Outcomes and Indication for Revision Hip Arthroscopy: A Comparison of T vs. Interportal Capsulotomies

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INTRODUCTION: The purpose was to compare reasons for revision and patient reported outcomes (PROMs) in patients undergoing T- versus interportal capsulotomies for femoroacetabular impingement (FAI).

METHODS:

A retrospective review was performed to identify all patients who underwent revision hip arthroscopy for FAI from 2012-2024 within a single health system. Patient demographics and operative characteristics were extracted from clinical notes. Patients were categorized into either having a primary T- or primary interportal capsulotomy. Inclusion criteria for analysis consisted of patients undergoing revision hip arthroscopy for capsular defects, recurrent pincer, or recurrent CAM lesions. Exclusion criteria consisted of patients who had a prior or concurrent osteotomy, had a prior or concurrent total hip arthroplasty (THA), underwent a repeat revision procedure, or in which the primary capsulotomy type was unable to be determined. The reason for revision capsulotomy (capsular defect, recurrent pincer, recurrent CAM) was analyzed and compared. PROMs (Visual Analog Scale [VAS], Tegner activity scale, Modified Harris Hip Score [mHHS], International Hip Outcome Tool [iHOT-12], Hip Outcome Score Activities of Daily Living [HOS-ADL] and Sport [HOS-Sport]) were also analyzed and compared. Postoperative return to sport (RTS), reoperation rates after revision procedure, and revision surgery satisfaction at final follow-up were evaluated. Statistical analyses were performed to compare differences in the outcomes between the two cohorts. Non-parametric continuous variables were analyzed using Wilcoxon rank-sum tests. Categorical variables were analyzed using Pearson chi-square analyses.

RESULTS:

A total 292 patients (mean age: 32.0 ± 10.7 years) were included. Revision capsulotomy characteristics are documented in **Table 1**. After applying exclusion criteria, a total of 130 patients were analyzed and compared with 113 patients having undergone a primary interportal capsulotomy and 17 patients having undergone a primary T capsulotomy. There were no differences between primary interportal and primary T-capsulotomy groups for having a capsular defect, recurrent pincer, or recurrent CAM ($p>0.05$ for all) (**Table 2**). No significant differences were found between both cohorts regarding post-operative PROMs (**Table 3**). However, the primary T-capsulotomy cohort had substantially improved values for mHHS (84.1 ± 12.5 vs. 75.8 ± 16.8; $p=0.149$), iHOT-12 (79.8 ± 22.2 vs. 62.9 ± 25.2; $p=0.073$), HOS-ADL (89.9 ± 8.6 vs. 79.8 ± 17.4; $p=0.135$) and VAS pain with use (1.9 ± 1.5 vs. 3.6 ± 2.5; $p=0.073$). There was also a significant increase for the primary T-capsulotomy cohort between pre- and post-operative Tegner activity levels ($p=0.036$). Seventy-five percent in the primary T-capsulotomy cohort and 63% in the primary interportal capsulotomy cohort RTS ($p=0.512$). One patient (6%) in the primary T-capsulotomy cohort converted to THA after revision, and 16 patients (14%) in the primary interportal capsulotomy cohort converted to THA after revision ($p=0.345$). However, no significant differences were found between both cohorts for all-cause reoperation rates after revision ($p=0.166$).

DISCUSSION AND CONCLUSION: Both primary T- and primary interportal capsulotomy types demonstrate excellent clinical outcomes after revision hip arthroscopy for FAI. Performing a primary T-capsulotomy did not increase incidence of reoperation or conversion to THA after revision hip arthroscopy. However, their post-operative patient-reported outcomes did trend superiorly.

Table 1: Type of Revision Procedure

Characteristic	Overall (n = 292)
Capsular Defect*	37 (12.7)
Residual CAM	220 (75.3)
Revision Pincer	172 (58.9)
Revision Labral Repair	226 (77.4)
Labral Reconstruction	14 (4.8)
Trochanteric Bursectomy	2 (1.0)
Psoas Tendinopathy	73 (25.0)
Lysis of Adhesions	80 (27.4)
Prior or Concurrent PAO	33 (11.3)
Prior or Concurrent THA	3 (1.0)
Prior Trochanteric Osteotomy	3 (1.0)
Prior Femoral Osteotomy (distal/derotational/neck)	6 (2.1)
Prior OATS	1 (0.3)
HO Removal	18 (6.2)
Giant Cell Tumor	1 (0.3)
Loose Body Removal	5 (1.7)
Avascular Necrosis	1 (0.3)
Repeat Revision Capsulotomy	24 (8.2)

[a]Data are expressed as n (%).
*Includes capsular reconstruction and capsular rupture

Table 2: Overall Comparison between Original Capsulotomy Types

Reason for Revision	Original Interportal (n = 113)	Original T-(n = 17)	*P* Value
Capsular Defect	14 (13.3)	3 (17.6)	0.626
Residual CAM	99 (87.6)	15 (88.2)	0.942
Recurrent Pincer	70 (61.9)	14 (82.4)	0.101

[a]Data are expressed as n (%). Boldface *P* value indicates a statistically significant difference between groups ($P < 0.05$).

Table 3: Patient Reported Outcomes at Final Follow-up[a]

Characteristic	T	Interportal	*P* Value
Mean Follow-Up (years)	3.9 ± 0.9	4.6 ± 3.0	0.653
Surgery Satisfaction	8.3 ± 2.0	7.0 ± 2.8	0.508
VAS 5-point	4.9 ± 0.4	4.2 ± 1.1	0.498
Modified Harris Hip Score	84.1 ± 12.5	75.8 ± 16.8	0.149
iHOT-12	79.8 ± 22.2	62.9 ± 25.2	0.073
Postoperative Tegner	4.7 ± 2.1	4.2 ± 2.4	0.930
Hip Outcome Score			
HOS-ADL	89.9 ± 8.6	79.8 ± 17.4	0.135
HOS-Sport	73.2 ± 23.0	63.6 ± 27.0	0.458
VAS pain score			
At rest	1.9 ± 1.9	2.0 ± 2.0	0.967
With use	1.9 ± 1.5	3.6 ± 2.5	0.073
RTS*	6 (75)	36 (63)	0.512
All-cause reoperation	2 (12)	31 (27)	0.166
Conversion to THA	1 (6)	16 (14)	0.345

[a]Data are expressed as mean ± SEM (95% CI).
iHOT- international hip outcome tool; HOS-ADL – hip outcome score activity of daily living; VAS - visual analog scale; THA – total hip arthroplasty
*Percentage based on those who answered PROMs