Simultaneous bucket handle tear of both menisci with ACL injury

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Introduction

Meniscal tear is a common occurrence in young aged individuals due to high levels of activity or trauma and in the elderly due to degenerative process. Various types of meniscal injuries can occur depending upon the mechanism of the injury. Among these, bucket handle tears tend to happen with high velocity injuries and are relatively rare. In the bucket handle tear, the central meniscal fragment gets displaced into the intercondylar region and thus resembles a bucket handle. It occasionally gets entrapped during the range of motion and cause locking of the joint. This kind of injury occurs mostly with the medial meniscus and is usually post traumatic.

Simultaneous bucket handle tear of both menisci of the same knee is a rare phenomenon, with only a few cases described in literature. Bucket handle tear of either menisci of both the knees are commoner. Here, we present a case of simultaneous "bucket handle" tear of both menisci of the same knee, surgically confirmed by video arthroscopy, and treated with arthroscopic ACL reconstruction and meniscal repair and partial meniscectomy.

Case Report

A 33 year old man, presented with pain and instability of right knee since 4 years. He had sustained a twisting injury to his right knee 4 years ago while participating in a tug of war, followed by pain and swelling and was not able to bear weight. He was taken to a hospital and was advised rest and symptomatic treatment with which the symptoms subsided and he returned to his normal daily activities. In between he had feeling of giving way of right knee while running or

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climbing stairs associated with occasional swelling. Presently restrained from sporting activities, he had an episode of locking of the knee in bent position while walking and came to us for further management. (Figures 1 and 2.)

X-ray evaluation of the knee was done. (Figures 3 and 4.) An MRI scan of the affected knee showed a complete ACL rupture, a bucket handle tear of medial meniscus with the displaced fragment lying in intercondylar fossa and a complex radial tear of lateral meniscus at junction of anterior horn and body. (Figures 5–7.)
He underwent arthroscopic ACL reconstruction using quadrupled semitendinosis graft, medial meniscal repair and partial menisectomy. Arthroscopically, it was found that the bucket handle torn fragment of the medial and lateral menisci displaced into the intercondylar area. (Figures 8 and 9.) The graft was fixed on femoral side by a suspensory button and on tibial side by bioabsorbable screw. (Figure 10.) Medial meniscal injury was extensive which was repaired using high strength non absorbable suture material with combined all inside and outside in technique. (Figure 11.) Lateral meniscus tear was of complex type at the white–white zone and hence we resorted to partial menisectomy. (Figure 12.) No obvious chondral lesions were noted and the PCL was intact.

Post operatively, patient was put on non weight bearing crutch assisted mobilization with motion limiting brace locked at 0–90° and physiotherapy according to protocol. (Figures 13 and 14.)

**Discussion**

Bucket handle tears are usually seen on the medial meniscus in young individuals with high velocity injuries. They are often associated with anterior cruciate ligament rupture. These patients usually present
late after the acute event and develops recurrent episodes of locking. In magnetic resonance studies, specific findings include double PCL sign in the sagittal plane due to the interposition of the central fragment of the medial meniscus, in parallel and below posterior cruciate ligament, flipped meniscus sign/double delta sign in the sagittal or coronal planes due to the summation of anterior or posterior horns image and the adjacent inverted meniscal fragment and identification of the displaced meniscal fragment in the intercondylar notch.\(^3,4\)

Brammer et al. published the first case of “bucket handle” tear on the medial and lateral menisci of the same knee associated with ACL rupture, and named the finding as “Jack and Jill lesion”.\(^5\) Tecklenburg et al. described the first case in a professional athlete (skier), in which the patient fell with the knee slightly rotated and at maximum flexion, at a high speed. Their findings also pointed out frequent association of ACL tear and “bucket handle” tear of medial and lateral menisci.\(^6\)

## Conclusion
Although rare, combined “bucket handle” tears of both menisci of the same knee can occur. This clinical entity occurs in young active population, and is almost always associated with ACL injury. So suspicion in this regard has to be entertained. These patients usually take long duration for presentation after the inciting event, till they develop locking episodes. The treatment plan in these cases would be meniscal repair in young active patients and unstable tears. Non traumatic cases need further evaluation in view of underlying meniscal tissue anomalies.\(^8\)

## References