

Symptomatic discoid lateral meniscus managed by meniscoplasty - A case series

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Abstract

Discoid meniscus are a rare entity and this short study was done to evaluate the results of meniscoplasty in symptomatic knees having discoid lateral meniscus. Eight patients all males in age group of 15 to 25 years presented to us with symptoms of pain, locking and restricted movements at the knee. After investigations the cause was found to be torn discoid lateral meniscus in all the 8 patients. All the patients were managed by arthroscopic meniscoplasty and were evaluated by Lysholm grading on followup.

There were no complications in any patient and the symptoms of all patients were relieved. At two years of followed up there were no radiological signs of osteoarthritis. With this study we observed that meniscoplasty provides are good treatment option with excellent results in cases of symptomatic knees with discoid lateral meniscus.

Keywords: Lysholm, Meniscoplasty.

Introduction

The discoid meniscus is the most common congenital variant of a normal meniscus and is considered to be a atavistic anomaly. As the name suggests the meniscus is discoid in shape rather than being of a normal semilunar shape. Though the aetiology remains debated it is commonly believed occurring secondary to meniscal development without normal attachments. It is diagnosed relatively infrequently and often goes unrecognised or untreated. Symptoms like knee pain, snapping or locking in a child or young adolescent should raise the suspicion of a discoid meniscus. The treatment consists of partial or complete meniscectomy arthroscopically or by open arthrotomy. In this case series we present 8 cases of discoid lateral meniscus that were managed by meniscoplasty.

Materials and Methods

Between the period of August 2017 to March 2019 eight patients were managed at our institute by arthroscopic meniscoplasty for discoid lateral meniscus. Six patients were teenagers and two were 21 years old.

All of them presented to us with the chief complaints of pain in the knee joint. Four patients also gave history of popping sounds and snapping in his knee since the past 5 months. All the eight patients were young active males and used to participate in a lot of physical activities. Six of the patients started having complaints since the past one year while two developed symptoms in the past 5 months. All of them were a bit apprehensive and restricted their physical activities and the usage of their affected limbs.

On physical examination the patients were otherwise normal and well nourished. They were not in any acute discomfort. There was deep tenderness on lateral joint line in all four cases. All had a positive McMurrays test with a click and slight subluxation on performing the manoeuvre. The lachman and anterior and posterior drawer tests were negative. There was mild joint effusion in two patients and slight wasting of the quadriceps as compared to the

contralateral side in one patient. The distal neurovascular status was intact in all.

All the patients was investigated by standard AP and Lateral skiagrams. In one patient the X-ray showed slight squared appearance of the distal femur condyle and a minor increase in lateral joint space, X-rays of the other seven showed no significant findings. The X-rays were then followed by MRI of the affected knee. The MRI showed a discoid lateral meniscus in all eight patients. There was a complex tear in anterior horn of five patients who had the complaints since past one year with mild joint effusion while three had a simple tear. The cruciate ligaments, medial meniscus and the collaterals were normal in all patients with no synovial hypertrophy.

The patients were managed by arthroscopic meniscoplasty.

The type of discoid meniscus was classified by Watanabe classification. Six were incomplete and two were complete.

Further arthroscopic examination of the knee revealed no other anomaly. A complex tear was seen in five patients while three had a simple linear tear and one patient also had signs of osteochondritis with a few loose bodies.

The patellofemoral and medial compartment along with the ACL was normal.

In all the cases the central portion of the meniscus was removed and the remainder was given a semilunar shape after the excision of the torn part of the meniscus.

Postoperatively the patient were allowed weight bearing the next day with full range of motion at the knee. On subsequent followups the patients got relieved of the knee snapping and painful knee movements and have had no fresh complaints presently at one year.

On subsequent followups the patients were evaluated using lysholm scale.

No complications have been seen. The patients have been followed up with X-rays of the knee in AP and lateral

views to check for the development of any osteoarthritis. So far the clinical and radiological outcome has been good.

Results

The functional outcome was evaluated using the Lysholm scale according to which six patients were having an excellent outcome and two were having a good outcome.

