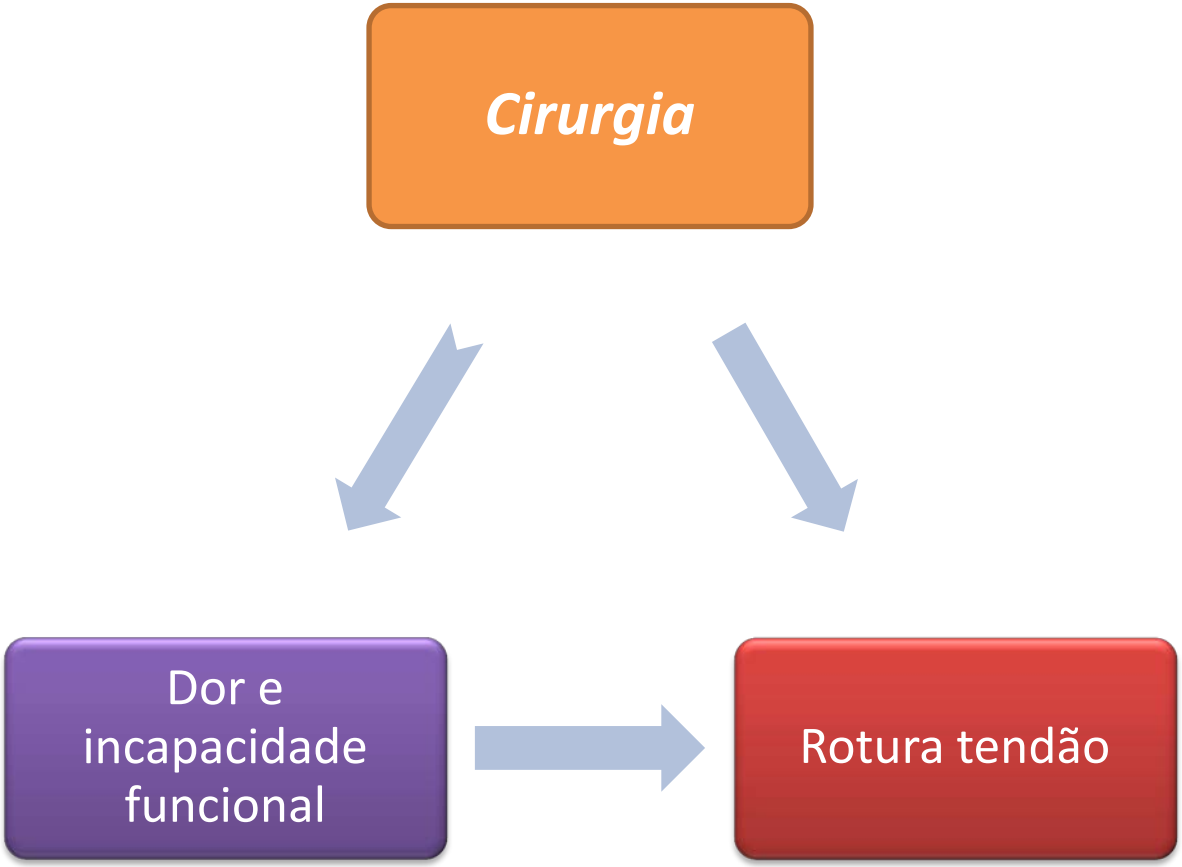
Tendinopatia patelar
Tratamento cirúrgico

