Case Report

TREATMENT AND RESULTS OF RARE LATERAL DISCOID MENISCUS IN CHILDREN (2 CASE REPORTS)

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Abstract

Many variations for the meniscus have been reported in the literature. Discoid meniscus is the most common of these variations. In the discoid meniscus, the meniscus lost its normal or crescent shape and acquired a disc appearance. Among the congenital variations of discoid meniscus, the lateral discoid meniscus is more common than the medial discoid meniscus.. Various MRI criteria have been suggested in the diagnosis. Discoid meniscus is generally asymptomatic, but abnormal clinics may accompany it. It may cause complaints such as tenderness in the knee, sound from the knee, and locking This study presents the clinical and radiological findings of two female patients aged 4 and 6, along with the physiotherapy and rehabilitation outcomes following arthroscopic surgery. Partial meniscectomy was performed in both cases in the supine position under general anesthesia. She was hospitalized for 2 days after surgery. Patients were ta ken to physiotherapy program after surgery. Both patients received a physiotherapy and rehabilitation program. Due to the young age of the patients, walking exercises were also added to the physiotherapy and rehabilitation program.Discoid meniscus cases are rare in early ages. Our cases (ages 4 and 6) made the fastest and safest return to daily activities through arthroscopic treatment of the torn and dislocated lateral meniscus and a postoperative physiotherapy program targeting symptoms. Early surgical intervention and a well-structured rehabilitation program afterward are crucial for the patient's functional recovery.

Keywords: Meniscus Injury in Children; Postoperative Physiotherapy; Discoid Meniscus.

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Çocuklarda Nadir Görülen Lateral Diskoid Menisküs Tedavisi Ve Sonuçları (2 Olgu Sunumu)

Öz

Literatürde menisküs için birçok varyasyon rapor edilmiştir. Bu varyasyonlardan en sık görüleni diskoid menisküstür. Diskoid menisküste menisküs normal veya hilal şeklini kaybederek disk görünümü kazanmıştır. Diskoid menisküsün konjenital varyasyonları arasında lateral diskoid menisküs, medial diskoid menisküse göre daha sık görülür. Tanıda çeşitli Manyetik Rezonans Görüntüleme kriterleri öne sürülmüştür. Diskoid menisküs genellikle asemptomatiktir ancak anormal klinikler de buna eşlik edebilir. Dizde hassasiyet, dizden ses gelmesi, kilitlenme gibi şikayetlere neden olabilir. Bu çalışmada 4 ve 6 yaşlarındaki iki kadın hastanın klinik ve radyolojik bulguları ve uygulanan artroskopik cerrahi sonrası fizyoterapi ve rehabilitasyon sonuçları sunulmuştur. Her iki olguya da genel anestezi altında sırtüstü pozisyonda parsiyel menisektomi uygulandı. Ameliyattan sonra 2 gün hastanede kaldı. Ameliyat sonrası hastalar fizik tedavi programına alındı. Altı yaşındaki hastamıza 25 seans fizyoterapi seansı uygulanırken, 4 yaşındaki hastamıza 30 seans fizyoterapi uygulandı. Her iki hastaya fizyoterapi ve rehabilitasyon programı uygulandı. Hastaların yaşlarının küçük olması sebebi ile aynı zamanda yürüyüş egzersizleri fizyoterapi ve rehabilitasyon programına eklendi. Diskoid menisküs olguları erken yaşlarda nadir görülmektedir. Olgularımız (4-6 yaş), yırtık ve çıkık lateral menisküsün artroskopik tedavisi ve ameliyat sonrası semptomlara yönelik uygulanan fizyoterapi programı ile en hızlı ve en güvenli bir şekilde günlük yaşam aktivitelerine dönüş yapmışlardır. Erken cerrahi tedavi ve sonrasında iyi yapılandırılmış bir rehabilitasyon programı hastanın fonksiyonel gelişimi için önemlidir.

Anahtar Kelimeler: Çocuklarda Menisküs Yaralanması; Postoperatif Fizyoterapi; Diskoid Menisküs.

