

Letter to the Editor – **Anterolateral Ligament: Let’s stick to the facts!**

From the SANTI (**Scientific ACL NeTwork International**) Study Group

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Dear Editor,

We read the Editorial Commentary: “The Anterolateral Ligament: The Emperor’s New Clothes?” by Andy Williams with great interest.¹ After all, it was Mr Williams who recently reported that in knees with a combined ACL and anterolateral injury (an injury pattern reported to occur in the majority of acutely ACL-injured knees) that ACL reconstruction cannot restore normal knee kinematics unless concomitant modified Lemaire or ALL reconstruction are also performed: “... The combined ACL and ALL procedure restored intact knee kinematics when tensioned in full extension.”² This study was conducted in the Department of Orthopaedic Biomechanics at Imperial College - a renowned laboratory, that we congratulate for this important cadaveric research and also on the recent award of one million dollars in funding from industry, which will allow them to continue their excellent work.

Given the scientific kudos of the laboratory, we were surprised to discover that Mr Williams’s opinion, as expressed in the editorial, is in complete contradiction to the findings of his own publication and a very large number of other anatomical, histological and biomechanical studies. In contrast to this, Mr Williams expresses his considerable scepticism regarding both the existence of the ALL or the value of its reconstruction, instead emphasizing his personal preference for the “modified Lemaire procedure”.^{2,3} We consider both procedures to have an important role, and do not feel that there is any need to aggressively promote one over the other. When an extra-articular tenodesis is indicated, it is our primary choice to perform ALL reconstruction and reserve the Lemaire procedure for situations when ipsilateral gracilis autograft is no longer available e.g. revision. However, we greatly respect Mr Williams’s honesty in accepting that the “rush from anatomy to surgical techniques without the appropriate testing in between has been an embarrassing period for us” and also his declaration of concern regarding the lack of clinical results.¹ Although he cited his work reporting “significant improvement in reducing abnormal pivot shift on clinical examination from 9% to 2%”, it should be highlighted that no comparative statistical analyses were even performed in his study and that the minimum follow-up period was less than one month (0,8-29 months). Sufficient data is reported for the reader to perform their own Fishers exact test

which reveals a non-significant p value =0.19.⁴ “The devil is always in the detail” as said by Mr Williams.¹

In contrast to the statements made in the editorial commentary, clinical results of ALL reconstruction have been published since 2015. In fact, a comparative clinical series of 502 patients with a mean follow up of 38 months (range 24-54 months), received the Richard O’Connor award from **AANA** in Denver last year.⁵ To our knowledge this is the largest comparative study of any type of lateral extra-articular procedure ever published. In this study it was demonstrated that combined ACL and ALL reconstruction is associated with a statistically significant 2.5 to 3-fold reduction in graft rupture rates in a high-risk population, when compared to isolated hamstring tendon or BTB autograft. Furthermore, in a forthcoming AJSM study we also demonstrate for the first time, in a series of over 383 medial meniscal repairs performed at the time of ACL reconstruction, that the re-operation rate for failed repair is more than two times lower in those who undergo ALL reconstruction at a mean follow up of 37 months. This statistically significant finding is attributed to improved knee kinematics conferring a protective effect on the repair.⁶

Although we agree with Mr Williams that “due diligence” is required, we disagree that it should be laboratory based. The literature contains an abundance of biomechanical studies demonstrating the importance of the ALL and we are now beyond that stage. We must not lose track of our main focus, which is the clinical outcomes in our patients.⁷ Lateral extra-articular tenodeses were not abandoned thirty years ago because of the results of cadaveric series.⁸ They were abandoned due to a lack of proven efficacy in clinical studies, and complications that cannot be assessed in the laboratory such as infection, post-operative stiffness, and donor site morbidity.⁹⁻¹¹ To our knowledge, since this widespread abandonment, and subsequent resurgence in popularity, there has only been one study that has specifically evaluated re-operation rates and complications after any type of lateral extra-articular tenodesis. In this study of 548 consecutive combined ACL and ALL reconstructions we demonstrated that the re-operation rate was broadly comparable to that published for isolated ACL reconstructions and that there was no evidence of the concerns that led to the abandonment of ITB based procedures.¹² It is surprising to see that Mr Williams, despite these large series reporting significantly improved clinical outcomes of combined ACL and ALL reconstructions, promotes the Lemaire, against an ALL reconstruction on the basis of biomechanical studies. For us, the strength of evidence of a laboratory study of a small number amputation specimens, often without intact proximal and distal attachments, with artificially created injury patterns, and loading that does not replicate what happens in vivo, is quite limited when compared to actual clinical outcomes in a large series of patients. Of course, we recognise that collecting clinical outcomes is a very hard work but it is these large studies that provide the most important data that allow us to understand the true value of a procedure. We therefore urge Mr Williams to move away from these cadaveric studies and focus on clinical results.

As a final note we must state that we were surprised by the use of emotive language in the editorial commentary that is quite uncharacteristic of scientific publication.¹ We have nothing against the modified Lemaire and in fact would encourage its proponents to share their clinical results so its role can be more clearly defined. However, the tone of the editorial reminded us of the following quote from the German philosopher, Arthur Schopenhauer, who

stated that “All truth passes through three stages. First it is ridiculed. Second, it is violently opposed. Third it is accepted as being self-evident”. This was certainly the case with MPFL reconstruction. The first clinical series was published in 1992, but it took more than 15 years to be accepted by the orthopaedic community, despite the major benefit for our patients compared to more invasive surgeries.¹³

Although the commentary may give the reader the impression that we are passing through Schopenhauer’s second stage, the wealth of historical,¹⁴ anatomical,¹⁵⁻²⁵ biomechanical²⁶⁻³⁶ and clinical evidence^{5,6,12,37-40} cited in our response, in contrast to a personal opinion of a single individual, demonstrates the transition to the third stage. One has to wonder what really influences the opinion of those who chose to ignore the fact that recent studies from many groups from around the world have shown reliable identification of the ALL at dissection, on MRI and ultrasound,⁴¹⁻⁵³ its true nature as a ligament based on microscopy, histological staining, and biomechanical testing, and those who even choose to ignore the very existence of the studies demonstrating the significant benefits that ALL reconstruction has been demonstrated to bring for our patients. However, we welcome their opinion and open discussion but believe that the clinical results speak for themselves.

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