

Histopathology of the temporomandibular joint disc: Findings in 30 samples from joints with degenerative disease

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Abstract

Aim: The aim of this study is to show the anatomical and histological features of the displaced temporomandibular joint (TMJ) disc in joints with degenerative disease.

Methods: This study was performed on a total of 30 TMJ discs extracted from 22 patients, who underwent surgical discectomy after failure of conservative non-surgical treatment regimens to control pain and/or limited range of motion. All joints had imaging signs of an anteriorized disc position and degenerative joint disease. Samples of the extracted discs were stored in formalin, cut into 3 micron-thick sections imbedded in paraffin and processed with hematoxylin-eosin.

Result: All the samples present irreversible morphologic and histological alterations. The macroscopical evaluation showed that 14 discs were worn and fragmented in several parts, and one disc was perforated. Morphological alterations with deformation and degenerative signs were shown in all discs, which were all severely worn and compromised. Histologically, various alterations were found, such as pre-fibrous sclerosis with myxoid degeneration and collagen deposits (N = 25), an increase in fibro-hyaline and fibrous tissues, with loss of elasticity (N = 25), scattered calcifications (N = 15), and synovial inflammation with microvascular proliferation and increased cellularity, presence of lymphocytes, histiocytes and plasma cells (N = 18). After the intervention, all patients reported decreased pain levels and showed improved function at 6 months.

Conclusion: These observations suggest that degenerative joint disease is accompanied by a anteriorized discs featuring abnormal macroscopical and histological changes. From a clinical viewpoint, this may suggest that, when treatment escalation leads to consider TMJ surgery, total discectomy is the most reasonable approach.

Keywords: TMJ; dentistry; maxillofacial surgery; temporomandibular disorders; temporomandibular joint.