INTRODUCTION

Many variations for the meniscus have been reported in the literature. Discoid meniscus is the most common of these variations. In the discoid meniscus, the meniscus lost its normal or crescent shape and acquired a disc appearance. Among the congenital variations of discoid meniscus, the lateral discoid meniscus is more common than the medial discoid meniscus. (Al-Taki et al.,2014:354). Various Magnetic resonance imaging (MRI) criteria have been suggested in the diagnosis (Samoto et al., 2002:59., Kelly and Green, 2002:55). Discoid meniscus is generally asymptomatic, but abnormal clinics may accompany it (Rohren et al., 2001:318). It may cause complaints such as tenderness in the knee, sound from the knee, and locking (Rao et al.,2001:276). In this study, we wanted to report the clinical and radiological findings of two female patients aged 4 and 6 years, and the results of physiotherapy and rehabilitation after the arthroscopic treatment we performed.

1. CASE 1

A 6-year-old girl presented to our clinic with complaints of limitation of movement and pain in the left knee. The family was told that she was examined at a public hospital after falling off the bicycle and that she had congenital malformation in her meniscus. Physical examination revealed pain with palpation in the left knee, effusion in the joint and limitation in range of motion. However, the lateral McMurray test was also positive. Laboratory findings of the patient who had an increase in temperature in the knee were also within normal limits. When the direct radiographs of both knees of the patient were compared, it was observed that the lateral joint space was enlarged. MRI of the left knee showed the presence of lateral discoid meniscus in successive frontal sections and tear of the displaced discoid meniscus in sagittal and frontal sections (Figure 1).

Figure 1: Lateral discoid meniscus in successive frontal sections and tear of the displaced discoid meniscus in sagittal and frontal sections

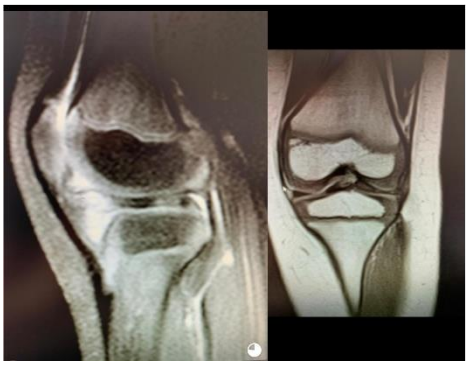
After the relatives of the patient was informed in detail and the operation approval was obtained, it was decided to perform arthroscopy on the patient. A tourniquet was applied to the left leg of the patient in the supine position under general anesthesia. Arthroscopy was performed by entering the left knee joint through anterolateral and anteromedial portals. A dislocated bucket handle tear was observed on the lateral discoid meniscus floor. Partial lateral meniscectomy was performed. Other intra-articular structures were found to be natural. The joint area was washed extensively and the skin was closed. The patient was hospitalized for 2 days after surgery.

The patient was taken to a total of 25 sessions of physiotherapy and rehabilitation sessions after surgery. In the physiotherapy program, the patient was applied cold for 12-15 minutes to reduce joint effusion, and conventional current parameter with TENS (Transcutaneous Electrical Nerve Stimulation) frequency 60-120 Hertz, transition time 50-100 microseconds for 30 minutes to reduce pain. Passive stretching exercises at the margin of pain were performed by the physiotherapist in order to gain range of motion, isometric exercises for the quadriceps and hamstring muscles initially to increase muscle strength, and then active exercises for the lower extremity muscles (Gluteus maximus, quadriceps, hamstring, gastrocnemius) to increase muscle strength. Since partial meniscectomy surgery was performed, partial weight bearing was performed immediately

2. CASE 2

A 4-year-old girl presented to our clinic with complaints of deformity, limitation of movement and pain in the left knee. It was reported by her relatives that her complaints started as a result of the problem in her knee falling on her left knee 3 months ago. Her family told that she had received treatment in other centers before and although she had physical therapy for 1 month, her complaints did not change. Physical examination revealed pain with palpation, effusion around the joint, and limited range of motion. However, the left knee was locked. Laboratory findings of the patient, who had an increase in temperature in the knee, were also within normal limits. When the direct radiographs of both knees of the patient were compared, it was observed that the lateral joint space was enlarged. In the left knee MRI, the presence of lateral discoid meniscus was observed in successive frontal sections (Figure 2).

Figure 2: Lateral discoid meniscus in successive frontal sections and tear of the displaced discoid meniscus in sagittal and frontal sections



The surgical operation in Case 2 was performed by the same surgeon in the same way as in Case 1. A hemovac drain was used only in this case.

The patient was taken to a total of 30 sessions of physiotherapy sessions after surgery. The physiotherapy program was the same as in Case 1.

