

# Arthroscopic Reconstruction of Segmental Defects of the Hip Labrum: Results in 22 Patients With Mean 2-Year Follow-Up

Sivashankar Chandrasekaran, M.B.B.S., F.R.A.C.S., Nader Darwish, M.D.,  
Mary R. Close, B.S., Parth Lodhia, M.D., F.R.C.S.C., Carlos Suarez-Ahedo, M.D., and  
Benjamin G. Domb, M.D.

**Purpose:** To report mean 2-year patient-reported outcomes (PROs) and the incidence of revision hip arthroscopy or conversion to total hip arthroplasty (THA) in patients who had undergone arthroscopic reconstruction of the hip labrum for segmental defects. **Methods:** Data were prospectively collected and retrospectively reviewed on all patients who had undergone hip arthroscopy from April 2008 to April 2013. All patients who underwent arthroscopic labral reconstruction with either a semitendinosus allograft or a gracilis autograft with mean 2-year follow-up were part of the inclusion criteria. The following outcomes were recorded: modified Harris hip score, nonarthritic athletic hip score, hip outcome score—sports-specific subscale, hip outcome score—activities of daily living subscale, visual analog scale, for pain, patient satisfaction, revision hip arthroscopies, and conversion to THA. A 2-tailed Student's *t*-test was used to assess for statistically significant differences between the mean of preoperative and postoperative PROs. *P* values less than .05 were considered statistically significant. **Results:** A total of 22 patients (14 females, 8 males) met the inclusion criteria. There was 100% follow-up. The mean age of the study population was 32.2 years. Twelve patients had reconstruction as part of a revision procedure and 10 patients had a reconstruction at the time of primary arthroscopy. Concomitant arthroscopic procedures included acetabuloplasty and femoroplasty. There was statistically significant improvement in all PROs ( $P = .013$  to  $< .001$ ). The mean changes for the modified Harris hip score, nonarthritic athletic hip score, hip outcome score—sports-specific subscale, and hip outcome score—activities of daily living subscale were  $11.0 \pm 19.5$ ,  $22.2 \pm 15.0$ ,  $23.1 \pm 30.9$ , and  $19.1 \pm 17.5$  points, respectively. The mean improvement in the visual analog scale was  $3.33 \pm 2.92$  points ( $P < .001$ ), and the mean patient satisfaction was 6.73 out of 10 points. One patient required conversion to THA for presumed progression of osteoarthritis and 2 patients required a revision procedure for adhesions. **Conclusions:** This arthroscopic technique for labral reconstruction was associated with a significant improvement in PROs and function. Conversion to THA with the procedure was 4.5%. **Level of Evidence:** Level IV, therapeutic case series.

**R**estoration of acetabular labral function is important for hip stability<sup>1-3</sup> and biomechanics.<sup>4</sup> This is related to the labrum's pivotal role in maintaining an effective articular synovial seal required for adequate

joint lubrication and cartilage preservation<sup>5</sup> and its role as an adjunct to the iliofemoral ligament in resisting external rotation and anterior femoral head translation.<sup>6</sup> When the labrum is deficient, 43% to 60% less force is required to distract the femur,<sup>7</sup> cartilage degeneration occurs 40% faster,<sup>8</sup> and there is an increase of up to 92% in femoroacetabular stresses from shifting the hip load-bearing surface.<sup>8</sup> Furthermore, removal of 2 cm of the hip labrum significantly potentiates hip instability.<sup>3</sup> Large labral tears can result from circumferential strain of the anterior and posterior labrum both with impingement and instability,<sup>9</sup> and cartilage strain increases by 4% to 6% with resection in cadaveric specimens.<sup>10</sup> Improved understanding of labral function has led to improvements in preservation or reconstruction of the labrum with successful outcomes reported.<sup>11-13</sup>

*From the American Hip Institute (S.C., N.D., M.R.C., P.L., C.S.A., B.G.D.); and Hinsdale Orthopaedics (B.G.D.), Westmont, Illinois, U.S.A.*

*The authors report the following potential conflicts of interest or sources of funding: B.G.D. receives support from Arthrex, Breg, ATI, Pacira, Stryker, Orthomerica, Medacta, DJO Global, and Amplitude. He is a board member for American Hip Institute and AANA Learning Center Committee.*

*Received June 26, 2015; accepted March 13, 2017.*

*Address correspondence to Benjamin G. Domb, M.D., Hinsdale Orthopaedics, American Hip Institute, 1010 Executive Court, Suite 250, Westmont, IL 60559, U.S.A. E-mail: [DrDomb@americanhipinstitute.org](mailto:DrDomb@americanhipinstitute.org)*