Fernando Fonseca

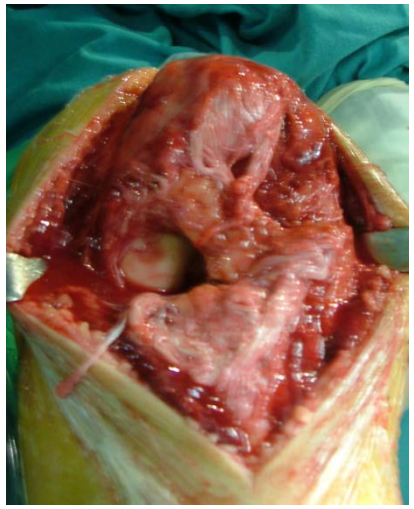
Tendinose patelar



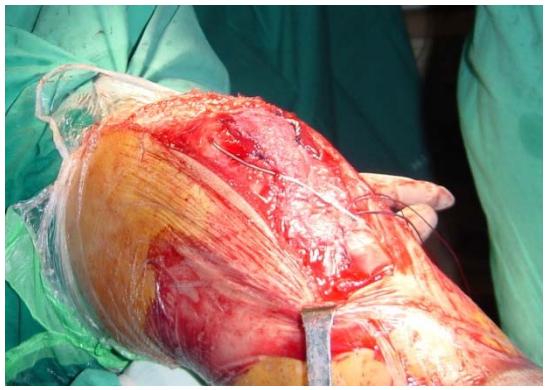
Rotura tendão patelar

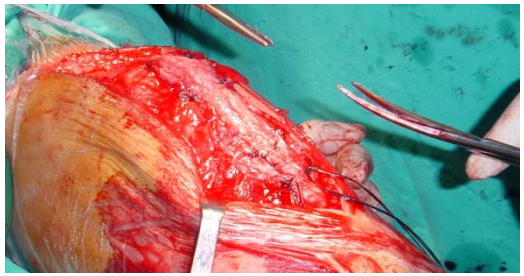
- Sutura topo a topo
  - Reforço com
    - Cerclage
    - Autoenxerto tendinoso
    - Material sintético

Cirurgia da rotura tendão patelar

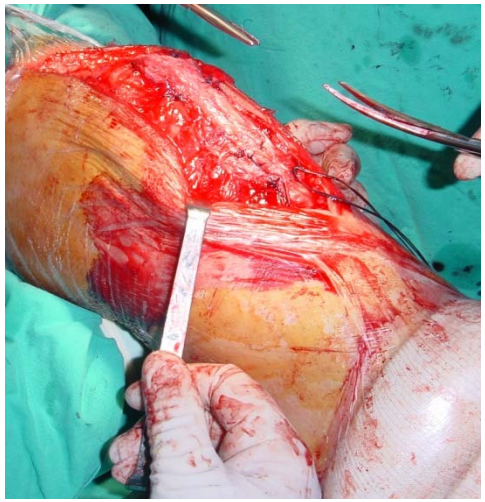


- Sutura topo a topo
- Utilização complementar de
  - ABI (Autologous blood injection)





Cirurgia da rotura tendão patelar - II



Cirurgia da rotura tendão patelar - III

J Bone Joint Surg Am. 2013 Sep 4;95(17):e1231-6. doi: 10.2106/JBJS.L.01462.

Ipsilateral hamstring tendon graft reconstruction for chronic patellar tendon ruptures: average 5.8-year follow-up.

Maffulli N, Del Buono A, Loppini M, Denaro V.

Author information

Abstract

BACKGROUND: Patellar tendon reconstruction is technically demanding and is indicated in patients with chronic ruptures (i.e., still present more than six weeks after injury). The purpose of this study was to assess the effectiveness of this procedure in patients with impaired function following patellar tendon rupture.

METHODS: Nineteen patients underwent autologous ipsilateral hamstring tendon graft reconstruction for management of a chronic patellar tendon rupture. The clinical diagnosis was supported by imaging radiographs and magnetic resonance imaging. The modified Cincinnati rating system questionnaire and the Kujala scoring questionnaire were administered preoperatively and at the last examination, an average follow-up of 5.8 years (range, four to 7.8 years) postoperatively. Thigh volume, cross-sectional area of the thigh (muscle and bone), and the maximum isometric voluntary contraction strength of the extensor apparatus of the knee were measured bilaterally in all nineteen patients.

RESULTS: At the last follow-up visit, knee flexion had increased from a mean of 110° preoperatively to a mean of 132° and extension lag had significantly decreased from 20° preoperatively to 3°; the mean modified Cincinnati and Kujala scores were notably improved. All patients had returned to ordinary daily activities. Fourteen of nineteen patients were very satisfied with the procedure, three were satisfied, one was moderately satisfied, and one was unsatisfied.

CONCLUSIONS: On the basis of our review of nineteen patients, hamstring tendon reconstruction of chronic patellar tendon rupture provided good functional recovery and return to preinjury daily activities.

