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The long-term result of partial arthroscopic meniscectomy in a traumatic meniscus tear

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ABSTRACT

Since the introduction of therapeutic arthroscopy, by Oconnor, arthroscopic partial meniscectomy or meniscus repair become the golden stander treatment of meniscus tear, whenever possible, which allow preservation of normal or near normal meniscus function to avoid or reduce the risk of osteoarthritis of the knee joint, that might develop after complete meniscus removal. This study was aimed to evaluate the long-term functional and radiological results of arthroscopic partial meniscectomy. The present cross-sectional study was carried out in Al-Diwaniyah teaching hospital, orthopedic department. The study included 75 patients, 54 male patients and 21 female patients, known to undergo arthroscopic partial meniscectomy for isolated traumatic meniscus tear (6-7) years ago. The age range of the examined patients was 21 to 40 years. All patients were clinically assessed, according to Tapper and Hoover knee score scale and Lysholm knee score with a radiological assessment of the knee for early degenerative changes, using Kellgren and Lawrence system. Forty-five (45) patients with the excellent result (60%), eighteen (18) patients with good results (24%), teen (10) patients with fair results (13.33%) and two (2) patients with bad results (2.66%) according to tapper and Hoover scale. According to Lysholm score, the preoperative score was 22 to 70, while at the end of follow up was (92_100). Radiological examination of 48 patients was normal (grade 0), while grade 1 in 27 patients. Partial arthroscopic meniscectomy still gives excellent to good results on long-term, in otherwise stable knee without cartilage damage.



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INTRODUCTION

The menisci perform several important tasks for the normal knee, acts as a shock absorber in distributing the forces of weight bearing on the knee joint surface; it also helps to provide a lubricating effect and providing some degree of stability (Ahmed and Burke, 1983). So it is essential for normal

biomechanics of the knee joint (Jeong et al., 2012). When loaded in vitro, 70% and 50% of load in lateral and medial compartment respectively transmitted through the menisci. Injury to the meniscus is a common one among the general population (61 per 100.000), although different etiologies, converge into the same symptomatology. Clinical manifestation and treatment (Andersson-Molina et al., 2002). Since introduction of therapeutic arthroscopy, by Oconnor, arthroscopic partial meniscectomy or meniscus repair become the golden stander treatment of meniscus tear, whenever possible, which allow preservation of normal or near normal meniscus function to avoid or reduce the risk of osteoarthritis of the knee joint, that might develop after complete meniscus removal (Tegner and Lysholm, 1985).

The purpose of the current study was to evaluate the long-term functional and radiological outcome

of partial meniscectomy in a group of patients whose knees were otherwise normal

PATIENTS AND METHODS

From 2009 to 2011, (105) patients had arthroscopic partial meniscectomy in our department. Review of their clinical and operative notes at the time of surgery was done, only patients with stable knee, no cartilage damage and attend the follow-up visit (6-7) years after surgery are included in the study (75 patients). Patients with ligamentous injury, cartilage damage were excluded.

Assessment of those patients was done according to Hoover and Taper score (table 1), and Lysholm score, with careful examination of the knee and compare that with preoperative score status (Caplan and Kader, 2014; Tegner and Lysholm, 1985). Operative notes were reviewed also according to types of a meniscus tear and amount of meniscal resection. Anteroposterior standing radiograph, the lateral radiograph was taken, radiological changes were assessed according to Kellgren and Lawrence system (Natvig and Picavet, 2002).

Data analysis

Statistical analysis was carried out using SPSS version 23.0. Numeric data were expressed as mean standard deviation while nominal data were expressed as number and percentage.

RESULTS

Fifty-four patients are male and twenty-one patients are female (male to female ratio is about 2:1), the mean age was 25 years. A sports injury is the common cause of meniscus tear in about 65 patients, and incidental home injury in 10 patients, all of them are female. Right knee injured in 44 patients and left knee in 31 patients. Pain at the joint line was the commonest presenting symptoms followed by a recurrent attack of locking of the knee, 10 patients presented with a locked knee, all of them are male. Medial meniscus injury more than lateral one was found in 39 patients, while lateral meniscus in 36 patients. Posterior horn tear of the medial meniscus is the commonest one, seen in 25 patients. We assess our postoperative results after (6-7) years of surgery according to Hoover classification, into excellent, good, fair and poor results. (Tapper EM, Hoover NW). Excellent results were seen in 45 patients, (60%). Good results in 18 patients, (24%). Fair results in 10 patients, (13.33%), and poor results were seen in 2 patients, (2.66%). compare to preoperative score were fair in 20 patients, poor in 55 patients. According to Lysholm knee scoring system, the preoperative score for my patients ranging from (22_70), while it improve postoperatively (92_100). According to

Kallgren and Lawrence radiological score, grade (0) in 48 patients, grade (1) in 27 patients.

