片發現 Dembone 粒子爲微細血管、纖維性組織和炎性細胞所包圍、並可見少數的多核巨細胞，但無明顯的新生骨誘導形成。細胞化學測發現 Dembone 周圍不具抗酒石酸酸性磷酸酵素活性的單、多核細胞。可見臨床上同類脫鈣冷凍乾燥骨在人體齒槽骨缺損裡的體促進作用，可能並非直接經由移植骨內蛋白質的骨誘導作用（osteoindution），而是由骨傳導作用（osteoconduction） 等其他的方式來促進新生骨的形成。

Abstract

Several kinds of treatment methods, including bone grafting and guided tissue regeneration (GTR) technique, have been used in the treatment of oral bony defects. For the time being, one of the bone grafting materials, demineralized freeze-dried bone allograft (DFDBA), has been applied in conjunction with GTR technique in order to achieve further new bone formation. However, it is still enigmatic to realize the tissue response to DFDBA in bony defects when it is co-treated with GTR technique. After protein analysis of Dembone, one commercial product of human DFDBA, and scanning electron microscopic examination of Gore- Tex membrane, one telflon membrane used in GTR procedure. Six volunteer patients with a deep bony defect around their bicuspids, which evaluated hopeless in periodontal treatment, are selected. After the patients accepted inflammatory control of periodontal disease, a surgical flap with be raised around the selected tooth and

with Gore-Tex membrane been hermetically suspended on the thoroughly treated root surface. As mixed with normal saline, Dembone is carried to the bony defect underneath the membrane and filled to the level of bone margin. The surgical wound is primarily closed with sutures. The new tissues growing in the periodonta1 defect were harvested three weeks after the surgery is performed and processed for the observation under light microscopic, histochemical and electron microscopic examination. In light microscopic and histochemica1 examinations, many capillaries, fiberous tissues, inflamation cells, and a few multinuclear cells were found surrounding Dembone particles. No newbone formation was found surrounding Dembone particles during whole experimental periods. The osteogenetic effects of DFDBA n human alveolar bony defects may not be osteoindutive as those in bone morphogenetic protein.