PMID: 24005207 [PubMed - indexed for MEDLINE]

Tendinose patelar

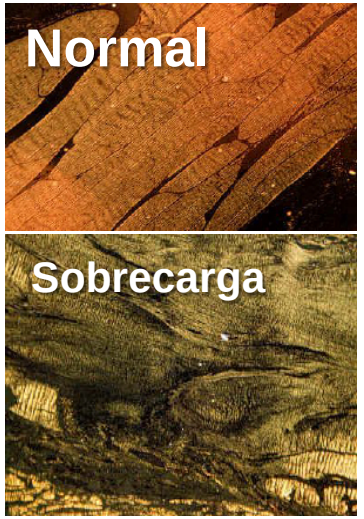
- Dor e incapacidade funcional resistente ao tratamento conservador

Schiavone, Maffulli: Am J Sports Med 2000 28: 392-397

Causa da dor
Algumas questões

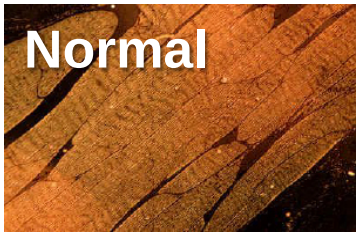
- Processo inflamatório
  - Que processo inflamatório?
    - Sistema inflamatório endógeno (inflamação neurogénica)
    - Sistema inflamatório exógeno
  - Alteração da qualidade do colagénio do tendão
    - Normalidade das fibras
      - Sem dor?
    - Alteração das fibras (vistas por ecografia ou RM p.ex.)
      - Presença de dor ?

Causa da dor
Algumas questões



- Processo inflamatório
  - Que processo inflamatório?
    - Sistema inflamatório endógeno (inflamação neurogénica)
    - Sistema inflamatório exógeno
  - Alteração da qualidade do colagénio do tendão
    - Normalidade das fibras
      - Sem dor?
    - Alteração das fibras (vistas por ecografia ou RM p.ex.)
      - Presença de dor ?

Causa da dor
Algumas questões



- Processo inflamatório
  - Que processo inflamatório?
    - Sistema inflamatório endógeno (inflamação neurogénica)
    - Sistema inflamatório exógeno
  - Alteração da qualidade do colagénio do tendão
    - Normalidade das fibras
      - Sem dor?
    - Alteração das fibras (vistas por ecografia ou RM p.ex.)
      - Presença de dor ?

Tendinite

Current concepts review, tendinosis of the elbow (tennis elbow): clinical features and findings of histological, immunohistochimical, and electron microscopy studies

Kraushar BS, Nirschl RP

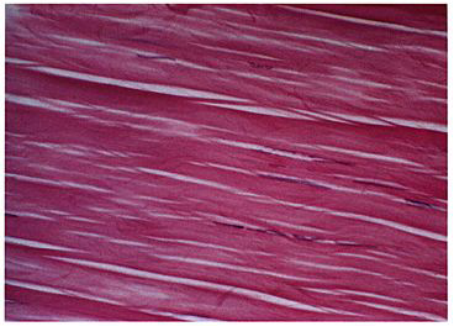


Fig. 1 Photomicrograph of a specimen of normal tendon, showing parallel bundles of uniform-appearing collagen oriented along the long axis of the tendon. The matrix, which is composed primarily of proteoglycans, glycosaminoglycans, and water, is stained evenly. No vascular structures are apparent within the tendon (hematoxylin and eosin, x 100).

J Bone Joint Surg [Am] 1999; 81-A; 259-78

J Bone Joint Surg Am. 1999 Feb; 81-A(2):259-278.

Tendinose

Current concepts review, tendinosis of the elbow (tennis elbow): clinical features and findings of histological, immunohistochimical, and electon microscopy studies

Kraushar BS, Nirschl RP

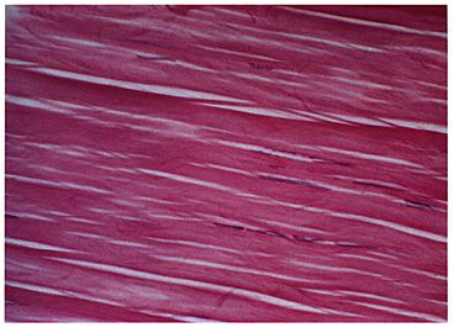


Fig. 1 Photomicrograph of a specimen of normal tendon, showing parallel bundles of uniform-appearing collagen oriented along the long axis of the tendon. The matrix, which is composed primarily of proteoglycans, glycosaminoglycans, and water, is stained evenly. No vascular structures are apparent within the tendon (hematoxylin and eosin, x 100).

