Surg Radiol Anat. 2011 Dec;33(10):891-6. doi: 10.1007/s00276-011-0876-9. Epub 2011 Oct 2.

Hyaluronan within fascia in the etiology of myofascial pain

Carla Stecco [1], R Stern, A Porzionato, V Macchi, S Masiero, A Stecco, R De Caro

Affiliations

PMID: 21964857 DOI: 10.1007/s00276-011-0876-9

Abstract

The layers of loose connective tissue within deep fasciae were studied with particular emphasis on the histochemical distribution of hyaluronan (HA). Samples of deep fascia together with the underlying muscles were taken from neck, abdomen and thigh from three fresh non-embalmed cadavers. Samples were stained with hematoxylin-eosin, Azan-Mallory, Alcian blue and a biotinylated HA-binding protein specific for HA. An ultrasound study was also performed on 22 voluntary subjects to analyze the thickness of these deep fasciae and their sublayers. The deep fascia presented a layer of HA between fascia and the muscle and within the loose connective tissue that divided different fibrous sublayers of the deep fascia. A layer of fibroblast-like cells that stained prominently with Alcian blue stain was observed. It was postulated that these are cells specialized for the biosynthesis of the HA-rich matrix. These cells we have termed "fasciacytes", and may represent a new class of cells not previously recognized. The ultrasound study highlighted a mean thickness of 1.88 mm of the fascia lata, 1.68 mm of the rectus sheath, and 1.73 mm of the sternocleidomastoid fascia. The HA within the deep fascia facilitates the free sliding of two adjacent fibrous fascial layers, thus promoting the normal function associated with the deep fascia. If the HA assumes a more packed conformation, or more generally, if the loose connective tissue inside the fascia alters its density, the behavior of the entire deep fascia and the underlying muscle would be compromised. This, we predict, may be the basis of the common phenomenon known as "myofascial pain."

Related information

Cited in Books
MedGen
PubChem Compound
PubChem Compound (MeSH Keyword)
PubChem Substance

LinkOut - more resources

Full Text Sources
Springer