*© 2017 by the Arthroscopy Association of North America*

*0749-8063/15580/\$36.00*

*<http://dx.doi.org/10.1016/j.arthro.2017.03.015>*

The technique of labral reconstruction has been developed to restore labral function in the setting of insufficient tissue for repair.<sup>14</sup> There is wide variability in graft tissue, surgical approach, and indication.<sup>14</sup> The most common indication for labral reconstruction is a young patient with minimal arthritis and an irreparable or deficient labrum.<sup>14</sup> Arthroscopic reconstruction with autograft tissue is the most commonly used technique.<sup>14</sup> Overall, the literature shows short-term improvement in patient-reported outcomes (PROs) and functional scores postoperatively.<sup>14</sup> Geyer et al.<sup>15</sup> have the largest series of labral reconstructions in 75 patients. They used an iliotibial band autograft for the reconstruction. They reported improvements in the modified Harris hip score (mHHS) of 24.1 points, in the hip outcome score—activities of daily living subscale (HOS-ADL) of 12 points, and in the hip outcome score—sports-specific subscale (HOS-SSS) of 26 points at a mean follow-up of 49 months. They reported a conversion rate to total hip arthroplasty (THA) of 24%. Boykin et al.<sup>16</sup> also reported their results using the same autograft for reconstruction. Their study population consisted of 21 patients with a mean follow-up of 30 months. They reported lower improvement in the same set of hip scores and a conversion to THA of 9.5%.

The purpose of this study was to report mean 2-year PROs and the incidence of revision hip arthroscopy or conversion to THA in patients who had undergone arthroscopic reconstruction of the hip labrum for segmental defects. The hypothesis is that arthroscopic reconstruction of the hip labrum for segmental defects would lead to improved PROs.

## Methods

### Patient Selection

Institutional review board approval was obtained for the study. This study was a retrospective case series of prospectively collected data on patients who had undergone arthroscopic reconstruction of the hip labrum during the study period from April 2008 to April 2013. The inclusion criteria for the study were patients who had undergone labral reconstruction with irreparable segmental defects of the labrum with exposed acetabular subchondral bone with mean 2-year follow-up. The exclusion criteria were patients who had undergone labral repair or labral debridement. The exclusion criteria for hip arthroscopy were patients with a lateral center edge angle  $<18^\circ$  and Tönnis grade arthritis<sup>17</sup>  $> 2$ . Patients who had greater than 4 cm<sup>2</sup> Outerbridge grade 3 or 4 changes of the acetabulum with segmental defects of the labrum and who did not have a reconstruction were also excluded. These patients were treated with a labral debridement and not reconstruction, because their significant arthritis was thought to

outweigh the morbidity associated with a reconstruction. The following demographic data were recorded: age, sex, laterality, body mass index, and time at the latest follow-up.

### Surgical Technique

**Intraoperative Diagnoses.** All hip arthroscopies were performed under general anesthesia in the supine position using a traction table and well-padded perineal post. Intraoperative diagnoses and procedures performed in the central, peripheral, and peritrochanteric compartments were recorded as clinically indicated. Labral tears were classified according to the Seldes classification.<sup>18</sup> A Seldes type 1 tear was disruption at the labral chondral junction and a Seldes type 2 tear was an intrasubstance tear. The clock-face method was used to document the size and location of the labral tear.<sup>19</sup> This method measures labral tearing using the 12 o'clock position as the most superolateral portion of the acetabulum directly opposite the midpoint of the transverse acetabulum ligament that is at the 6 o'clock position. Disruption at the acetabular labral-chondral junction was described according to the acetabular labral articular disruption grading.<sup>20</sup> Chondral defects of the acetabulum and femur were graded according to the Outerbridge classification.<sup>21</sup> The ligamentum teres was classified as either intact or torn. A torn ligamentum teres had partial or complete disruption of fibers.

**Intraoperative Procedures.** As a general treatment algorithm, pincer impingement was treated with acetabuloplasty and cam impingement was treated with femoroplasty. The indication for labral reconstruction was segmental defects of the labrum with an exposed acetabular rim. The segmental defects were a consequence of large Seldes combined 1 and 2 tears with insufficient tissue for passage of suture material for a repair, after debridement with acetabular rim exposed or an ossified labral that had a residual defect after debridement. Patients who had greater than 4 cm<sup>2</sup> Outerbridge grade 3 or 4 changes of the acetabulum with segmental defects of the labrum were treated with a labral debridement and not reconstruction, because their significant arthritis was thought to outweigh the morbidity associated with a reconstruction. Labral defects were reconstructed with an autograft or allograft. These reconstructions were grouped into a single study population because a recent review by Ayeni et al.<sup>14</sup> has shown that graft type does not have an influence on outcome. The primary surgeon (B.G.D.) initially used an autograft for reconstructions and later changed to an allograft to minimize donor site morbidity unless the patient specifically requested otherwise. The technique for reconstruction has been

Download English Version:

<https://daneshyari.com/en/article/5706448>

Download Persian Version:

<https://daneshyari.com/article/5706448>

[Daneshyari.com](https://daneshyari.com)