Bilateral bucket handle medial meniscal tears of the knee: A case report

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ABSTRACT

INTRODUCTION: Meniscal tears may cause knee pain and functional impairment. Bilateral bucket-handle meniscal tears is an uncommon condition.
PRESENTATION OF CASE: This report presents the case of a 35-year-old male patient with bilateral bucket handle medial meniscal tears that occurred nonsimultaneously. The lesions were treated arthroscopically with partial resection in one knee and meniscal suture in the other.
DISCUSSION: Bucket handle meniscal tear of meniscus without underlying meniscal, ligamentous pathology or lower limb deformity is a rare condition.
CONCLUSION: To our knowledge, bilateral bucket handle medial meniscal tears without underlying meniscal anomalies have been reported in only two cases before, and our case is the third one.

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1. Introduction

Meniscal tears may cause knee pain and functional impairment. Meniscal lesions are generally treated arthroscopically with sutures or resection. Bilateral bucket-handle meniscal tears is an uncommon condition. Although patients treated for bilateral bucket-handle tears of discoid menisci have been reported, to our knowledge, bilateral medial meniscal tears without underlying meniscal anomalies have been reported in only two cases.1,2

The present study describes the case of a 35-year-old male patient with bilateral bucket-handle medial meniscal tears that occurred nonsimultaneously.

2. Case report

A 35-year-old furniture worker was admitted to our hospital. His left knee was painful and experienced snapping and temporary locking for 10 days, while his right knee was mildly painful and experienced snapping for 18 months. The patient played amateur football once a week and reported sustaining repeated injuries to his knees while playing football. In the first event, he was admitted to an emergency department with pain and swelling after sustaining rotatory trauma to his right knee. The signs subsided after he was given medication. Despite experiencing locking and snapping in his knee, the patient did not seek further treatment because he did not want to be treated by a doctor. Nevertheless, he did not play football for more than a year.

In the second event, the patient sustained an injury to his left knee in a football match. The patient was admitted to our clinic 10 days after the second injury. Physical examination revealed positive meniscus tests medially but no instability or decreased motion of the right knee. Palpation of the medial compartment in the left knee revealed effusion and was painful. Before these injuries, he had no complaint in his knees, and biochemical tests showed no pathological signs for pathologies such as connective tissue diseases.

Bilateral X-rays showed no pathology. The patient had no deformity of lower extremities in the deformity analysis. A subsequent MRI revealed medial meniscal tears in both knees with typical findings of bucket-handle medial meniscal tears such as the absent bow tie sign, the double PCL sign, the anterior flipped fragment sign, and a fragment displaced into the intercondylar notch were visible (Figs. 1a, b and c and 2a, b and c). Bilateral arthroscopy was performed to repair these tears.

Arthroscopic examination of both of the knees was made from anteromedial and anterolateral portals under spinal anesthesia. Arthroscopic examination of the left knee revealed bucket-handle medial meniscal tear; the torn portion of the medial meniscus was reduced and sutured with 11 inside-out ethibond sutures. Arthroscopic examination of the right knee revealed partial ACL rupture and bucket-handle medial meniscus tear, the torn portion was poor and the fragment was irreducible; hence, partial meniscectomy of the medial meniscus was performed (Fig. 3a and b).

Wounds were clean on the fourth postoperative day. An angle-adjustable flexion knee brace (allowing 60° of movement) was used...
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3. Discussion

We present a case of 35 years old male patient suffering of knee pain resulting from traumatic bilateral bucket handle medial meniscus tears. The patient admitted to an orthopedic surgeon 18 months after the first trauma and 10 days after his second trauma.

A bucket-handle tear of the meniscus is a longitudinal and full-thickness tear. Typically, the medial portion is displaced to the intercondylar notch. The incidence of a bucket-handle tear among all meniscus tears is 10–26%. It is commonly seen in young adults after trauma.

Although young people playing contact sports are more vulnerable to bucket-handle tears of the menisci, there are also nontraumatic cases. Arthroscopic and histological studies have
Ligamentous injuries, especially the ACL lesions, increase the risk of medial meniscus tears. Both medial and lateral bucket-handle tears of the meniscus and the simultaneous bicompartimental bucket-handle meniscal tears with intact anterior cruciate ligament in the same knee have been reported, but bilateral bucket-handle medial meniscus tears have been described in only two cases. Greis et al. reported a non-simultaneous bilateral bucket-handle meniscal tears in a 16-year-old female ice skater. Abbott et al. reported a simultaneous bilateral bucket-handle tear of medial meniscus in an athlete, which occurred in a sand-pit long-jump trial. Akgün et al. reported an adult case with bilateral radial tears of discoid meniscus. In our case, the patient was not an athlete. There was no ligamentous injury of the left knee, but there was a partial ACL tear in the right knee. In addition, the menisci were normal in shape.

Physical examination and MRI may be used for the diagnosis of bucket-handle tears. Snapping and locking is present in 80% of cases. MRI gives valuable information in bucket-handle tears but its sensitivity ranges between 45% and 98%. Arthroscopy is still the golden standard for diagnosis and deciding the treatment choice between suturing or partial resection.

Many signs of bucket-handle meniscus tears are visible in MRI. The sensitivity of MRI in detecting bucket-handle meniscus tears increases with the presence of more than one sign and directly proportional to the size of the tear. In our case, the absent bow tie sign, the double PCL sign, the anterior flipped fragment sign, and a fragment displaced into the intercondylar notch were visible (Figs. 1 and 2). Although there was no ligamentous insufficiency detected in physical examination, there was a partial ACL rupture in the right knee.

Retarthroscopy could be necessary due to suture failure after meniscal repair or unrecovering was reported. However this incidence is not much different from partial meniscectomy.

4. Conclusion

The patient may not be aware of a complicated meniscal tear and may cause a suturable tear to be degenerated and unsuturable in time. Despite difficulties in treatment and rehabilitation, the importance of menisci in load distribution, knee mechanics, and knee stability makes them worthy preservation, especially in young and suturable cases.

Conflict of interest statement

None.

Funding

None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

All authors took part in surgical procedure, literature search, preparation of the paper and review.

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