Reviewer's report

Title: The relevance of long head biceps degeneration in the presence of rotator cuff tears

Version: 1 Date: 6 May 2010

Reviewer: Alexander Scott

Reviewer's report:

1. Is the question posed by the authors well defined?
   The question is well defined. The only essential revision here relates to the use of the word "monitoring" (see below), but this is probably an English issue.

2. Are the methods appropriate and well described?
   Yes, although more description of control stainings used to validate VEGF IHC is needed.

3. Are the data sound?
   They appear to be sound, but the micrographs are difficult to interpret (see below).

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Yes.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   Yes.

6. Are limitations of the work clearly stated?
   Yes.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
   Yes.

8. Do the title and abstract accurately convey what has been found?
   Yes

9. Is the writing acceptable?
   Some essential revisions to English are needed.
LHB tenotomy is an approved surgical procedure for pain reduction and improvement of joint function. The pathophysiological context is not really understood yet.

Suggest: “LHB tenotomy is an approved surgical procedure for pain reduction and improvement of joint function, however, the pathophysiology of LHB degeneration is not fully understood.”

In the literature, neoangiogenesis in tendon tissue is known as an indication for tendon degeneration.

Suggest: Neoangiogenesis in tendon tissue has previously been shown to be associated with tendon degeneration.

Vascular Endothelial Growth Factor (VEGF) is an important inducer of neoangiogenesis.

Change inducer to inducer.

The hypotheses are first that an elevated VEGF expression and vessel density can be found…

Suggest change elevated to elevated.

For immunohistological determination of VEGF expression, sample slices were strained with VEGF antibody dilution.

Suggest “VEGF expression was determined using immunohistochemistry.”

Vessel density and vessel size were determined after Masson-Goldner straining of the sample slices.

Suggest “Vessel density and vessel size were determined on Masson-Goldner stained tissue sections.”

Furthermore, there was significantly higher VEGF expression in articular-sided than in bursal-sided partial thickness rotator cuff tears (p<0.05).”

Should read “Furthermore, there was significantly higher VEGF expression in
LHB samples from patients with articular-sided compared to bursal-sided partial thickness rotator cuff tears (p<0.05)."

Page 2 line 27

“Accelerated VEGF expression can be detected in degenerated LHB tissue.”

Should read “Elevated VEGF expression…”

Page 2 line 28

“The quantity of VEGF expression and vessels monitor LHB degeneration.”

Should read “The quantity of VEGF expression and vessels are related to the extent of LHB degeneration.”

Page 2 line 30

“Further research is needed for complete comprehension.”

Delete

Page 3, line 8

“The proximal part of the tendon is located intraarticular with exposure to pathologies isolated to the biceps tendon, to changes of the glenohumeral joint or the surrounding musculature[11]

Unclear – please clarify/reword

Page 3, bottom paragraph

“…and whether the quantity of VEGF expression can be used as a monitoring tool of tendon degeneration”

Suggest deleting – VEGF expression cannot really be used to monitor tendon degeneration – monitor implies repeated measurements over time.

Page 5, Histology paragraph

In describing the magnification, it appears that the values given refer to the objective lens used – this should be stated (i.e. the total magnification including ocular lens would be much higher than 5 or 40 fold reported here)

Page 5, statistics

Which tests were used to examine potential correlations?

Page 6, paragraph 1

“VEGF expression was positive in 15.87 ±1.61 % of all specimens”. This implies that some specimens were positive, some were negative. I think what is meant is “Mean VEGF expression was 15.87 ±1.61 % in controlspecimens”
Page 7, paragraph 1

“Or first hypothesis was that VEGF can be used as a monitoring tool for tendon degeneration in degenerated LHB.”

Suggest delete this sentence – again, related to the use of the word monitoring.

“pathosis” – should be “pathology”

Page 7/8

“However, following this model, our findings that the highest density of vessels and the highest mean vessel size were seen in the LHB of patients with cuff arthropathy whereas high amounts of VEGF could be observed in both patients with partial thickness rotator cuff tears and patients with full thickness rotator cuff tears indicating that LHB mechanical load is intensified in the presence of rotator cuff tears.”

This sentence needs reworking, perhaps shortening into 2 or 3 smaller sentences.

Page 8

“In a study performed on Achilles tendon biopsies, Alfredson et al. found accompanying nerves around the neovessels as well as higher concentrations of glutamate, known as an important pain mediator in the central nervous system and in the area of neovascularisation but not in healthy tendons[29]. The authors assume that these findings could indicate that the area with neovascularisation is of importance for pain in this case.”

This discussion is a bit misleading, as subsequent data from the group has shown persistent high glutamate levels even in tendons which were no longer painful – the group has thus rejected their early hypotheses about the role of glutamate in pain production. They now focus on the nociceptive nerve fibres which accompany the neovessels, which include SP + fibres. The final sentence is a bit strong, perhaps change the word “assume” to “hypothesise.”

Conclusion

“Our data shows that LHB degeneration can be monitored by the quantity of VEGF expression and vessel density.”

Suggest change to “Our data shows that LHB degeneration is associated with an elevation of VEGF expression and increased vessel density”

Figure legends

The magnification given here refers to the objective used, and legend should be adjusted accordingly.

Figures
Asterisks should be used to indicate significant differences in the graphs.

In general, the micrographs are unfortunately very low quality, particularly 3a.

Figure 3a purports to show normal tendon with low vessel density and no VEGF expression, but this section is actually highly vascular. What is the stain used here? It does not appear to be just the counterstain (haemalaun) but something darker as well – please clarify and provide a higher resolution image.

Figures b-d are meant to demonstrate VEGF (presumably brown DAB staining, according to the methods), but it’s not clear in the image – only a little bit of brown is visible in b, and nothing in c and d. Could arrowheads be added to indicate the purported staining? It appears the authors may be referring to the red staining as DAB, which seems odd – perhaps the colour detectors on the digital camera need to be adjusted, as there appears to be an excessive blue background as well. Also, the nuclear counterstain (haemalaun, should stain nuclei pale blue/violet) seems to have stained the matrix rather than the cells, or perhaps this is just a background lighting issue. Could an image be provided of negative control for comparison – i.e. no VEGF antibody, just counterstain. That would help the reader interpret the images.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

declare that I have no competing interests’