J Bone Joint Surg [Am] 1999; 81-A; 259-78

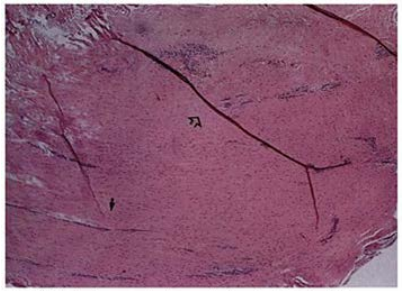


Fig. 2 Photomicrograph demonstrating tendinosis of the extensor carpi radialis brevis tendon. The entire specimen appears to be hypercellular, with focal areas that are densely cellular. Some of the hypercellular regions are parallel to the tendon fibers (solid arrow), whereas others are not (open arrow). There is no evidence of an inflammatory response, as indicated by the absence of polymorphonuclear leukocytes, lymphocytes, and macrophages (hematoxylin and eosin, x 20).

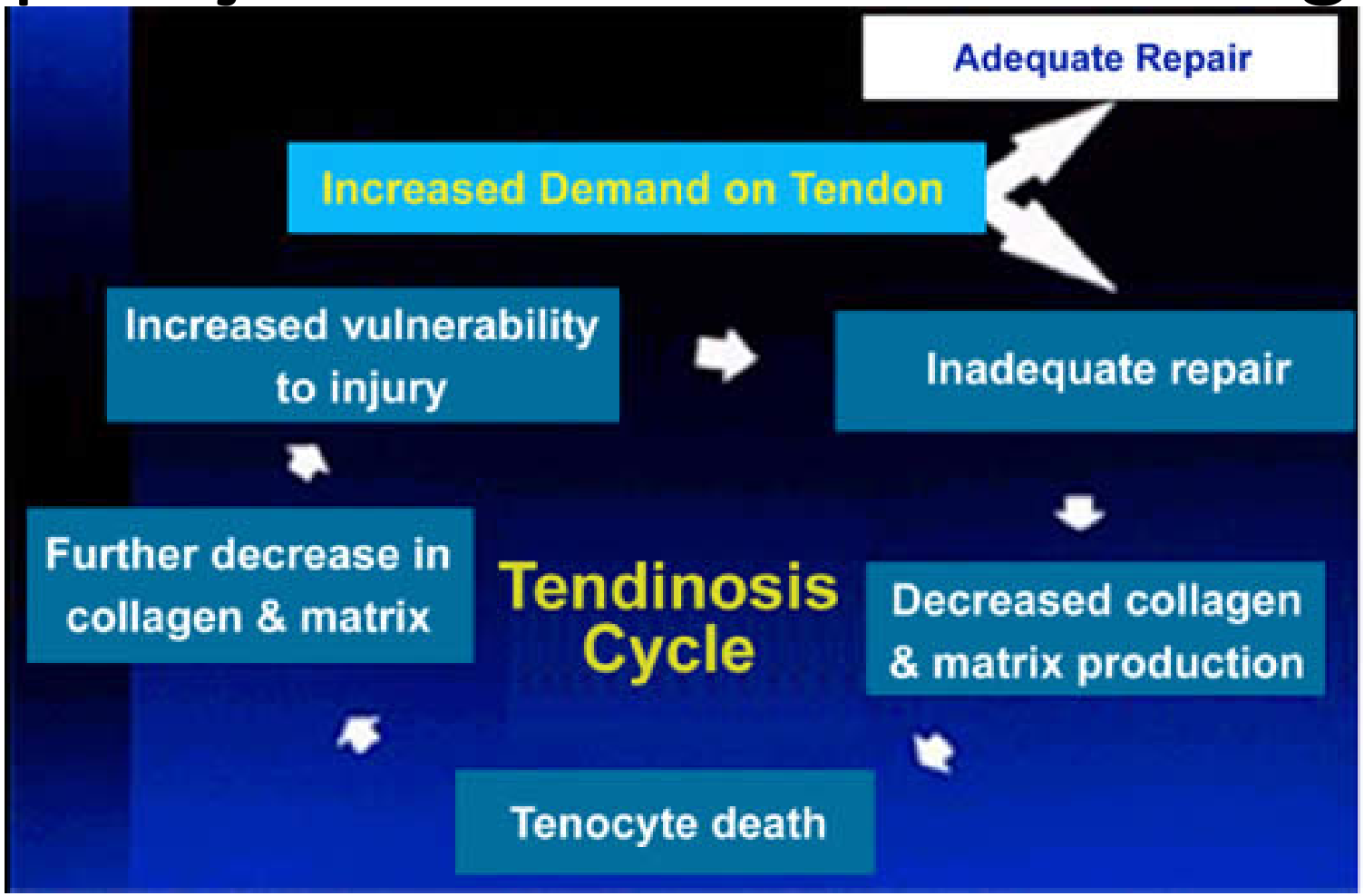
J Bone Joint Surg [Am] 1999; 81-A; 259-78

