CHRONIC PATELLAR TENDON RUPTURE RECONSTRUCTED WITH HAMSTRING GRAFT – A CASE REPORT

ABSTRACT

Neglected patella tendon rupture which are presented 6 weeks after injury are rare but it can be disabling. A 26 year old male, came with complains of weakness of legs, difficulty in climbing stairs up and down, difficulty in getting up from squatting position.X ray showed high riding patella. Pre operatively MRI was taken showed full thickness rupture of ACL.The patient was operated with a combination of Chen et al [11] and ganga hospital SR Sundararajan [7],our outcome was also excellent with no extensor lag, good rao , kujala, lysholm scores

INTRODUCTION

Neglected patella tendon rupture which are presented 6 weeks after injury are rare but it can be disabling [1].It occurs usually beneath the inferior pole of patella in younger population during sport related activities [2-5]. Patients are usually would have undergone native splinting. They are usually tough to repair [3,6.] Although different techniques have been described we have reconstructed using hamstring graft [7].

Key words:

Neglected patellar tendon injury, hamstring graft, chronic rupture, figure of 8.

CASE REPORT

A 26 year old male , came with complains of weakness of legs, difficulty in climbing stairs up and down, difficulty in getting up from squatting position. Patient complains of apprehension to fast walking or running due to buckling of knee. He had a past history of fall from motorcycle 6 month ago over a flexed knee, for which he underwent native splinting for 3 months, 6 splints each for 15 days. On examination patient could not do active extension. Passive ROM was full. Quadriceps power was 3/5.Quadriceps wasting of 1cm was present. A palpable defect was felt beneath the inferior pole patella. X ray showed high riding patella. Pre operatively MRI was taken showed full thickness rupture of ACL.

OPERATIVE PROCEDURE

Under spinal anaesthesia, parts painted and draped, patella was marked and tibial tuberosity was marked (fig:1), a midline anterior incision was made, we found here was complete rupture and degeneration of the tendon (fig:2), ACL rupture end was visualised (fig:3). The upward migrated patella was tracked down without any difficulty. Two transverse tunnels were made within the patella (fig:4) by guide wire and another tunnel parallel to these was within the tibial tuberosity.

Fig. 1. Patella and tibial tuberosity is marked.