Table 1

Preoperative clinical criteria	Preoperative	End of follow up
Instability		
Never give way	1	8
Often	7	0
Pain		
None	0	7
Inconstant	3	1
Constant	5	0
Stair Climbing		
No problem	0	8
Slightly impaired	7	0
One step at a time	1	0
Swelling		
None	0	6
On exertion	7	2
Constant	1	0

Table 2

	Min - max	median	Mean
Pre-Op	10 - 80	(45)	37.47 sd (21.61)
Post-Op	64 - 100	(77)	94.47 sd (11.23)
At one year	92 - 100	(96)	98.56 sd (1.34)
At end of follow up	100 - 100	(100)	100
	p value		0.001

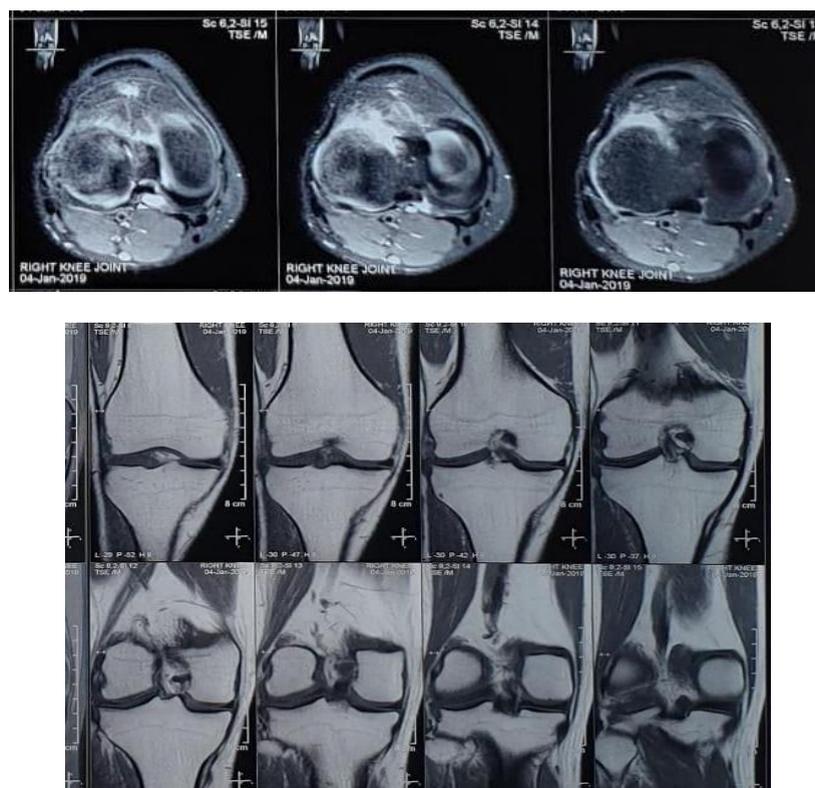


Fig. 1: MRI sections showing thick disc like lateral meniscus

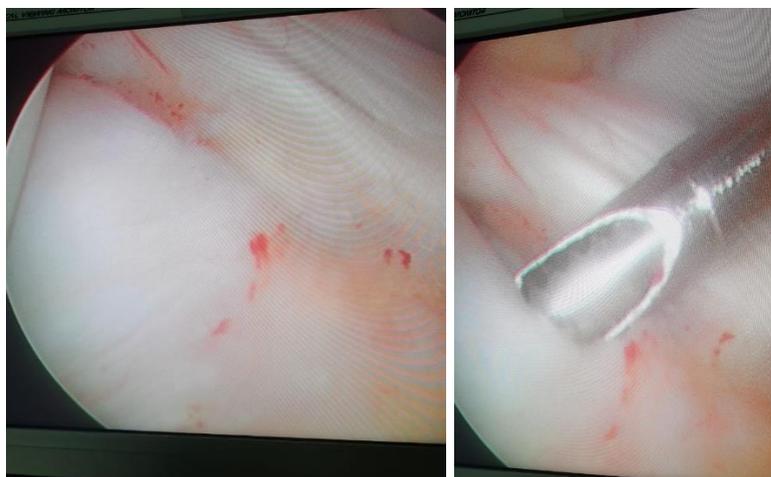


Fig. 2: Diagnostic arthroscopy showing flat discoid lateral meniscus with linear fissure



Fig. 3: Discoid meniscus given semilunar shape after meniscoplasty.

