Shuttle Technique for Arthroscopic Fascia Lata Allograft Reconstruction of the Acetabular Labrum

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Disclosures

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Introduction

- Labral tears of the hip have evolved rapidly. However, similar to the meniscus of the knee, when the labrum tear is complex or previous debridement has left limited functional tissue and repair is not an option.
- Early results of labral reconstruction have been demonstrated to be a safe and effective technique, with high patient satisfaction rates, less pain, and improved patient outcome scores.
- In this e-poster, the technique and outcomes of the all-arthroscopic reconstruction of the labrum, utilizing allograft fascia lata, are presented.
Study Methods/Indications

- Patients were selected to undergo hip arthroscopy based on:
  - The type and extent of tearing - complex and radial tears considered a relative indication.
  - Degeneration, typically demonstrated by yellowish discoloration and friability of the tissue
  - Extent of bruising
  - Instability
  - Size of the tissue before (hypoplasia) and after debridement to stable tissue.
  - Commonly, reconstruction is performed in the setting of previous hip arthroscopy and labral debridement.
- After a standard hip arthroscopy, patients with irreparable tears were reconstructed using freeze-dried allograft fascia lata, tubularized using 2-0 Vicryl suture.
Carreira Shuttle Technique

• For this allograft technique, an accessory distal portal is created for the shuttling of allograft tissue and for anteromedial anchor placement. The fascia lata is tubularized on a back table using a baseball stitch with 2-0 Vicryl.
  - 1) A percutaneous anchor is placed through the accessory distal portal (ADP) at the anteromedial extent of the labrum reconstruction. This anchor is placed with a striped suture to allow for measuring of the length of the defect once the second anchor has been placed
  - 2) While visualizing from the midanterior portal (MAP), a second anchor is placed through a labral repair cannula at the anterolateral portal (ALP) at the posterolateral extent of the reconstruction. This suture is clamped with a hemostat to provide tension on the suture to prevent suture crossing.
  - 3) The camera is then placed in the ADP portal and a second labral repair cannula is placed at the MAP. One of the sutures from the anteromedial anchor is passed through the MAP and one of the sutures is passed through the ALP.
4) Using a knot pusher, the limb from the anteromedial anchor located in the ALP is used to measure the number of crossing lines between the two anchors. The overall length can then be calculated. For example, if the length between the stripes on the suture is 3mm and the 10 stripes are counted between anchors, the length is 30mm.

5) A free needle is used to pass the suture material through the graft outside of the joint. One limb from each suture anchor passing through the ALP is tied securely to the graft, allowing enough space once passed for suture tying.

6) The limb from the ALP portal is pulled and fully seated into the posterolateral anchor first, followed by the limb exiting the MAP. The limb connected to the anteromedial anchor is not fully seated until suture crossing has been checked and corrected if needed.

7) The ends of the labrum reconstruction are tied using a standard knot-tying technique.

8) Similar to a standard labral repair, the segment in between is tied with suture anchors.
1) Pass anchor suture through each end of graft using free needle.
2) Deliver POSTERIOR end (white sutures) into joint and secure at anchor.
3) Pull striped suture to shuttle ANTERIOR end and anchor into place.
Results

• 54 hips were included in the study.
• The average age was 44.8 years.
• Minimum follow up was 12 months, with a mean of 16.6 months.
• Pre-operative/post-operative comparisons demonstrated statistically significant improvements for Modified Harris Hip Score (mHHS), Hip Outcome Score, IHOT 12, SF-12 Mental, SF-12 Physical and Tegner Activity Scale.
• Based on the mHSS, the overall failure rate was 7.7%.
Results (cont.)

- No correlation was noted with age or BMI ($p>0.05$).
- There was a high rate of chondroplasty (40.7%) and microfracture (27.8%) in this patient population.
- Temporary neuropraxias were noted in 4% of patients.
- One patient had a superficial portal infection which resolved with oral antibiotics.
Carreira Allograft mHHS 17.5 months
Philippon Autograft mHHS 18 months
Carreira Allograft iHOT-12 17.5 months
Multi-procedure Hip Arthroscopy iHOT-33 6 months

% Good/Excellent Outcome

- Carreira Allograft mHHS 17.5 months: 78%
- Philippon Autograft mHHS 18 months: 77%
- Carreira Allograft iHOT-12 17.5 months: 69%
- Multi-procedure Hip Arthroscopy iHOT-33 6 months: 65%
Conclusion

- Patients demonstrated significant improvement with allograft labrum reconstruction.
- The shuttle technique is safe and effective and avoids the need to fixate the free end of the graft from inside the joint.
- Compared to historical controls of hip arthroscopy, this patient population was older and included a high rate of chondroplasty or microfracture; historical controls demonstrated a significantly lower rate of chondroplasty (36.84%) and microfracture (21.05%).
References
