Correspondence

We welcome letters to the Editor concerning articles which have recently been published. Such letters will be subject to the usual stages of selection and editing; where appropriate the authors of the original article will be offered the opportunity to reply.

Letters should normally be under 300 words in length, double-spaced throughout, signed by all authors and fully referenced. The edited version will be returned for approval before publication.

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***In vivo* measurement of tissue metabolism in tendons of the rotator cuff**

Sir,

I read with interest the article by Matthews et al¹ in the May 2007 issue entitled “*In vivo* measurement of tissue metabolism in tendons of the rotator cuff: implications for surgical management”. The problem of high failure rates in repair of the rotator cuff is an important one. The authors have demonstrated reduced cellular activity in torn tendons and propose that this contributes to the high failure rate in repair, particularly of large tears. However, the results do not clearly demonstrate that cellular activity predicts the healing potential of the tendons.

While tendon degeneration before the tear occurred may be a factor in the reduced cellular activity, the effect of duration of the tear does not seem to have been considered. I note that the minimum duration of pre-operative symptoms was two months, with most cases having symptoms for more than 12 months. There is a trend in the results which suggests less cellular activity with a longer duration of symptoms and hence, presumably, time since the tear occurred. Once torn there will be a reduction in mechanical stress on the tendon which might affect cellular activity.

When tendons rupture at sites other than the shoulder, e.g. avulsion of flexor digitorum profundus from its insertion, there is rapid shortening of both the muscle and the tendon over a matter of weeks. The tendon also appears degenerate at operation if there has been delay in repair. Almost all tendon ruptures which benefit from surgery are routinely repaired as an urgent procedure. Delay is known to compromise results. Have any studies looked at cellular activity in other torn tendons?

I would suggest that the main reason for high failure rates in rotator cuff repair is delay. While not all tears occur acutely, early diagnosis and surgery, at least for acute tears, may offer the best strategy for improving results.

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1. Matthews TJW, Smith SR, Peach CA, et al. *In vivo* measurement of tissue metabolism in tendons of the rotator cuff: implications for surgical management. *J Bone Joint Surg [Br]* 2007;89-B:633-8.

Author's reply:

Sir,

We thank Mr Hems for his interest in our paper. Our aim was to determine *in vivo* cellular activity within torn degenerative supraspinatus tendon tears of different size at the time of surgery.

We agree that we have not proven that cellular activity predicts the healing potential of the tendons. This question could only be addressed by further studies which correlated the cellular activity found at surgery with an assessment of repair integrity using post-operative imaging. In a degenerative tear of the supraspinatus tendon, we do not know its duration. We did enquire about duration of symptoms and found there to be no significant difference between the pre-operative duration of symptoms for each tear size. The age at time of surgery was also not significantly different for the different tear sizes. It may be true that a factor in the likelihood of failure of surgical repair is delay between tear and repair. We agree that acute tears of the rotator cuff in the younger patient or in the example given by Mr Hems should be repaired urgently, but the presentation and natural history of degenerative tears is different from an acute traumatic tear. We have shown that rotator cuff tears have a genetic component in their aetiology.¹ We have also shown, from histopathological analysis, that the greatest degree of degeneration is seen in the larger tears with small-sized tears exhibiting an inflammatory and reparative cellular response.² Indeed, imaging studies show a substantial population of asymptomatic individuals with full thickness tears.^{3,4} We know of no other studies investigating tissue metabolism in other tendons using this method.

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1. Harvie P, Ostlere SJ, Teh J, et al. Genetic influences in the aetiology of tears of the rotator cuff: sibling risk of a full-thickness tear. *J Bone Joint Surg [Br]* 2004;86-B:696-700.

2. Matthews TJ, Hand GC, Rees JL, Athanasou NA, Carr AJ. Pathology of the torn rotator cuff tendon: reduction in potential for repair as tear size increases. *J Bone Joint Surg [Br]* 2006;88-B:489-95.

3. Sher JS, Uribe JW, Posada A, Murphy BJ, Zlatkin MB. Abnormal findings on magnetic resonance images of asymptomatic shoulders. *J Bone Joint Surg [Am]* 1995;77-A:10-15.

4. Tempelhof S, Rupp S, Seil R. Age-related prevalence of rotator cuff tears in asymptomatic shoulders. *J Shoulder Elbow Surg* 1999;8:296-9.