In the last follow-up of both patients, who were followed up for 1 year after arthroscopy, it was observed that the knee joint range of motion was completely recovered, and effusion, pain and tenderness in the joint areas disappeared.

3. DISCUSSION

The arthroscopic treatment of this rare torn and dislocated lateral meniscus, along with the postoperative physiotherapy program, is of great importance

Although clinical findings in discoid meniscus are not specific, they may or may not be symptomatic. Common clinical findings are pain, effusion, locking in the knee and tenderness on the lateral joint line, as in our cases. In addition to these, the click sound in knee flexion, decrease in terminal extension, foreign body sensation in the knee joint and quadriceps muscle atrophy can also be seen (Rao et al., 2001:276).

Post-operative programs depend on surgeons preferences, the patient's age, and the need for meniscus repairs or repositioning. For patients undergoing isolated discoid meniscus surgery, early weight-bearing is permitted. Full load bearing and progressive free range of motion are permitted within six weeks postoperatively. Physical therapy starts two weeks after surgery

(Saavedra et al.,2020: 378). In our case study, at first, anamnesis was taken by physical examination, diagnosis was made by MRI, and it was clear that patients had dislocated meniscus with arthroscopy.

During arthroscopy, some symptomatic patients with discoid meniscus may not see the tear. Therefore, preoperative MRI is necessary in all patients with suspected discoid meniscus. It is stated that MRI is successful in showing whether there is a tear in the discoid meniscus, but it is controversial in

determining the type of tear (Hamada et al.,1994:650). In his study, Kocher compared the clinical examination and diagnostic performances of MRI in the evaluation of intra-articular knee disorders in children and adolescents under the age of 16. In general, no statistically significant difference was found between physical examination and MRI in terms of concordance with arthroscopic findings. However, a significant difference was found in terms of lateral discoid meniscus sensitivity in the diagnostic analysis (88.9% clinical examination; 38.9% MRI p = 0.002). With these findings, it can be inferred that selective MRI is not better than physical examination in the diagnosis of discoid meniscus in the pediatric population (Kocher et al., 2001:294). In our case study, at first, anamnesis was taken by physical examination, diagnosis was made by MRI, and it was clear that patients had dislocated meniscus with arthroscopy.

In the Wrisberg variant, there is no coronary or capsular connection in the posterior (8), and the high T2 signal seen between the meniscus and capsule may mimic a peripheral tear or fascicular injury (Singh et al.,2005: 385). The Wrisberg type was defined as a hypermobile but almost normally shaped meniscus due to the insufficiency of the posterior tibial connections, and after that, all unstable menisci, discoid or not, were included in the Wrisberg type (Dickhaut and DeLee., 1984: 1071, Woods and Whelan.,1990:703). For this reason, Wrisberg variant is the type that causes the most common symptoms and generally causes noise from the knee (Gupte et al., 2003: 166). While it was previously treated with meniscectomy, nowadays partial meniscectomy is also used for treatment (Ryu et al.,1998: 964). In our case, there was complete posterior dislocation of the discoid lateral meniscus due to anterior meniscocapsular attachment failure. The risk of meniscus rupture increases due to increased mechanical stress and hypermobility in the discoid meniscus.

The overall annual incidence of symptomatic discoid lateral meniscus was 3.2 (95% CI, 2.5-3.9) per 100,000 person-years; Bilateral symptomatic discoid lateral meniscus was present in 12.6% of patients in the cohort. The overall annual incidence was similar between male (3.5 per 100,000 person-years) and female patients (2.8 per 100,000 person-years). The highest incidence of symptomatic discoid lateral meniscus was recorded in adolescent male patients aged 15-18 years (18.8 per 100,000 person-years) (Sabbag et al.,2018). Discoid meniscus cases at different ages have been reported in the literature (Logan et al., 2018:499, Al-Taki et al.,2014:354). The cases in our study were girls aged 4 -6 years, which differs from the existing literature in this respect.

In conclusion, this report explains that trauma to the knee can destabilize this variant of the discoid meniscus by axial loading and torque forces and can lead to posterior dislocation requiring surgical intervention and repair with subsequent development of symptoms (Al-Taki et al.,2014: 356).

This report describes the cases of dislocated meniscus in two girls at an early age (4-6 years). Our cases show that promising results are possible with arthroscopic repair of the torn and dislocated lateral discoid meniscus to reduce it and with the physiotherapy program applied for the symptoms after surgery.

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Conflict of interest

There is no conflict of interest among the authors.

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