Synovial Metaplasia in Mandibular Reconstruction Plate: A Previously Unillustrated Phenomenon

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ABSTRACT

Synovial metaplasia has been reported to occur in tissue surrounding silicon breast implant and joint prostheses. Recently, this phenomenon has been shown in oral mucoceles. Here, we illustrate the same phenomenon in relation to infected mandibular reconstructed plate in a 62 years old male patient.

Keywords: Metaplasia, Reconstruction plate, Synovial.


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Conflict of interest: None

In diarthroses (joints that permit free movements of the bones), the articular surfaces of the bones are covered with hyaline cartilage and enclosed in a joint space. The joint capsule is composed of an outer fibrous layer of dense connective tissue that is continuous with the periosteum of the bones and an inner synovial layer (synovium: 25 µm thick), which is more cellular. The latter is sometimes referred to as synovial membrane, but this term is misleading in that it suggests an epithelial lining, such as that found in other body cavities. There is no continuous cellular lining. Two types of cells are found on or near the surface: fibroblast-like cells and macrophages. Lymphocytes are present in limited number deeper in synovium.

Brody and White (1963) first described the phenomenon of synovial metaplasia in chickens. The term ‘synovial metaplasia’ is based on histological resemblance of villous structures to hyperplastic synovial membrane. Synovial metaplasia has been reported in association with breast implants, the bone-cement interface of hip prostheses, tendon implants, testicular implants, scarred or otherwise traumatized skin and temporary silicone implant of temporomandibular joint. Gliding trauma has been hypothesized as an inciting stimulus. Here, we report the phenomenon of synovial metaplasia in relation to reconstruction plate in mandible treated for ameloblastoma by hemimandibulectomy in a 62 years old male patient treated one year back. The plate was removed when the patient complained of pain in the same region. Routine X-ray findings were not significant. Computed tomography (CT) was taken and it showed air pockets in the relation to the reconstruction plate, also involving the buccal space. The adjacent soft tissues were removed and processed for routine hematoxylin and

Figs 1A and B: The H&E photomicrograph showing synovial metaplasia in tissue around reconstructed mandibular plate: (A) 100x and (B) 400x
eosin (H&E). The H&E section showed a central space surrounded by a structure akin to hyperplastic joint synovium composed of discontinuous thin band of a cellular eosinophilic matrix. Under this matrix, condensed 1 to 2 cells thick palisaded histiocytes or fibrohistiocytic cells were seen aligned perpendicular to the surface (Figs 1A and B). These cells lacked a definite basement membrane.

The microscopic features of the membrane can vary in different stages of lesion development, with early lesions exhibiting marked cellularity with a less organized arrangement (Fig. 2A), mature lesions exhibiting intermediate cellularity with more definite palisading and a smooth surface (Fig. 2B), and long-standing lesions exhibiting hyalinization with decreased cellularity (Fig. 2C).

Although such phenomenon in the oral cavity has been recently described in mucoceles, their occurrence in relation to reconstructed plates has not been described before. A pathologist should be aware of such a phenomenon because eyes do not see what the mind does not know, leading to unnoticed and unreported rare events.

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