Fig 2

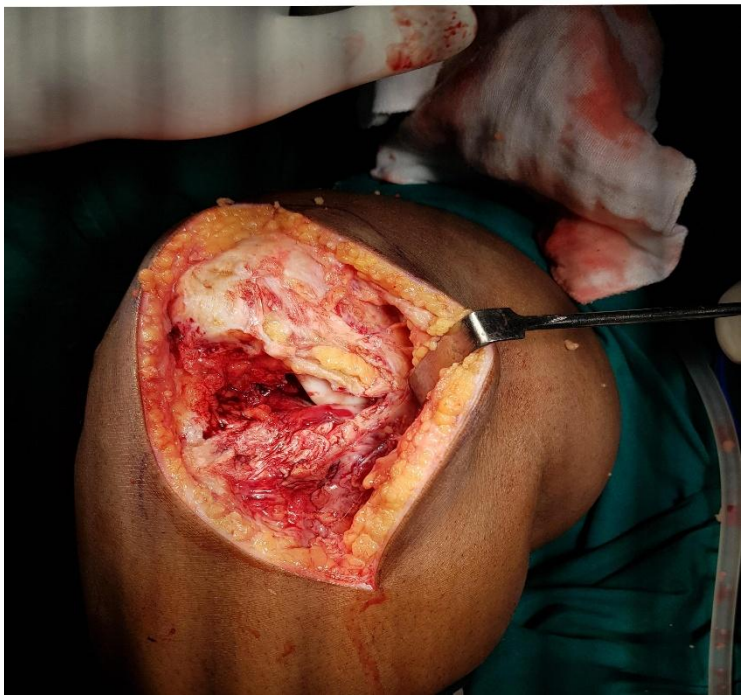

Fig. 2. Complete rupture of patellar tendon with no residual tendon

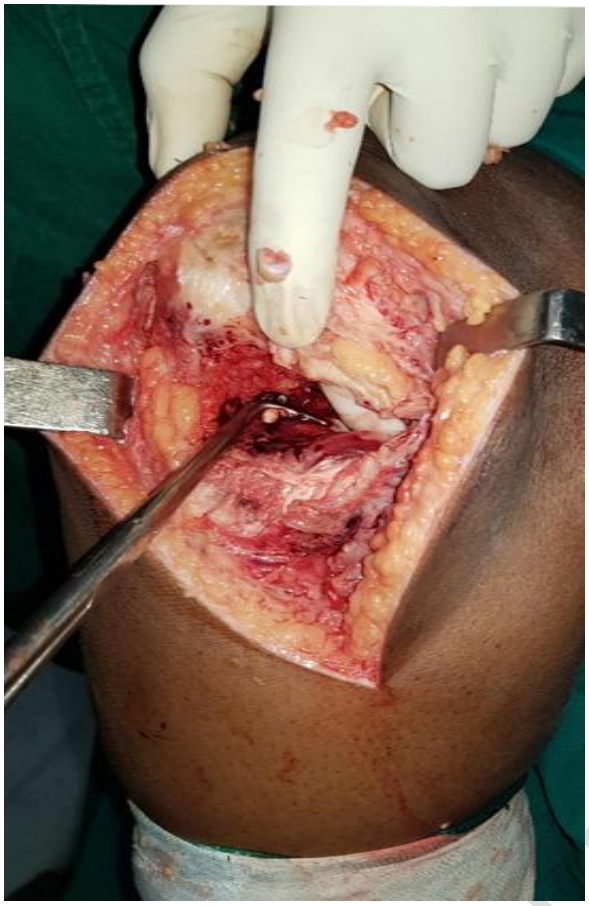

Fig 3 Complete rupture of patellar tendon

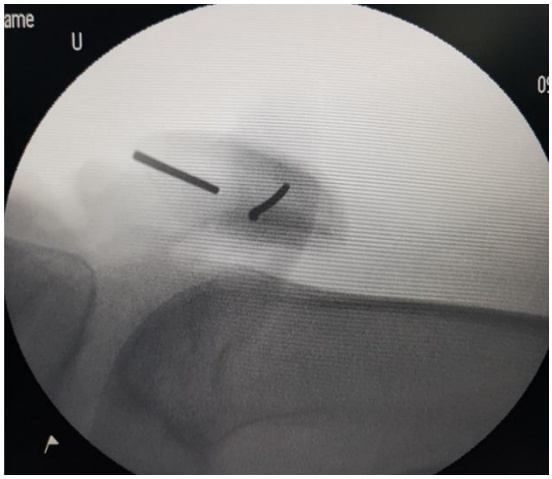

Fig. 4. Tranverse tunnels created using guide wires

Hamstring tendons, gracilis and semi tendinosis was harvested using open tendon stripper(fig:5), insertion on tibial tuberosity was not detached, muscle tissue were removed. Gracilis was passed from same side to upper tunnel of patella , semi tendinosis was passed in opposite side of lower tunnel (fig 6) was brought out to like “ figure of 8” fashion within the tibial tunnel, both semi tendinosis and gracilis was sutured with 2-0 ethibond to complete the tendon reconstruction.(fig 7,8,). Fluroscopy was used to confirm the position of the patella to maintain Insall- salvati ratio at 30 degree of flexion. The strength of the construct was tested by flexing the knee to 90 degree (fig 9). Cerclage wire was put to maintain the stability of the construct. Patient was immobilised in long knee brace and was started on static quadriceps exercises for 4 weeks . Cerclage wire was removed at 4th week, was started on ROM exercises with continuous passive motion, touch weight bearing was started on 6 weeks period , full weight bearing was started on 10 weeks period.