J Bone Joint Surg Am. 1999 Feb; 81-A(2):259-278.

Diagnóstico patológico	Macroscopia	Histologia
Tendinose	Degeneração intra-tendinosa (frequente com a idade, microtraumatismos, compromisso vascular)	Desorientação fibras de colagénio, aumento da presença de substância mucoide, necrose focal, aumento da proliferação celular
Tendinite/rotura parcial	Degeneração sintomática dos tendões com rotura irrigação sanguínea e resposta inflamatória de reparação	Alterações degenerativas, evidência de rotura. Proliferação fibroblástica, hemorragia e tecido de granulação
Paratendinite	'Inflamação' da zona mais periféria do pertitendão	Degeneraçõa mucoide. Infiltrado disperso de células mononucleares, com ou sem exsudato.
Paratendinite com tendinose	Paratendinite associada a alteração degenerativ intra-tendinosa	Alterações degenerativas encontradas na tendinose e presença de infiltrado inflamatório na região do peritendão

Ollivierre CO, Nirschl RP, Pettrone FA. Resection and repair for medial tennis elbow. A prospective analysis. Am J Sports Med 1995;23:214-221

Reparação em lesão de sobrecarga



Maffuli N, Tendon injuries, basic science and clinical medicine;Springer, 2005

Factores associados

- Intrínsecos
  - Alinhamento
    - Pronação excessiva tornozelo
    - Joelho valgo/varo
    - Anteversão do colo femoral
  - Dismetria membros
  - Desiquilíbrios musculares
  - Hipermobilidade
  - Rigigez muscular
- Extrínsecos
  - Erros no treino
    - Intensidade
    - Técnica
    - Fadiga
  - Piso
  - Calçado e equipamento

