

Short Term Clinical Outcome of Arthroscopic Meniscectomy in Post Traumatic Meniscal Tear in Stable Knee in Middle Aged (15-45 Years) Patients

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Abstract:

Objective: The purpose of present study was to understand the role of arthroscopic partial or subtotal meniscectomy in young post traumatic stable knee with meniscal injury. **Materials and Methods:** This is a study regarding short term clinical outcome of arthroscopic meniscectomy in post traumatic meniscal tear in stable knee in middle age (15-45 years). The study was done at the department of orthopedics at tertiary care hospital, Bhavnagar from June-2009 to July-2011. **Result:** Maximum numbers of patients were of age group 35 to 45 years with a mean age of 31.3 years. 13 patients had road traffic accident (RTA), 5 had sport injury and 12 had history of simple fall. Mean operative time for arthroscopic meniscectomy was 66 minutes. Post operatively, weight bearing was started on 2nd day onwards in 28 cases. 2 patients had post operative infection which was superficial and recovered with antibiotics in 4 to 5 days. The Lysholm score was excellent (90-100) in 53% and good (80-89) in 47%. The average Lysholm score at 6 months was $89.28 \pm 4.13\%$. **Conclusion:** Arthroscopically operated meniscal injury in young patient with partial meniscectomy is an ideal treatment of choice for early ambulation and to live pain free life.

Key-words: Arthroscopic surgery, Meniscal tear, Partial meniscectomy, Short-term follow-up

Introduction:

The meniscus is a biconcave fibrocartilage whose principal functions are shock absorption and load transmission. ⁽¹⁻³⁾ It also contributes to knee joint lubrication, proprioception and stability. ⁽⁴⁻⁶⁾ The meniscal injury is quite common in young patients. Particularly, it is common with playing sports and road traffic accident. The meniscal injury is associated with high risk of stiffness, limp, pain and instability of knee joint. So, in such cases, meniscal removal or repair is quite useful for further living a normal life and for daily activities. It results in early weight bearing and stable knee. Many authors have emphasized the advantages of closed as compared with open meniscectomy. ⁽⁷⁾ The aim of arthroscopic or open meniscectomy is to remove all ruptured and offending tissue and to save as much as functioning meniscal tissue with a peripheral rim. ^(8, 9) Arthroscopic partial meniscectomy has been shown to have advantages over total meniscectomy in terms of good recovery from operation and the late appearance of radiographic changes. ⁽¹⁰⁾ While, total meniscectomy usually leads to early joint degeneration. ⁽¹¹⁾

In present study, an attempt was made to understand the role of arthroscopic partial or subtotal

meniscectomy in young post traumatic stable knee with meniscal injury.

Materials and Methods :

The study of short term clinical outcome of arthroscopic meniscectomy in post traumatic meniscal tear in stable knee in middle age (15-45 years) was done at the department of orthopedics at tertiary health care center, Bhavnagar from June-2009 to July-2011. Total 30 patients were included in the study. All were followed up at every 1, 3, 6 and 12 months post operatively. Out of 30, 5 patients were lost follow up after 6 months. During follow up following parameters were checked according to Lysholm score. ⁽¹²⁾

Lysholm Knee Scoring

1) Limp (5 points)None - 5
Slight or periodical - 3
Severe or constant - 0
2) Support (5 points)
None - 5
Stick or crutch - 2
Weight bearing impossible - 0
3) Locking (15 points)
No locking and no catching sensation - 15
Catching sensation but no locking - 10
Locking occasionally - 6

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Locking frequently – 2
Locked joint on examination – 0
4) Instability (25 points)
Never giving way – 25
Rarely during athletics or other severe exertion – 15
Occasionally in daily activities – 10
Often in daily activities – 5
Every step – 0
5) Pain (25 points)
None – 25
Inconsistent and slight during severe exertion – 20
Marked during severe exertion – 15
Marked on or after walking more than 2 km – 10
Marked on or after walking less than 2 km – 5
Constant – 0
6) Swelling (10 points)
None – 10
On severe exertion – 6
On ordinary exertion – 2
Constant – 0
7) Stair climbing (10 points)
No problem – 10
Slight impaired – 6
One step at a time – 2
Impossible – 0
8) Squatting (5 points)
No problem – 5
Slight impaired – 4
Not beyond 90 degrees - 2 Impossible – 0

The meniscal tears were classified as per Metcalf's arthroscopic description.

Metcalf's Classification

Flap tear
Radial tear
Bucket handle tear
Horizontal tear
Vertical tear
Parrot beak tear
Complex tear
Discoid meniscal tear

Results:

30 patients (15 males and 15 females) of post traumatic meniscal injury were selected for arthroscopic meniscectomy. The maximum numbers of patients were in age group of 35 to 45 years with a mean age of 31.3 years. 13 patients had road traffic accident (RTA), 5 had sport injury and 12 had history of simple fall. 14 patients had involvement of right knee and 16 had involvement of left knee joint. Majority of patients in our set up were diagnosed using clinical tests. Although MRI is useful diagnostic tool for evaluating knee ligament injury which, it was done in 5 cases. None of the patients were undergone re-trauma or re-surgery.

