

## Editorial Commentary: Renaissance of Primary Anterior Cruciate Ligament Repair: Is History Repeating Itself?



**Abstract:** In a comparative Level III study, Achtnich et al. compared suture anchor repair of acute proximal anterior cruciate ligament avulsion tears with single-bundle anterior cruciate ligament reconstruction with the quadrupled semitendinosus tendon. Short-term follow-up at a mean of 28 months showed that the between-group differences were not different. These results are encouraging but not different from other published series 25+ years ago. Only time will tell whether the long-term outcomes are identical and whether these techniques will also die a slow death. Hopefully history is not repeating itself.

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The ultimate goal of any intervention in medicine is to restore to the previous condition. “Restitutio ad integrum” rather than “reparatio” is what we all strive for when performing surgery. History has taught us that patients who undergo primary repair of the anterior cruciate ligament (ACL) do well initially but deteriorate significantly over time.<sup>1-3</sup> Persistent pain, swelling and instability, the inability to return to athletic activities, impairment with activities of daily living, and unacceptably high failure rates ultimately resulted in the orthopaedic community moving towards ACL reconstruction.<sup>1,4,5</sup> In contrast to ACL repair, reconstruction of the ACL has resulted in low revision rates and good and excellent clinical outcomes.<sup>6-9</sup>

So what has changed in the last 25 years? Maybe we did not appreciate that there were only certain tear patterns that were suitable for repair? Sherman et al.<sup>10</sup> noted in 1991 that the more proximal tears had a trend toward better outcomes. DiFelice et al.<sup>11</sup> revisited this topic last year and suggested that advances in imaging, surgical techniques, and hardware may allow us to select a specific patient cohort who will benefit from repair. In a small case series of 11 patients with proximal avulsion tears, the ACL was reattached to bone using suture anchors. The mean follow-up was 41 months. The mean International Knee Documentation Committee score was 86, the mean Lysholm score was 93, and the mean

Cincinnati score was 91. These results are certainly encouraging.

In the study “Acute Proximal Anterior Cruciate Ligament Tears: Outcomes After Arthroscopic Suture Anchor Repair Versus Anatomic Single-Bundle Reconstruction,” in this month’s issue of *Arthroscopy*, the groups of Andreas Imhoff and Wolf Petersen have now compared the suture anchor repair of acute proximal ACL avulsion tears with single-bundle ACL reconstruction with the quadrupled semitendinosus tendon in a group of 40 patients.<sup>12</sup> At a mean follow-up of 28 months, the between-group differences were nonsignificant. Seventeen patients in the repair group had good and excellent outcomes compared with 20 patients in the ACL reconstruction group. Again these results are encouraging. Of concern are the high failure rates in the repair group; 15% of patients were considered failures compared with no failures in the anterior cruciate ligament reconstruction (ACLR) group. The Danish and Norwegian ACL registries report cumulative revision rates at around 4% after ACLR as opposed to ACL repair.<sup>8,9</sup> In comparison to the registry data, the failure rates in this study thus seem excessive and unacceptable. However, registries do not reflect clinical failures and may underestimate the true incidence. In a systematic review of Level I studies, Reinhardt et al.<sup>13</sup> demonstrated that hamstring ACLR had a cumulative failure rate of 15.8%. Now the failure rate of 15% in the ACL repair group appears acceptable and comparable to a standard procedure ACL reconstruction. I will leave it to the reader to reach his/her own conclusions.

Coming back to the question: so what has changed in the last 25 years? Open surgery was replaced by arthroscopic assisted surgery and drill holes were

replaced by modern suture anchors. And what has remained the same? The short-term and early outcomes are very similar. Only time will tell whether the intermediate and long-term outcomes are different. I hope the authors will report back to us on 5-year follow-up of all patients included in this comparative study. And hopefully history is not repeating itself.

Erik Hohmann, M.D., Ph.D., F.R.C.S.  
Associate Editor

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