Reviewer’s report

Title: Observations on morphologic changes in the aging and degenerating human disc: Secondary collagen alterations

Authors:

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Reviewer: Dr Barry Berkovitz

Level of interest: not specified

Advice on publication: Other (see below)

The paper by Gruber and Hanley describes qualitative changes in the collagen of the aged and diseased intervertebral disc. The authors have looked at an impressive amount of material and the results would be worth publishing. The illustrations are clear. However, I offer the following comments to the authors for their consideration.

1. Page 3. Line 5. To read "the slight elongation of collagen..

2. Although they give an indication of the age of the material in the abstract, this needs to be placed in the Material and Methods Section of the main paper and detailed.

3. The sites of the discs that were studied is not indicated. If the material was taken from different levels would this matter? Also, it is mentioned that material was taken from both the outer and inner zones, although this is never referred to again in the text.

4. The paper would obviously be strengthened by any quantitative data that the authors could provide. For example, do they feel it possible to give an idea of the periodicity of crimping and compare it with any previous data for this in the literature? Is there any indication that this dimension changes with age or disease? Would the authors care to comment about whether the collagen fibril diameters in the diseased collagen are roughly the same as normal (as occasional accounts have suggested in some situations diseased collagen fibrils may have different diameters)?

5. The observations of layers of extracellular matrix encircling disc cells are interesting. With electron microscopy, was there any evidence that these cells were becoming cartilaginous-like, being surrounded by microfilamentous material possibly containing type II collagen. This change has been observed with age in other dense connective tissues (eg. Archives of Oral Biology, 2000, 45: 987-995). Indeed are there any differences with age compared with disease, or are they very similar?

6. Page 7, line 3. form=from
Page 7, line 16. With=which
Competing interests:

None declared.