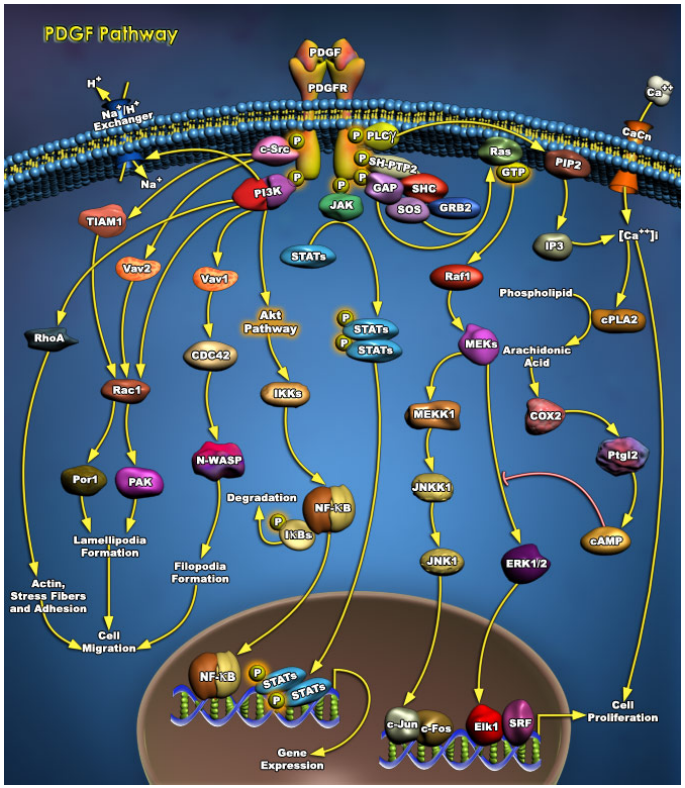
Tratamento

- O tratamento conservador continua a ser o padrão básico de tratamento das tendinopatias
  - Repouso activo
  - Infiltração com corticóides
  - Alteração do gesto técnico
  - Preparação física adequada

Outras alternativas cirúrgicas

- Furagem polo inferior da patela
- Excisão macroscópica das áreas degeneradas
- Radiofrequência
- Escarificação
  - Aberta
  - Percutânea
- Desbridamento artroscópico
- Injecção percutânea

- Utilização de PRP



Estudos tipo RCT

Technique	Species	Tissue-type	Study Details	Results	Type
Autologous Blood Injections (ABI)	Animal	Tendon Ligament	Taylor 2002[37] – Rabbit – normal Patella Tendon	No harmful effects	Crossover
	Human	**Tendon Ligament**	**1)Edwards 2003[31] – Lateral Epicondylitis 2) Connell 2006[30] – Medial Epicondylitis 3)Connell 2006[30] – Lateral Epicondylitis**	1)79% patients complete pain relief 2&3) No pain at 6 months	**Cohort**
Autologous Conditioned Serum (ACS)	Animal	Muscle	Wright-Carpenter 2004[28] – Mice Gastrocnemius	Increased satellite cells & myofibres	Controlled Trial
	Human	**Muscle**	**Wright-Carpenter 2004[29] – Human Skeletal Muscle**	Improved recovery 22.3 v 16.6 days	**Controlled Trial**
Platelet-Rich Plasma (PRP)	Animal	Tendon Ligament	Aspenberg 2004[33] – Rat Achilles tendon rupture	30% improved strength at 1 week	Cohort
		Muscle	Carda 2005[32] – Skeletal Muscle tears	Improved healing at 6 days	Cohort
	Human	**Tendon Ligament**	**1)Mishra 2006[7] – Elbow tendinopathy 2)Sanchez 2005[35] – Achilles tendon rupture 3)Sanchez 2007[27] – Achilles tendon rupture**	**1) 60% ↓VAS at 8/52 v 16%↓ control 2&3) full recovery 14 weeks v 21**	**1)Controlled Trial 2)Case Report 3)non-randomised Trial**
		Muscle	**Sanchez 2005[36]**	**Full recovery in ½ time v controls**	**Case series**
Suramin	Animal	Muscle	Chan 2005[43] – Mice Gastrocnemius	↓scar tissue ↑tetanic strength	Controlled Trial
Relaxin	Animal	Muscle	Negishi 2006[45] – Mice Skeletal Muscle	↓fibrosis ↑myofibre regeneration	Crossover

TITLE: Platelet-Rich Plasma Injection for Achilles Tendinopathy

AUTHOR: Jeffrey A. Tice, MD
Assistant Professor of Medicine
Division of General Internal Medicine
Department of Medicine
University of California San Francisco

PUBLISHER: California Technology Assessment Forum

DATE OF PUBLICATION: October 13, 2010

PLACE OF PUBLICATION: San Francisco, CA

CONCLUSION

Overuse injuries of the Achilles tendon are common, particularly among runners. Many patients' injuries can be managed conservatively, but recovery is often slow and prolonged. The limited blood supply to the tendon may contribute to slow or stalled healing. The growth factors in PRP are hypothesized to jump start the healing process for patients with chronic Achilles tendinopathy.

One case report highlighted the rapid recovery of a competitive athlete from a partial tear of the Achilles tendon that was treated with PRP injections. Additionally, one case series of 14 patients with mid-portion Achilles tendinopathy reported dramatic improvements on two validated scales of Achilles tendon pain and function within three months of therapy and sustained through eighteen months. No significant complications were reported.

