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Original Article

Symptoms of discoid lateral menisci

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ABSTRACT

Purpose: This study aims to determine the symptoms of the patients with discoid lateral meniscus.

Methods: We prospectively collected cases of the knees with discoid lateral meniscus. Twenty patients (7 female, 13 male) admitted between January 2012 and February 2014 were enrolled in this study. The mean age of the patients was 34 years (range 28–40).

Results: The identified symptoms of a discoid lateral meniscus were “pain, stiffness, popping of the knee, feeling that the knee is “giving way”, inability to fully extend (straighten) the knee”. Thirteen patients (65%) had pain, 11 (55%) had popping of the knee, 4 (20%) had stiffness, 2 (10%) had “giving way” feeling, and 1 (5%) had inability to fully extend the knee. These symptoms did not prevent any patient's daily activities. No patients required surgical treatment.

Conclusions: Pain and popping of the knee were the most common symptoms in patients with a discoid lateral meniscus. The other symptoms were stiffness, feeling that the knee is “giving way”, and inability to fully extend the knee, respectively. No symptoms had been required surgical treatment.

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1. Introduction

A discoid meniscus is an abnormally shaped meniscus in the knee.¹ It occurs on the lateral side (outside) of the knee in about 1%–3% of the population, and even less commonly on the medial side of the knee. In about 20% of cases, discoid

meniscus is found in both knees.² Discoid lateral meniscus (DLM), a common anatomical anomaly of the lateral meniscus, was first described in cadavers by Young in 1889.³ Different symptoms have been expressed for patients with DLM until today.^{4–8} We would like to determine and clarify the symptoms of the patients with DLM by this study.

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2. Materials and methods

We prospectively collected cases of the knees with DLM. Twenty patients (7 female, 13 male) admitted between January 2012 and February 2014 were enrolled in this study. The mean age of the patients was 34 years (range 28–40). All patients were diagnosed with magnetic resonance imaging (MRI). Right lower extremity was affected in 15 patients, left was also in 5 patients. The cases were divided into the sub-groups according to Watanabe classification⁹ (Table 1). Coverage of the lateral tibial plateau determines the designation of complete or incomplete type. The Wrisberg type has an abnormal posterior attachment by attaching to part of the posterior cruciate ligament.

Patients were questioned. The clinical examination was performed. Symptoms were determined. Time to onset of symptoms was noted. These symptoms were listed by frequency. Additionally the symptoms were compared according to gender.

2.1. Statistical analysis

The Chi-square test was used to statistically compare the symptoms according to gender. The frequencies of the symptoms were identified. Statistical significance was set at $p < 0.05$.

3. Results

The identified symptoms of the patients were “pain, stiffness, popping of the knee, feeling that the knee is “giving way”, inability to fully extend (straighten) the knee”, respectively. Of the cases 14 were complete type (Fig. 1), 6 were Wrisberg type (Fig. 2) according to Watanabe classification.⁹ The average time to onset of the symptoms was 5 years (3–7 years).

The frequencies of the symptoms were reported in Table 1. Thirteen patients (65%) had pain, 11 (55%) had popping of the knee, 4 (20%) had stiffness, 2 (10%) had “giving way” feeling, and 1 (5%) had inability to fully extend the knee. In addition, there were patients who had two symptoms. Seven patients had pain + popping of the knee, 4 had pain + stiffness. There was pain in all patients with stiffness. All the Wrisberg type cases had popping knee syndrome. Only 5 cases of complete types had popping knee syndrome.

The pain and stiffness symptoms were more seen in females than males. However there were no statistically significant differences ($p = 0.061$). The popping knee symptoms were more

Fig. 1 – Complete type of discoid lateral meniscus. W: Wrisberg ligament.

seen in males than females. However there were no statistically significant differences ($p = 0.081$) (Table 2).

The symptoms did not prevent any patient's daily activities. All patients treated conservatively. Clinicians recommended that patients avoid sports that overstress the knee with cutting type movements. They went through their entire lives and never experience any problems. No patients required surgical treatment.

4. Discussion

Discoid meniscus is a rare human anatomic variant that usually affects the lateral meniscus of the knee.¹ It is usually detected incidentally. Usually a person with this anomaly has no complaints, however, it may present with pain, stiffness, tenderness in the joint line, locking, limited extension and the classical “popping knee” syndrome (a snapping sound heard from the affected knee).^{4–6,10,11} In our study, we reported all these symptoms respectively. The most common symptoms were pain and popping knee.

MRI, which reveals the shape, dimensions and signal changes within the meniscus, has become a viable method in

Fig. 2 – Wrisberg type of discoid lateral meniscus. X: Absence of Wrisberg ligament.

Table 1 – Watanabe classification of discoid lateral meniscus.

Type	Description
Incomplete	The meniscus is slightly thicker and wider than normal.
Complete	The meniscus completely covers the tibia.
Wrisberg	This occurs when the posterior meniscofemoral ligament (Wrisberg ligament) that attaches the meniscus to the tibia is absent.

Table 2 – Symptoms according to gender.

Symptoms	Female (n)	Male (n)	Total (n)	p Value
Pain (only)	1	1	2 (10%)	0.081
Popping knee (only)	0	4	4 (20%)	
Stiffness (only)	0	0	0	
Pain + Popping knee	2	5	7 (35%)	0.061
Pain + Stiffness	3	1	4 (20%)	
“Giving way” feeling	1	1	2 (10%)	
Inability to fully extend the knee	0	1	1 (5%)	

the setting of discoid meniscus. Lee et al reported 137 cases of discoid lateral meniscus with internal injury or degenerative changes shown in MRI.¹² We determined our 20 cases by MRI.

Watanabe et al⁹ published a three-type classification: complete, incomplete and Wrisberg types. In the Wrisberg type the posterior meniscotibial attachment is absent, resulting in a hypermobile meniscus and the classical “popping knee” syndrome. In our study, of the patients 14 were complete types, 6 were Wrisberg types. All the Wrisberg type cases had popping knee. However 5 of the complete type cases had popping knee.

There is limited research about comparison the symptoms according to the gender.^{13,14} Papadopoulos et al¹³ reported that no significant differences between the symptoms according to patient gender. In our study, pain and stiffness symptoms were more seen in females while the popping knee syndrome was more seen in males. However differences were not found statistically significant.

Treatment of discoid meniscus depends on its type, concomitant symptoms, duration of the symptoms and the patients' age.¹⁵ Popping knee should simply be followed-up, surgery being considered only when symptoms develop. Meanwhile, for symptomatic patients who are detected and do not have a tear, it is generally believed that treatment is not required.^{8,15} In our cases, the symptoms did not prevent any patient's daily activities. They have been recommended to avoid sports that overstress the knee with cutting type movements. No patients required surgical treatment.

Conflicts of interest

All authors have none to declare.

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