Arthroscopic Hip Labral Reconstruction with Gracilis Autograft versus Labral Refixation: 2 year minimum outcomes

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BACKGROUND

There exists high interest but very little evidence to support labral reconstruction of the hip. Labral reconstruction is typically one of multiple steps in the surgical treatment of femoroacetabular impingement. Only one open (ligamentum teres) and one arthroscopic (iliotibial band) study have been published with both methods requiring post-harvest manipulation of their respective grafts. Both studies were retrospective case series without control groups suggesting encouraging short-term outcomes however any contributory effect from the labral reconstruction was not defined. The gracilis tendon provides an alternate graft source requiring no post-harvest manipulation.
The purpose of this study is to determine the comparative clinical effect of arthroscopic hip labral reconstruction using gracilis autograft as an alternative graft source and to determine (via comparison with labral refixation) the contributory effect of this procedure. We hypothesize that patients undergoing arthroscopic hip labral reconstruction with gracilis autograft will have improvement in symptoms and function.
Arthroscopic Hip Labral Reconstruction with Gracilis Autograft
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METHODS

We performed a comparative retrospective review of prospectively collected data on our initial patients undergoing labral reconstruction with gracilis autograft (RECON group) and those undergoing labral refixation (REFIX group). Inclusion criteria were adult patients undergoing arthroscopic surgery for symptomatic cam-pincer femoroacetabular impingement without advanced radiographic osteoarthritis that had both acetabular and femoral osteoplasties with minimum 2 year follow-up. Linear regression on both cohorts was done without explicit matching and one-to-one matched comparisons were made between those groups. Subjective patient satisfaction and pre-operative and 2+ year post-operative nonarthritic hip scores (NAHS) were obtained. Statistical modeling was performed to quantify any contribution of labal reconstruction to these patients undergoing the aforementioned multi-step surgeries. Electronic medical record review was performed to determine complications, revision surgeries and hip arthroplasty conversions following labral reconstruction.
RESULTS

- The RECON group of 8 consecutive patients (mean age 34.6 years, range 18-58) with average 30 month follow-up (range 24-37) and 100% participation reported a high level of patient satisfaction (7 high, 1 moderate). On average, the NAHS improved by 50.5 points ($p = 0.008$) in the RECON group and 22.5 points ($p < 0.0001$) in the REFIX group however the pre-operative NAHS was lower ($P<0.05$) in the RECON group. Linear regression showed only surgery group (RECON versus REFIX) and pre-operative NAHS were significantly associated with follow-up NAHS. The isolated effect of the labral reconstruction was a +17.7 point change in NAHS. One-to-one matching revealed no statistically significant differences between the RECON and REFIX groups on the variables we compared, i.e., age, BMI, initial NAHS and post-operative NAHS. There were no major complications, revision surgeries, or conversion arthroplasties following labral reconstruction.
DISCUSSION

- This study reports minimum 2 year outcomes and a control group, both vital to the assessment of a reconstructive procedure typically employed in multi-step surgeries. Although a labral debridement control group may be the most pure for comparative purposes, for ethical reasons we could not assign patients to such a group based on our current understanding of the importance of labral function. However, the labral refixation control group offers valuable comparative insight into the clinical contribution of labral reconstruction yielding quantification of a significant isolated beneficial effect which, to our knowledge, has not been published. Our findings demonstrate effective outcomes from arthroscopic labral reconstruction using a homogeneous autograft familiar to many surgeons which requires no post-harvest manipulation. Moreover, despite more severe initial labral pathology, outcomes from labral reconstruction may challenge those of labral refixation in otherwise similar patient groups undergoing similar procedures followed for similar time periods. Technical concepts of labral graft tensioning and graft-native labrum overlap for restoration of labral function in patients with nonsalvageable labrae are introduced and may be used with other graft sources. Finally, this study reflects low incidence and select evolving surgical indications so that a valuable yet relatively new arthroscopic procedure will not be over-utilized.
CONCLUSIONS

- Arthroscopic labral reconstruction with gracilis autograft appears to be an effective procedure. Patients undergoing labral reconstruction may have clinical outcomes challenging those of patients undergoing labral refixation despite more severe initial labral insufficiency.
REFERENCES


