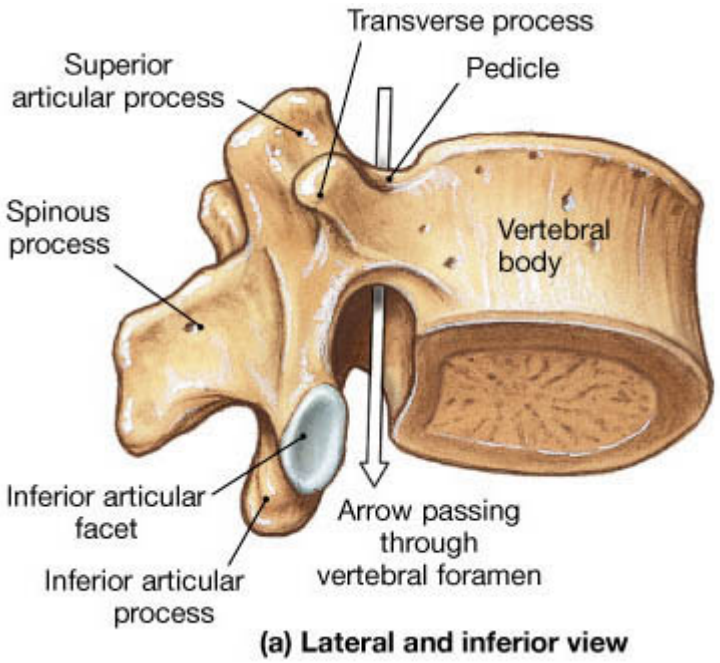

see Articular process.

Segmental degeneration in the human lumbar spine affects both the intervertebral discs and facet joints. Facet joint degeneration not only affects the cartilage surface, but also alters the cellular properties of the cartilage tissue and the structure of the subchondral bone. The primary focus of the study of Goehre et al. is the investigation of these microstructural changes that are caused by facet joint degeneration. Microstructural analyses of degenerated facet joint samples, obtained from patients following operative lumbar interbody fusion, have not previously been extensively investigated. This study analyzes human facet joint samples from the inferior articular process using scanning electron microscopy, micro-computed tomography, and energy dispersive X-ray spectroscopy to evaluate parameters of interest in facet joint degeneration such as elemental composition, cartilage layer thickness and cell density, calcification zone thickness, subchondral bone portion, and trabecular bone porosity. These microstructural analyses demonstrate fragmentation, cracking, and destruction of the cartilage layer, a thickened calcification zone, localized calcification areas, and cell cluster formation as pathological manifestations of facet joint degeneration. The detailed description of these microstructural changes is critical for a comprehensive understanding of the pathology of facet joint degeneration, as well as the subsequent development and efficacy analysis of regenerative treatment strategies [1].

1)
Goehre F, Ludtka C, Hamperl M, Friedmann A, Straube A, Mendel T, Heilmann A, Meisel HJ, Schwan S. Micro-computed tomography, scanning electron microscopy and energy X-ray spectroscopy studies of facet joint degeneration: A comparison to clinical imaging. Micron. 2017 May 1;100:50-59. doi: 10.1016/j.micron.2017.04.011. [Epub ahead of print] PubMed PMID: 28500930.