



Saucerization Versus Complete Resection of a Symptomatic Discoid Lateral Meniscus at Short- and Long-term Follow-up: A Systematic Review

Dallas M. Smuin, B.S., Richard D. Swenson, M.D., and Aman Dhawan, M.D.

Purpose: To evaluate the surgical outcomes of symptomatic discoid menisci after total meniscectomy, saucerization, and suture repair of tears of a discoid meniscus at short- and long-term follow-up. **Methods:** A systematic review was conducted using the Pubmed and ScienceDirect databases in adherence with Preferred Reporting Items of Systematic Reviews and Meta-Analysis guidelines. Short- and long-term follow-up were defined as an average follow-up of <4 years and >4 years, respectively. Pooled quantitative synthesis was performed on studies that reported results of total meniscectomy and saucerization in the same study. A systematic review was performed on studies that reported data on saucerization, total meniscectomy, and/or repair. **Results:** A total of 19 studies for the short term and 22 for the long term were identified that met inclusion criteria for qualitative review. Of these, 4 short-term and 5 long-term studies were included in the quantitative synthesis. No significant differences in Ikeuchi scores are seen in the short-term studies between saucerization and total meniscectomy; however, the long-term studies did find a statistical difference favoring saucerization ($P < .001$). The differences noted between the preoperative and postoperative Lysholm scores in the short term were 24.1 (95% conflict of interest: 10.25-37.95) in 3 studies and 22.38 (95% conflict of interest: 17.68-27.07) in the 4 long-term studies for saucerization. Suture repair with saucerization versus saucerization without suture repair revealed a statistical difference in only 1 of 5 studies. **Conclusions:** Long-term data demonstrate significantly improved patient reported outcomes in favor of saucerization over total meniscectomy. Suture repair of tears of a lateral discoid meniscus does not demonstrate improved outcomes over partial meniscectomy without repair. Considering the cost of repair and lack of demonstrated improvement, based on the limited available data, we do not recommend repair of the abnormal anatomy in a torn lateral discoid meniscus. **Level of Evidence:** Level IV, systematic review.

Discoid menisci can be a source of knee pain and functional limitations in children and adolescents.¹ Although this pain is often associated with a meniscal tear, intact discoid menisci may also cause painful symptoms requiring treatment.

Surgical treatment options for a symptomatic discoid meniscus include saucerization (partial meniscectomy), complete meniscectomy, meniscal repair, meniscal transplant, and regenerative techniques.^{2,3} Although saucerization maintains the theoretical benefits of improved meniscal function with preservation of a meniscal remnant, Kim et al.⁴ reported that

complete removal of the meniscus has resulted in satisfactory outcomes. Habata et al.⁵ also found that patients who underwent complete resection had milder postoperative arthritic changes when treated before the age of 40; though, they did acknowledge that younger patients may not benefit from these same results. Likewise, Lee et al. and Stilli et al. demonstrated that younger patients achieved equivalent outcomes after either saucerization or total meniscectomy. They also suggested that meniscal regeneration might occur after meniscectomy.^{6,7} Because of the conflicting literature, there remains controversy on the

From Penn State College of Medicine (D.M.S.); Department of Orthopaedics and Rehabilitation, Penn State College of Medicine (R.D.S.); and Department of Orthopaedics and Rehabilitation, Penn State College of Medicine, Penn State Hershey Bone and Joint Institute (A.D.), Hershey, Pennsylvania, U.S.A.

The authors report the following potential conflicts of interest or sources of funding: R.D.S. receives support from Penn State Hershey Medical Center. A.D. receives support from Smith & Nephew, BioMet, Penn State Hershey Medical Center, Orthopaedic Research and Education Foundation, and National Institutes of Health. He is a board member of Arthroscopy.

Received November 8, 2016; accepted March 31, 2017.

Address correspondence to Aman Dhawan, M.D., Department of Orthopaedics and Rehabilitation, Penn State College of Medicine, Penn State Hershey Bone and Joint Institute, 30 Hope Drive, Building B, Suite 2400, Hershey, PA 17033-0850, U.S.A. E-mail: sportsandshoulderdoc@gmail.com

© 2017 by the Arthroscopy Association of North America
0749-8063/161097/\$36.00

<http://dx.doi.org/10.1016/j.arthro.2017.03.028>

optimal surgical treatment in symptomatic tears of the discoid meniscus.