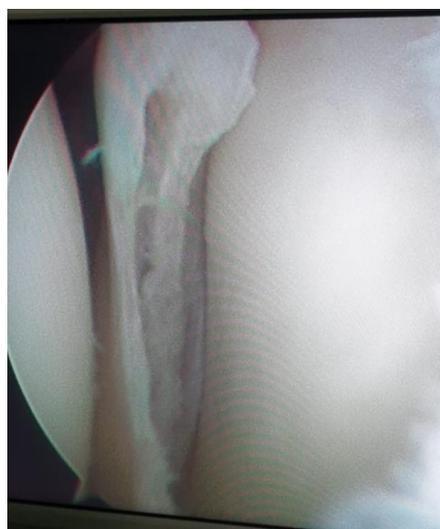


Fig. 5: Another discoid meniscus with complex tear



Fig. 4: Shaving off of the meniscus reveals complex tear with laminations that were removed

Discussion

The factors giving rise to a discoid meniscus are not clearly known. There have been various theories in which some postulate the persistence of foetal meniscus that is considered to be discoid, into adulthood (Smillie).¹ However studies have shown that the meniscus does not take a discoid shape anytime during the intrauterine life. Other theories hypothesize posterior segment hyper mobility as a cause of discoid meniscus (Kaplan).²

Discoid meniscus have been classified into complete, incomplete and wrisberg types by Watanabe.³ The complete and incomplete depend upon the degree of tibial plateau coverage while the wrisberg type is the one that lacks meniscotibial attachments to the posterior horn.⁴

Clinically the patients present with lateral knee pain, effusion, clicking or snapping on flexion and extension and sometimes locking.⁵⁻⁷

The pain, intermittent effusion and locking are due to tear of the malformed meniscus and are usually not seen in intact menisci and it is widely followed that no intervention is to be done in case of a asymptomatic discoid meniscus.⁸

Gicquel et al have said that in children with discoid meniscus the complaints are usually in the form of some mild pain or snapping which usually just requires observation.⁹

The duration of symptoms as well as the age of presentation has a major role in deciding the treatment. Patients with long standing complaints and having passed the third decade of life usually do not benefit by meniscoplasty and require extensive meniscectomy.

Total meniscal excision has been advocated in history as the treatment of choice for symptomatic discoid meniscus.¹⁰ However in young patients an extensive meniscectomy can predispose the patient to early onset severe osteoarthritis. When open meniscectomy was done meniscoplasty was not an option but with the development of arthroscopy it is now possible to evaluate the damaged part of the discoid meniscus intraoperatively and excise it leaving behind a healthy functional rim.

In our study the patients were young mostly in the second decade of life and so arthroscopic meniscoplasty was chosen as the treatment modality for them with good functional results.

Meniscal instability has sometimes been associated after meniscoplasty and Beaufils et al has advocated anchoring the meniscus with sutures in such cases.¹¹ However none of our patients were showing signs of instability on intraoperative evaluation so no suturing was done.

In many studies good outcomes have been reported by partial resection of discoid meniscus.

Pellacci et al reported good results in 17 of 18 knees after partial resection of discoid meniscus.¹²

Bellier et al¹³ have similarly reported good results in knees after partial resection of discoid meniscus in a 3 year followup with Ikeuchi scale.¹⁴

Our study though small have shown similar results by Lysholm grade in knees with discoid meniscus managed by partial meniscectomy. The length of followup has been only one year for two patients which might bias the result if we anticipate deterioration in function over longer periods of time. However it has been seen in studies with long duration of evaluation, post one year the status of a excellent knee doesn't not deteriorate beyond good if at all it deteriorates. So this indicates that the lesser duration of follow up might not affect the results quite much.

Conclusion

The congenital discoid meniscus is often a asymptomatic condition and does not warrant any treatment. However these menisci often get torn and lead to degenerative changes and such symptomatic knees require management. Treatment of symptomatic discoid meniscus by arthroscopic meniscoplasty removes the offending part of the meniscus and at the same time leaves behind a stable peripheral rim so that some functions of the meniscus are retained. Many studies show good outcomes with meniscoplasty in cases of discoid meniscus which is in accordance with the results of our patients. Some controversy is there regarding the

management of hypermobile discoid meniscus but overall results have been shown to be good with meniscoplasty.

Conflict of Interest: None.

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