DISCUSSION

Although arthroscopic partial meniscectomy is less frequently performed now a day abroad because it leads to rising in stresses on articular cartilage, so early degeneration of knee compartment can be expected (Allen et al., 1984). Meniscus repair is now a day the standard surgery in repairable meniscus tear, but in our country, partial meniscectomy still it's the standard surgery for a meniscus tear. Up to our knowledge still there is limited information concerning the long-term clinical and radiological outcome, may be because of difficulty in follow up of our patients and data collection. Our retrospective case-control study was included the active young patients who return to their preinjury activity level and complete the follow-up period. They were 75 patients, 54 was male and 21 was female, (M\F ratio 2-1). Right knee more than left knee affected, medial meniscus more than lateral meniscus. We assess our results according to Hoover scale and Lysholm scale, because these scales are simple, applicable to our patients and depend on functional results (Caplan and Kader, 2014; Tegner and Lysholm, 1985). According to Hoover scale, our preoperative score was fair in 20 patients, poor in 55 patients, which is improving, at last, follow up to be excellent in 45 patients, good in 18 patients, fair results in 10 patients and unfortunately poor result in 2 patients only. Those patients with poor results were with massive medial meniscus resection due to neglected bucket handle tear. According to Lysholm scale m, the preoperative scale was 22-70 in all our patients, which improves postoperatively to be 92-100 (good-excellent) results. Radiological assessment of all our patients included in this study, by using plain X-ray film P-A, Lat. View, using Kallgren scale reveal grade 1 changes only in 27 patients with early signs of joint degeneration (doubtful joint space narrowing and osteophyte lipping), while normal joint in other patients, grade (0) (Andersson-Molina et al., 2002; Bauer et al., 2006).

We compare our results with others studies. Burks RT, Medcalf MH, study, include 283 patients with partial meniscectomy, 83% male, 17% female, 78% medial meniscus injury, 19% with lateral meniscus injury, and record results using Lysholm scale after mean follow up of 14.7 years reveal 88% good to excellent results, which is comparable to our results although the follow up period is longer (Burks et al., 1997). Bonnieux I, Vandekerckhove B study, 31 patients with partial meniscectomy, after 8 years follow up the records 48.4% excellent results and 64.5% good results according to Lysholm

Table 1: Hoover classification of the results

Outcome	Knee joint description
Excellent result	Completely normal knee
Good results	Knee with minor symptoms but no disability, functional in all activity including sport
Fair results	The symptomatic knee that prevents sport
Poor results	Symptomatic knee, that interferes with daily activity.

Table 2: Outcome according to Tana H. Score assessed pre and post-operatively

Outcome	Preoperatively	Post-operatively	P-value
Excellent	0 (0.0%)	45 (60.0%)	<0.001*
Good	0 (0.0%)	18 (24.0)	
Fair	20 (26.7%)	10 (13.3)	
Poor	55 (73.3%)	2 (2.7)	

scale. With radiological assessment using Fairbanks changes, recording changes in 42.9%. This is also comparable to our results (Sihvonen et al., 2013). Northmore Ball, Dandy DJ. Reported 51.5% excellent results in their study Thai included 99 patients with partial meniscectomy after 3-4 years of follow up (Mazzocca and Bush-Joseph, 2003). PsripathiRao, Sharath K, a study that includes 65 patients with partial meniscectomy. They reported 76.06% excellent results according to lysholm score and 69.72% excellent result according to Hoover score (Stein et al., 2010). Peter Fetal, the study of 136 patients with partial meniscectomy at average follow up of 8.5 years, they reported early degenerative changes in about 53%. Which's high compared to our results, may be due to longer follow up period and high demand athlete patients (Zeichen et al., 2006). When we compare the results of these studies, with our results seems to be comparable, although slight differences in a period of follow up, but all assumed as long-term results.

CONCLUSION

Partial arthroscopic meniscectomy still gives excellent to good results on long-term, in another wise stable knee without cartilage damage.

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