Fig 5

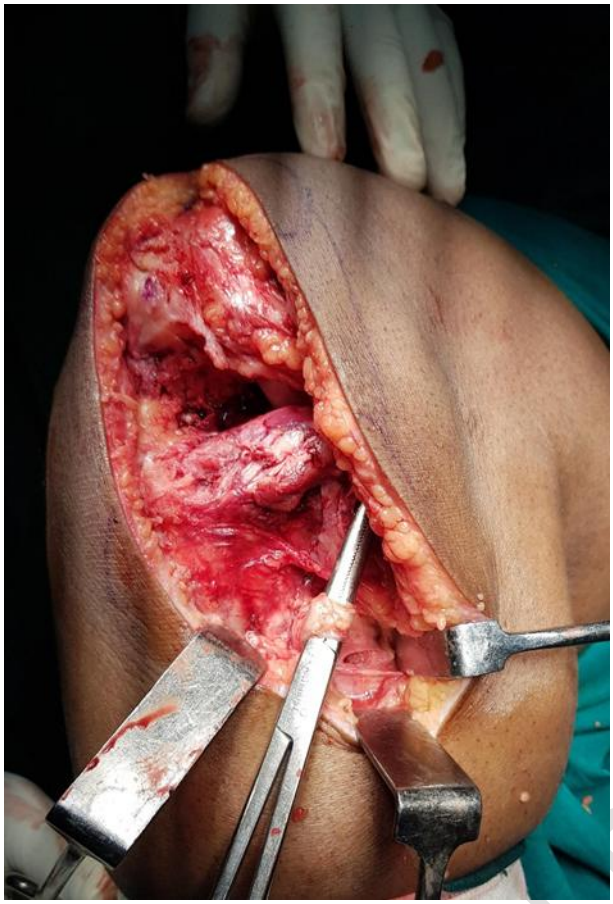

Fig. 5. Hamstring tendons harvested without detaching the insertion site with open tendon stripper

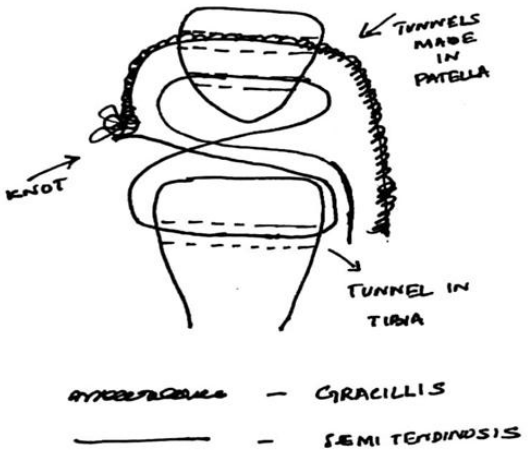

Fig. 6. Schematic diagram of how tendons were passed through tunnels of patella and tibia

Fig. 7. Stiching in tendons

Fiqure 8 construct was made with hamstring tendons

Fig. 9. Constructed was checked with 90 degrees of flexion

RESULTS

One year postoperatively patient was able to gain active flexion of 130 degrees with no extensor lag, quadriceps power regained to 4/5, insall salvati ratio maintained to 1.07, outcome was evaluated by rao criteria[1] was excellent, kujula score 94.1, lysholm score 92.3 were good.

DISCUSSION

Neglected patella tendon rupture which are presented 6 weeks after injury are rare but it can be disabling [1].It occurs usually beneath the inferior pole of patella in younger population during sport related activities [2-5]. Patients are usually would have undergone native splinting. They are usually tough to repair [3,6]. Ecker et al.[8] in 1979 reported four cases of late patellar tendon reconstruction using both the gracilis and semitendinosus tendons. Each tendon was passed through separate tunnels in patella and was sutured together. A cerclage ss wire was used

to give stability. Dejour et al. [9] in 1992 reported tendon ruptures of patella operated with opposite leg autograft with tibial bone block,Third of patellar ligament, Patella block and quadriceps tendon, although it caused morbidity to the the normal leg. In 2007 Van der zaal[10] reported cases fixed with bioscrews and staples. Chen et al used [11] similar to our procedure preserving the distal attachments for vascularity. Similarly many materials were used Achilles tendon [15-17], synthetics like carbon fibre [19] , Dacron [20], lars [21] . we used a method similar to Chen et al and method adopted in Ganga hospitals[7].No costlier implant was used, no morbidity was given to opposite knee. Our outcome was good with active flexion of 130 degrees with no extensor lag, quadriceps power regained to 4/5, insall salvati ratio maintained to 1.07,outcome was evaluated by rao criteria[1] was excellent, kujula score 94.1, lysholm score 92.3. however it is imperative to maintain normal length of patella tendon to prevent alta and baja, can hamper knee function, and reduce pressure of patella over trochlea which can accelerate patellofemoral arthritis. MRI done preoperatively showed ACL rupture, which the patient asked us to do on a later date.