The purpose of this systematic review was to evaluate the surgical outcomes of symptomatic discoid menisci after total meniscectomy, saucerization, and suture repair of tears of a discoid meniscus at short- and long-term follow-up. In addition, we sought to evaluate saucerization with and without repair of meniscal tears. We hypothesized that discoid menisci treated with saucerization would have better clinical outcomes when compared with total meniscectomy in both the short and long term. We also hypothesized that saucerization with suture repair of symptomatic tears would likewise improve outcomes when compared with saucerization alone.

Methods

Search Methodology

A written protocol was developed in adherence to the Preferred Reporting Items of Systematic Reviews and Meta-Analysis guidelines to conduct a systematic review of the available literature.^{8,9} The MEDLINE database via PubMed and the Elsevier database through ScienceDirect were searched on July 28, 2016, for relevant articles pertaining to discoid menisci. Articles that were written in the English language or translated to English were included in the analysis. Search terms included "Discoid Meniscus" or "Discoid Menisci." Secondary search terms included "Suture" or "Wrisberg" or "Humphry" or "Meniscectomy" or "Saucerization" or "Partial Meniscectomy" or "Transplant." Inclusion criteria included (1) English language studies written or translated, (2) specifically reported outcomes of partial, subtotal, or total meniscectomy of a symptomatic lateral discoid meniscus, or (3) reported radiographic outcomes. Exclusion criteria included (1) abstract only, (2) reviews, (3) any concomitant non-meniscal procedures, (4) discoid medial meniscus, (5) studies that did not stratify data, (6) studies that did not include surgical treatment of discoid meniscus, and (7) and non-English studies. The references of articles that met inclusion and/or exclusion criteria were also reviewed to ensure that any additional relevant studies were not missed.

Duplicates were removed from the results in the search. The senior author (A.D.) reviewed the title and abstract of all the studies from the initial search for inclusion and relevance to our study question. Each study was then assessed using our inclusion and exclusion criteria for appropriateness in the current study. Pooled quantitative synthesis was performed on studies included in the qualitative synthesis that specifically reported results of total meniscectomy compared with saucerization in the same study to evaluate the treatment effect. A diagram of our search

methodology can be found in [Figure 1](#). An Excel database (Microsoft) was created to systematically extract and analyze the data from each study.

Data Extraction and Statistics

Patient reported outcome scores evaluated and recorded for this study were the Lysholm and Ikeuchi scores. Information that was common amongst the included studies was identified and extracted from each study, including Lysholm scores, Ikeuchi grade, International Knee Documentation Committee (IKDC) scores, Pediatric Orthopaedic Society of North America (POSNA) scores, Watanabe classification, number of patients, length of follow-up, sex distribution, and average patient age.¹⁰ Radiographic data were ultimately excluded from the analysis because of variability in data reporting and relevance to the current study. Studies were divided according to average length of follow-up: short-term follow-up (<4 years) and long-term follow-up (≥ 4 years).

Weighted mean differences for preoperative versus postoperative Lysholm scores were calculated using the DerSimonian and Laird random-effects model.¹¹ These results are presented under their respective qualitative section so as to further the discussion of the results presented. A quantitative analysis of non-randomized studies is not ideal and is prone to confounding variables and biases. The analysis performed herein is presented to allow for review of the current quantitative evidence available in the literature concerning the increase in the Lysholm score after surgical intervention. An advantage of using the DerSimonian and Laird random-effects model is the ability to evaluate heterogeneity in a quantitative synthesis.¹¹ Sources of heterogeneity were analyzed and are reported in the [Results](#) section under their corresponding sections as I^2 .¹² Where variance was not directly reported, the confidence interval was used to approximate the variance using the Fisher method.¹³ When variance was not reported, a weighted average was calculated using a proportional correction factor of the study population over the total population in the subgroup (n/N). To assess the quality of the included studies, and in an effort to appraise the risk for bias, all included manuscripts were screened and scored using the Newcastle-Ottawa Quality Assessment Scale (NOQAS) by 2 independent reviews and then averaged.

In addition to Lysholm scores, Ikeuchi scores were evaluated and reported as outcome measures and were evaluated. Quantitative syntheses were performed using 95% confidence intervals (95 CI) and are reported when available. Changes from preoperative to postoperative Lysholm and Ikeuchi scores are reported with *P* values (*P* < .05 being considered statistically significant). Analysis of Ikeuchi scores was performed using

Download English Version:

<https://daneshyari.com/en/article/5706457>

Download Persian Version:

<https://daneshyari.com/article/5706457>

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