

International Journal of Orthopaedics Sciences

E-ISSN: 2395-1958
P-ISSN: 2706-6630
IJOS 2022; 8(2): 255-257
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www.orthopaper.com

Received: 23-01-2022

Accepted: 05-03-2022

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Management of hypertrophic anterior cruciate ligament mucoid degeneration by arthroscopy

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DOI: <https://doi.org/10.22271/ortho.2022.v8.i2d.3145>

Abstract

Introduction: Mucoid degeneration of the anterior cruciate ligament (ACL) is a less common entity. The primary pathology is the damage to the functional synovial lining protecting the ACL with no significant preceding trauma. Two types are described i.e., cystic (synovial and mucoid cysts) and infiltrating (mucoid degeneration). These lesions can be asymptomatic. When symptomatic, the patient complained of posterior knee pain with restriction of flexion in the knee. The diagnosis is confirmed by Magnetic Resonance Imaging of the Knee. Recent trends include arthroscopic procedures, including ACL debridement, i.e. partial resection. Total resection can be required in a few cases with ACL reconstruction.

Inclusion Criteria: Diagnosed cases of ACL mucoid degeneration on MRI.

Exclusion Criteria: Post-traumatic knee injuries-meniscal or ligamentous or bony, ACL synovial or mucoid cysts.

Materials and Methods: A total of 18 patients diagnosed with ACL mucoid degeneration were included in the study. The study was conducted from August 2019-August 2021. The patients were assessed clinically with history and clinical examination. MRI was advised in patients with clinical suspicion of ACL mucoid degeneration.

Results: The study sample consisted of 18 patients (7 females and 11 males) with ages ranging from 30 to 55 years (mean age, 43.2 years) in males and 35 to 55 years (mean age, 41.5 years) in females. On clinical assessment, exacerbation of pain was more commonly related with terminal flexion in 10 patients (58.8%) as compared to terminal extension (7 patients, 41%). No motion-related exacerbation of pain was seen in 1 case. 17 patients had an extension deficit. No complaint of instability was seen except for 2 cases.

Postoperatively an average improvement of the Visual analogue scale by 4 was seen. No flexion or extension deformity was noted. No patient had any major complication. On follow up Anterior Lachman test was grade 1 in 16 cases and in others it was same as opposite non-affected knee.

A complete resection of ACL with reconstruction using hamstring graft was done in 1 patient. The same patient showed a pain improvement of 4 scales on VAS. The patient however had episodes of instability.

Conclusion: A clinical suspicion of mucoid degeneration of ACL with confirmatory classical appearance on MRI are key to diagnosis. Symptomatic pain relief is better provided with ACL debridement with mild laxity in upcoming future.

Keywords: Anterior Cruciate Ligament (ACL), mucoid degeneration, MRI

Introduction

Mucoid degeneration of the anterior cruciate ligament (ACL) is a less common entity. The prevalence as mentioned in literature is 1.8 to 5.3%^[1, 2]. The primary pathology is the damage to the functional synovial lining protecting the ACL with no significant preceding trauma^[3]. It is considered as mucoid pathology of the intercondylar fossa. Two types are described i.e. cystic (synovial and mucoid cysts) and infiltrating (mucoid degeneration). It was first described as cysts of ACL by Caan in 1924 in cadaveric specimen^[3]. However Kumar *et al.* first documented mucoid degeneration of cruciate ligament in 1999^[4].

Many cases have been reported with ACL degenerative cysts as well as mucoid degeneration^[5-8].

These lesions can be asymptomatic. When symptomatic, the patient complaints of posterior knee pain with restriction of flexion in the knee. There is no related history of traumatic episode. Patients usually complain of chronic pain but presentations can vary. Clinical suspicion can be made on classical symptoms of the patient.

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The diagnosis is confirmed by Magnetic Resonance Imaging of the Knee. Bergin *et al.* has described the mucoid degenerative changes in the ACL on MRI and also distinguished these lesions from the other cystic lesions of the ACL^[2].

Treatment for symptomatic ACL mucoid degeneration varies greatly in the literature. Recent trends including arthroscopic procedures including ACL debridement i.e. partial resection. Total resection can be required in few cases with ACL reconstruction. The long term complications includes laxity and instability which depends on patient factors like age, associated knee lesions and postoperative physical activity.

