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Reconstruction of chronic patellar tendon rupture with hamstring graft and SS wire augmentation: A case report

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Abstract

Chronic patellar tendon ruptures are unusual and management of which is challenging. The management of a neglected, chronic patellar tendon rupture must address three difficulties: the proximally retracted patella, robust reconstruction of the patellar tendon, and the temporary protection of this repair. Here we would like to describe the advantages of reconstruction in a case of neglected patellar tendon rupture using hamstring grafts and ss wire augmentation, which allowed early range of motion and provided good functional outcome.

Keywords: Chronic patella tendon ruptures, hamstring grafts

Introduction

Patella tendon is a crucial structure aiding in the biomechanics of the knee joint by significantly contributing to the extensor mechanism. Injury to patellar tendon can lead to gross functional disability and can occur in athletes due to repetitive micro-trauma. Although patella tendon ruptures are rare, it commonly affects persons in 3rd -4th decade, typically during a sporting activity or due to direct trauma to the knee (1). The tendon is usually completely ruptured at the proximal insertion. Treatment of acute patellar tendon ruptures involves direct tendon to tendon repair with Trans osseous sutures, usually combined with an additional procedure to temporarily protect the repair (1). A rupture becomes chronic if not diagnosed early and becomes more challenging for management. In this case report we would like to discuss the course of management of neglected patellar tendon rupture.

Case report

Patient was a 25yr old male, who came with complaints of inability to extend his right knee, following a history of trauma due to fall of a tree branch over his right knee 8 months back., he underwent a surgery for the same in a local hospital, documents related to the surgery were unavailable. He had no functional improvement following surgery. On his presentation, patient was unable to actively extend his right knee and patella tendon was not palpable. Radiographs of the knee were taken which showed significant proximal migration of the patella. Ultrasound of right knee confirmed the absence of patellar tendon.



Fig 1: Pre-operative radiographs

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Procedure

Extensive midline incision was utilized for exposure of patella tendon and tibial tuberosity. There was no remnant of patella tendon between inferior pole of patella and tibial tuberosity. Gracilis and semitendinosus graft harvested using open tendon tunneller through the same incision, a horizontal tunnel was drilled with a 4.5mm reamer in the mid third of the patella (2).

Tendon was tunnelled through patella and tibial tuberosity tunnels in the fig of 8 manner. Free end of both the tendons

were sutured on to itself using ethibond no.5 sutures. Insertion of both the harvested tendons are kept intact at pes anserinus which adds to the strength (3). SS wire augmentation was done in figure of 8 manner in an attempt to off load the tension on the reconstructed ligament. Mid line incision was closed with sutures, post op day 1 knee mobilization was initiated.

Intra operative

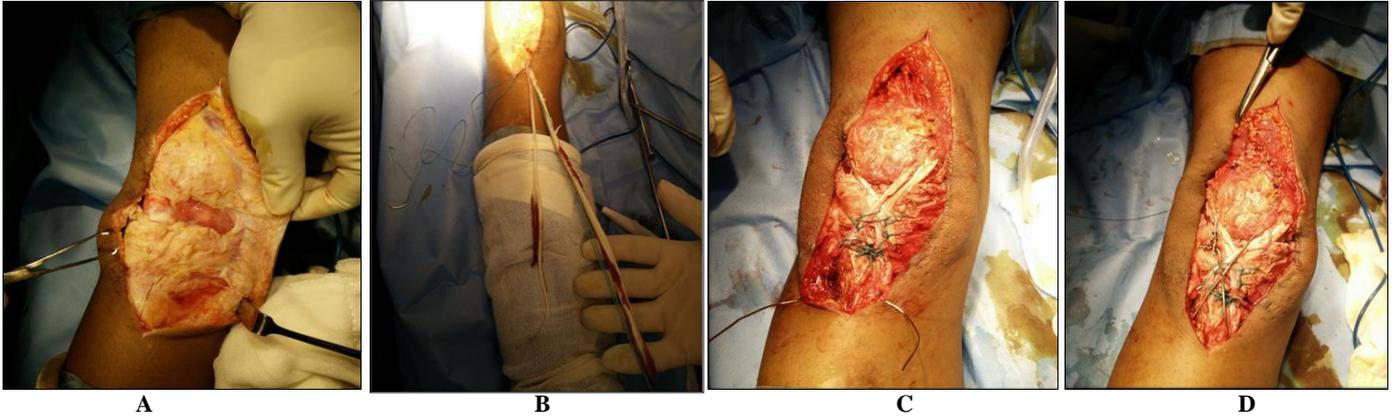


Fig 2: A. Midline incision to expose the patella and tibial tuberosity, no remnants of patella tendon seen
 B. semitendinosus and Gracilis graft harvested maintaining the distal insertion of tendons intact
 C. figure of eight fashion reconstruction with the harvested tendons
 D. stainless steel wire augmentation

Post-operative



Fig 3: Post-operative Radio Graphs

Discussion

Surgical management of neglected patella tendon tear are often challenging owing to the proximal retraction of patella due to unopposed quadriceps contraction (4). More over the mechanical load over reconstructed patellar ligament is enormous and hence protecting the surgical reconstruction and achieving a successful functional outcome is demanding task (4). It is imperative to provide a robust reconstruction assisted with a good augmentation procedure which would allow early mobilization (4). To improve the strength of the graft we have used both gracilis and semitendinosus and augmented the reconstruction with stainless steel wire. Augmentation of the reconstruction for first 6 months with SS wire becomes mandatory, SS wire would off load the reconstructed patella ligament during the flexion of knee by maintaining fixed distance between patella and tibial

tuberosity and would transmit the tensile force to the quadriceps bypassing the reconstructed ligament (3).

Conclusion

Neglected patella tendon ruptures although a rare entity, it has numerous challenging tasks in the course of its management. Reconstruction with hamstring graft and SS wire augmentation will help in achieving good functional recovery by providing robust reconstruction to withstand early mobilization.

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