

Histomorphometric analysis of unilateral condylar hyperplasia in the temporomandibular joint: the value of the condylar layer and cartilage island

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This study aimed to describe the condylar layer and cartilage island in subjects with unilateral condylar hyperplasia (UCH). Five individuals (15-18 years old) with a diagnosis of UCH, treated in a university hospital in Temuco, Chile, were included. The analysis examined the presence, extension, and thickness of the layers on the condylar surface, the number, depth, and area of the cartilage islands, and the argyrophilic proteins of the nucleolar organizer region (AgNOR) score. Statistical significance was set at $P < 0.05$. The fibrocartilaginous layer was thickest (0.13 ± 0.05 mm) and the joint layer was thinnest (0.07 ± 0.01 mm) ($P < 0.05$). With respect to the number, depth, and area of the islands, case 1 presented the highest values, followed by case 2; the cartilage island was related to the fibrocartilaginous layer ($P < 0.05$). All cases had AgNOR proteins in the proliferative and fibrocartilaginous layers, as well as the islands with the greatest presence of chondrocytes ($P = 0.245$). A relationship was observed between the histopathological alterations in the different layers on the condylar surface and the thickness of the fibrocartilaginous layer, as well as the thickness of the latter and the number, depth, and area of the cartilage islands in the trabecular bone. © 2017 International Association of Oral and Maxillofacial Surgeons

condylectomy

facial asymmetry

unilateral condylar hyperplasia

adolescent

adult

Article

cartilage

Chile

chondrocyte

chromosome NOR

clinical article

cone beam computed tomography

cone beam computed tomography scanner

female

human

hyperplasia

imaging software

male

mandible condyle

morphometry

musculoskeletal system parameters

osteocyte

single photon emission computed tomography

temporomandibular joint

temporomandibular joint disorder

temporomandibular joint unilateral condylar hyperplasia

trabecular bone

young adult

articular cartilage

diagnostic imaging

hyperplasia

malocclusion

mandible condyle

pathology

temporomandibular joint disorder

treatment outcome

Adolescent

Cartilage, Articular

Cone-Beam Computed Tomography

Female

Humans

Hyperplasia

Male

Malocclusion, Angle Class III

Mandibular Condyle

Temporomandibular Joint Disorders

Tomography, Emission-Computed, Single-Photon

Treatment Outcome