In our study we assessed 18 patients for the clinical, diagnostic features of mucoid degeneration of the ACL with arthroscopic outcomes.

Materials and Methods

A total of 18 patients diagnosed with ACL mucoid degeneration were included in the study. The study was conducted from August 2019- August 2021. The patients were assessed clinically with history and clinical examination. Plain radiographs of knee with basic AP and lateral views to look for bony abnormalities was done. MRI was advised in patients with clinical suspicion of ACL mucoid degeneration.

Inclusion criteria

Diagnosed cases of ACL mucoid degeneration on MRI.

Exclusion criteria:

Post traumatic knee injuries-meniscal or ligamentous or bony, ACL synovial or mucoid cysts.

Clinical examination

Patients with knee pain in the popliteal region or diffuse knee pain were evaluated. Exacerbation of pain with flexion or extension was noted. Any flexion or extension deficits, instability, laxity were noted.

MRI diagnosis

Thickened and bulky ACL showing a high signal on T2 and Proton Density weighted sequences was considered as confirmatory diagnosis (fig 1).

Arthroscopy

The surgery was performed under spinal anesthesia. Standard anteromedial and anterolateral portals were used. ACL was assessed for thickness, tautness and impingement (fig 2). The best possible preservation of ACL fibers with debridement of maximum degenerative fibers of ACL was done to minimize future complications. If the residual fibers seemed insufficient or when the whole of the ACL degeneration was involved with no salvageable fibers, a complete reconstruction was preferred.

Results

The study sample consisted of 18 patients (7 females and 11

males) with ages ranging from 30 to 55 years (mean age, 43.2 years) in males and 35 to 55 years (mean age, 41.5 years) in females. All patients presented with knee pain with variable duration. Popliteal region pain was the most common symptom in 15 cases (83 %). Diffuse knee pain was present in 3 cases. No patient had a relatable previous traumatic episode. On clinical assessment, exacerbation of pain was more commonly related to terminal flexion in 10 patients (58.8 %) as compared to terminal extension (7 patients, 41 %). No motion-related exacerbation of pain was seen in 1 case. 17 patients had an extension deficit. No complaint of instability was seen except for 2 cases.

Clinical assessment showed anterior drawer and Anterior Lachman test with a fixed endpoint in 15 cases (83%) and grade I laxity in 3 cases (16%).

Postoperatively an average improvement of the Visual analogue scale by 4 was seen. No flexion or extension deformity was noted. No patient had any major complications. On follow-up, the Anterior Lachman test was grade 1 in 16 cases and in others, it was the same as the opposite non-affected knee.

A complete resection of ACL with reconstruction using hamstring graft was done in 1 patient. The same patient showed a pain improvement of 4 scales on VAS. The patient, however had episodes of instability.

Discussion

The literature discusses many cases of ACL mucoid degeneration. It is an uncommon pathology. The incidence, as mentioned earlier is about 1.8 – 5 %^[2]. It is more common in males in the age group of 40 – 50 years.

Pain associated with ACL mucoid degeneration has been postulated with various causes. It was attributed to the bulky ACL in the posterior intercondylar notch by Kumar *et al* and Hensen *et al.*^[5, 10]. Impingement of degenerated ACL in the femoro-tibial compartment is also considered a cause of pain by Hsu *et al.* and Kim *et al.*^[6, 11].

Two classes of patients are associated with mucoid degeneration of ACL. Young patients in whom repeated micro-traumas induce degenerative changes. The other includes elderly patients with degenerative changes associated with simultaneous meniscal and ligamentous injuries.

Very few cases may present with a preceding history of trauma. This was studied and reported by McIntyre *et al.*^[12]. We did not encounter any patients with traumatic episodes presenting with ACL mucoid degeneration. This supports the study findings by Narvekar and Gajjar^[13].

Conclusion

Clinical suspicion of mucoid degeneration of ACL with a confirmatory classical appearance on MRI are key to diagnosis. Symptomatic pain relief is better provided with ACL debridement with mild laxity in the upcoming future. ACL complete resection with reconstruction should be reserved for required cases.