Arthroscopy identified 12 flap-tears, 5 radial tears, 4 bucket handle tears, 2 horizontal tears, 5 complex tears and 2 vertical tear. Partial meniscectomy was done in all patients. Mean operative time was 66 minutes. Weight bearing was started on 2nd day onwards in 28 cases. In patients associated with medial femoral condyle and patellar chondromalacia, we did ablation chondroplasty as well as protein rich plasma (PRP) augmentation, so weight bearing upto 6 weeks was not allowed in remaining 2 patients. 2 patients had post operative infection which was superficial and recovered with antibiotics in 4 to 5 days. Further all the patients were followed for a period ranging from 1 month to 1 year with average duration of 6 months.

Table 1: Results of Lysholm scoring after partial meniscectomy in present study

Duration after surgery	Lysholm scoring
At 1 month	83.33 ± 4.68 SD
At 3 month	85.63 ± 4.69 SD
At 6 month	89.46 ± 4.16 SD
At 12 month	89.28 ± 4.13 SD

Table 2: Lysholm score after 6 months of partial meniscectomy

Lysholm score	No. of Patients	Percentage
Excellent (90-100)	16	53%
Good (80-89)	14	47%
Fair (65-79)	0	0%
Poor (Below 65)	0	0%
Total	30	100%

The Lysholm score was excellent (90-100) in 53% and good (80-89) in 47%. The average Lysholm score at 6 months was $89.28 \pm 4.13\%$. In our study, the chances of excellent prognosis were more with females patients (60%) than males (46.7%). In 69% cases with RTA, 60% cases with sports injury and 33% cases with simple fall had excellent prognosis. Associated medical illness did not influence the outcome of the procedure.

Discussion:

The meniscal injury in young patients after trauma over knee joint is quite common. Early diagnosis and treatment with arthroscopic approach is quite beneficial. Patient can be pain free and can live healthy life after surgery. With arthroscopic approach, there is minimal chance of intra operative and post operative complications as compared to open meniscectomy.

In our study, we have included patients between 15 to 45 years of age group who had recent history of traumatic events, like while playing sports, twisting injury, during road traffic accidents or simple fall down. This injury is common in both the genders; similarly in present study also, we found in 1:1 ratio of male & female. Either side - right or left can be involved, particularly when the acute rotational force come over that side of joint from sudden flexion to extension. In our study 53% of the patients having left sided knee injury while 47% having right sided knee injury. Average interval from trauma to surgery was about 8 days. Usually the prognosis is better if the surgery is done earlier after trauma.

MRI study along with clinical test is useful evident for diagnosing meniscal injury. However it is only the adjuvant. The confirmatory diagnosis only comes with

arthroscopy.⁽¹⁴⁾ In our study, medial meniscus injury was seen in 57% of patients, while lateral meniscal injury in 43% of patients. So it suggests that when knee is stable, medial meniscus is more prone to be injured than lateral meniscus. It is because of fixity of medial meniscus to the tibial collateral ligament and greater excursion during rotator movements. The lateral meniscus is protected by the popliteus muscle which pulls it backwards so that it is not crushed between the articular surfaces.⁽¹⁵⁾ Mean operative time was 66 minutes which is excellent. Laser the operative time least the chances of intra operative and post operative complications. In our study, no patients developed intra operative complications. Only 2 out of 30 patients got post operative infections; however, they were only superficial and got properly healed in 2 to 4 days with antibiotics. Overall, arthroscopy is a safe procedure with minimal invasion and good cosmetic compliance.

Lysholm score was used to study prognosis of the arthroscopic results. The Lysholm score was excellent (90-100) in 53% and good (80-89) in 47%. The average Lysholm score at 6 months was $89.28 \pm 4.13\%$. In a study by bonneux et al⁽¹¹⁾ the Lysholm score was excellent in 35.5%, good in 29%, fair in 9.7% and poor in 25.8%. The average Lysholm score was $81.45 \pm 14.33\%$. In our study, 69% cases with RTA, 60% cases with sports injury and 33% cases with simple fall had excellent prognosis, while in other study⁽¹¹⁾ the etiology of the injury did not affect the outcome.

Conclusion:

The above data of present study suggest that arthroscopically operated meniscal injury in young patient with partial meniscectomy is an ideal treatment of choice for early ambulation and to live pain free life. Although technically demanding than open meniscectomy, it is better in preventing wound related complication and better cosmetic compliance in the form of two tiny scar. As we are in the era of arthroscopy, it should be the modality of treatment for partial or subtotal meniscectomy. The arthroscopy has additional benefit of visualizing the whole knee joint and its ligament to diagnose other pathology if associated with it.

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