CONCLUSION

Our operative procedure was a combination of Chen et al [11] and ganga hospital SR Sundararajan [7], our outcome was also excellent with no extensor lag, good rao , kujala, lysholm scores. Even our technique can also be adopted in future surgeries.

REFERENCES

1. Siwek CW, Rao JP (1981) Ruptures of the extensormechanismof the
knee joint. J Bone Joint Surg Am 63:932–9372. MatavaMJ (1996) Patellar tendon ruptures. J Am Acad Orthop Surg 4:28796
3. Bek D, Demiralp B, Kömürcü M, Sehirlioğlu A (2008) Neglected
patellar tendon rupture: a case of reconstruction without quadriceps
lengthening. J Orthop Traumatol 9(1):39–42
4. Lewis PB, Rue JP, Bach BR Jr (2008) Chronic patellar tendon
rupture: surgical reconstruction technique using 2 Achilles tendon
allografts. J Knee Surg 21(2):130–135
5. Nguene-Nyemb AG, Huten D, Ropars M (2011) Chronic patellar
tendon rupture reconstruction with a semitendinosus autograft. Orthop Traumatol Surg Res 97(4):447–450
6. Gries PE, Lahav A, Holmstrom MC (2005) Surgical treatment options
for patella tendon rupture, part II: chronic. Orthopedics 28(8):765–769
7.Neglected patellar tendon rupture-a simple modified reconstruction using hamstring tendon graft Sr sundaraja, kp srikanth, s rajasekran Int Orthop2013 Nov
8. Ecker ML, Lotke PA, Glazer RM (1979) Late reconstruction of the
patella tendon. J Bone Joint Surg Am 61:884–886
9. Dejour H, Denjean S, Neyret P (1992) Treatment of old or recurrent
ruptures of the patellar ligament by contralateral autograft. Rev Chir
Orthop Reparatrice Appar Mot 78:58–62

10. Van der Zwaal P, Van Arkel ERA (2007) Recurrent patellar tendon
rupture: reconstruction using ipsilateral gracilis and semitendinosus
tendon autografts. Injury 38:320–323
11. Chen B, Li R, Zhang S (2012) Reconstruction and restoration of
neglected ruptured patellar tendon using semitendinosus and gracilis
tendons with preserved distal insertions: two case reports. Knee
19(4):508–512
12. Milankov MZ, Miljkovic N, Stankovic M (2007) Reconstruction of
chronic patellar tendon rupture with contralateral BTB autograft: a
case report. Knee Surg Sports Traumatol Arthrosc
15(12):1445–1448
13. Mittal R, Singh DP, Kapoor A (2011) Neglected patellar tendon
rupture: preserve the fat pad. Orthopedics 34(2):134
14. Magnussen RA, Lustig S,Demey G, MasdarH, ElGuindy A, Servien
E et al (2012) Reconstruction of chronic patellar tendon ruptures with
extensor mechanism allograft. Tech Knee Surg 11(1):34–40
15. McNally PD,Marcelli EA (1998) Achilles allograft reconstruction of
a chronic patellar tendon rupture. Arthroscopy 14:340–344
16. Labib SA,WilczynskiMC, Sweitzer BA (2010) Two-layer repair of a
chronic patellar tendon rupture: a novel technique and literature
review. Am J Orthop 39(6):277–282
17. Falconiero RP, Pallis MP (1996) Chronic rupture of a patella tendon:
a technique for reconstruction with Achilles allograft. Arthroscopy

12:623–626
18. Evans PD, Pritchard GA, Jenkins DH (1987) Carbon fibre used in the
late reconstruction of rupture of the extensor mechanism of the knee.
Injury 18:57–60
19. Levin PD (1976) Reconstruction of the patellar tendon using a
Dacron graft: a case report. Clin Orthop 118:70–72
20. NaimS,Gougoulias N, Griffiths D (2011) Patellar tendon reconstruction
using LARS ligament: surgical technique and case report. Strateg
Trauma Limb Reconstr 6(1):39–41