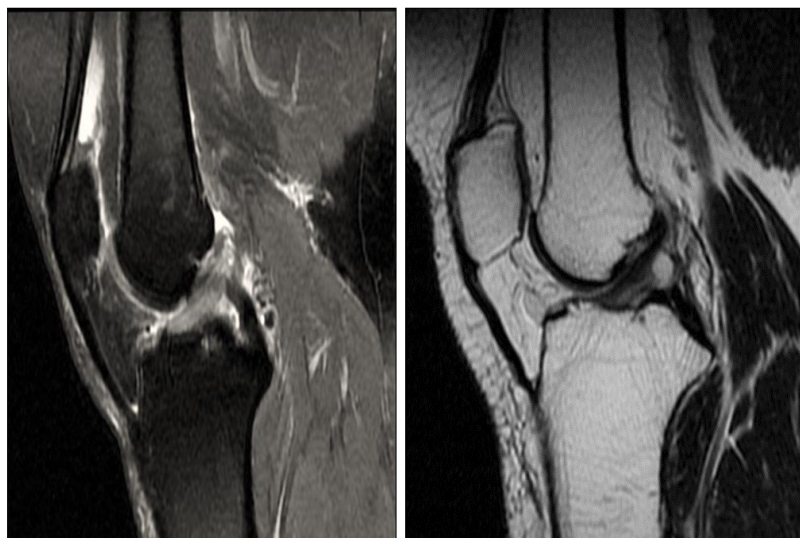


Fig 1: ACL mucoid degeneration in PD weighted and T2 weighted sagittal MRI images



Fig 2: Arthroscopic appearance of ACL mucoid degeneration- Yellow, thickened ACL

anterior cruciate ligament. *Knee Surg Sports Traumatol Arthrosc.* 2009;17:737-40.

10. Kumar A, Bickerstaff DR, Grimwood JS, Suvarna SK. Muroid cystic degeneration of the cruciate ligament. *J Bone Joint Surg (Br).* 1999;81:304-5.
11. Kim TH, Lee DH, Lee SH, Kim JM, Kim CW, Bin SI. Arthroscopic treatment of muroid hypertrophy of the anterior cruciate ligament. *Arthroscopy.* 2008;24:642-9.
12. McIntyre J, Moelleken S, Tirman P. Muroid degeneration of the anterior cruciate ligament mistaken for ligamentous tears. *Skeletal Radiol.* 2001;30:312-5.
13. Narvekar A, Gajjar S. Muroid degeneration of the anterior cruciate ligament. *Arthroscopy.* 2004;20:141-6.

References

1. Salvati F, Rossi F, Limbucci N, Pistoia ML, Barile A, Masciocchi C. Muroid metaplastic-degeneration of anterior cruciate ligament. *J Sports Med Phys Fitness.* 2008;48:483-7.
2. Bergin D, Morrison WB, Carrino JA, Nallamshetty SN, Bartolozzi AR. Anterior cruciate ligament ganglia and muroid degeneration: coexistence and clinical correlation. *AJR Am J Roentgenol.* 2004;182:1283-7.
3. Lintz F, Pujol N, Dejour D, Boisrenoult P, Beaufils P. Anterior cruciate ligament muroid degeneration: Selecting the best treatment option. *Orthop Traumatol Surg Res.* 2010;96:400-6.
4. Caan P. Cyst formation (ganglion) in the cruciate ligament of the knee. *Deutsch Z Chir.* 1924;186:403-8
5. Kumar A, Bickerstaff DR, Grimwood JS, Suvarna SK. Muroid cystic degeneration of the cruciate ligament. *J Bone Joint Surg Br.* 1999;81:304-5.
6. Hsu CJ, Wang SC, Fong YC, Huang CY, Chiang IP, Hsu HC. Muroid degeneration of the anterior cruciate ligament. *J Chin Med Assoc.* 2006;69:449-52.
7. Hensen JJ, Coerkamp EG, Bloem JL, De Schepper AM. Muroid degeneration of the anterior cruciate ligament. *JBR-BTR.* 2007;90:192-3.
8. Fernandes JL, Viana SL, Mendonca JL, *et al.* Muroid degeneration of the anterior cruciate ligament: magnetic resonance imaging findings of an underdiagnosed entity. *Acta Radiol.* 2008;49:75-9.
9. Motmans R, Verheyden F. Muroid degeneration of the