However the one high quality, double-blinded, sham-controlled randomized trial found no benefit to PRP injections compared with sham injections. The trial was relatively small, so it may have been underpowered to detect small improvements from PRP injection. There are also alternative approaches to processing and activating PRP. It may be that the approach used in this trial was not effective, but other approaches will be effective. However, based on the current evidence, PRP injection, added to the standard eccentric exercise therapy, does not appear to be an effective approach to the treatment of Achilles tendinopathy. A search of ClinicalTrials.gov indicates that there are at least 41 trials testing PRP for a variety of musculoskeletal and orthopedic conditions, so more data should be available in the near future.

RECOMMENDATION

It is recommended that use of platelet-rich plasma injections for the treatment of non-insertional Achilles tendinopathy does not meet CTAF TA Criterion 3 through 5 for improvement in health outcomes.

Utilização de radiofrequência

Tratamento por RF

Treatment of chronic tendinosis with bipolar radiofrequency stimulation Arthroscopy

July-August 2003, Supplement 1 • Volume 19 • Number 6 • p81 to p81

James P. Tasto, William C. Evesb, Renee Valeuc, Wendy Wintersd, Shay Shabate, Y. Herzonif, David Morgensterng, Naama Constantinih, Meir Nyskai

Tratamento por RF

Results: Ninety two percent of patients had significant improvement in their pain and function at 6 months. The post-operative VAS pain scores were decreased by 55% at 7–10 days post operative, 75% at 4 weeks, and 85% at the 6 month evaluation. There was significant improvement ($p < 0.05$) in the SF-36, IKDC, Upper Limb DASH, and the AOFAS scores. Seventy-five percent of the pre-operative MRI's had changes consistent with tendinosis. Post surgical and tendinosis changes were observed in 96% of patients at 4 weeks. At 6 months, only 21% had tendinosis changes on their MRI.

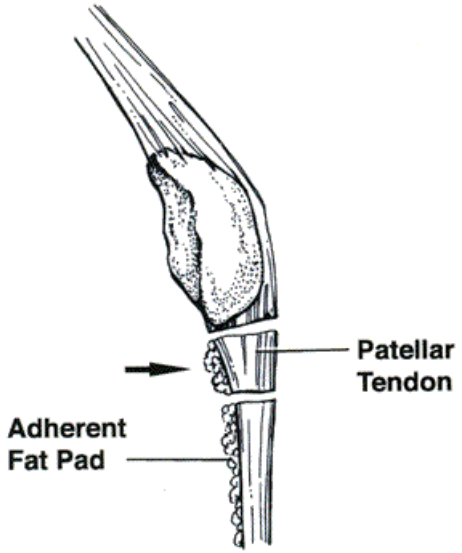
Conclusion: Bipolar radiofrequency stimulation appears to be a safe and effective treatment of chronic tendinosis. Further research is needed in this area to better understand the biochemical processes by which bipolar radiofrequency stimulation leads to pain relief and potential tendon repair.

ARTHROSCOPY
THE JOURNAL OF ARTHROSCOPIC & RELATED SURGERY

Escarificação

Fasciculação tendão

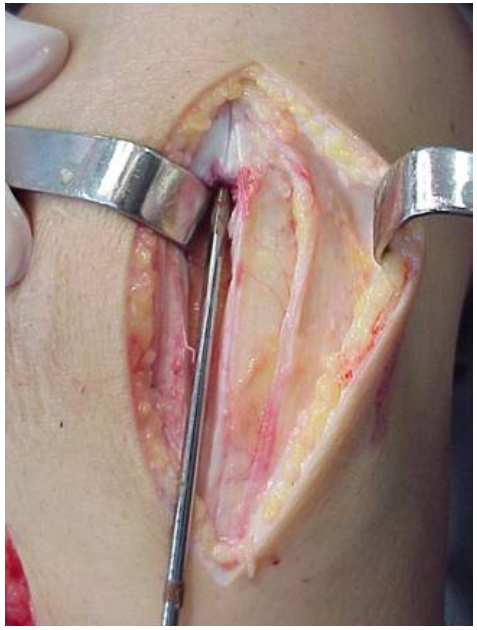
- Pretende realizar uma inflamação controlada
  - Com desenvolvimento de tecido de fibrose
  - Excisão de tecido inflamatório ou necrótico local





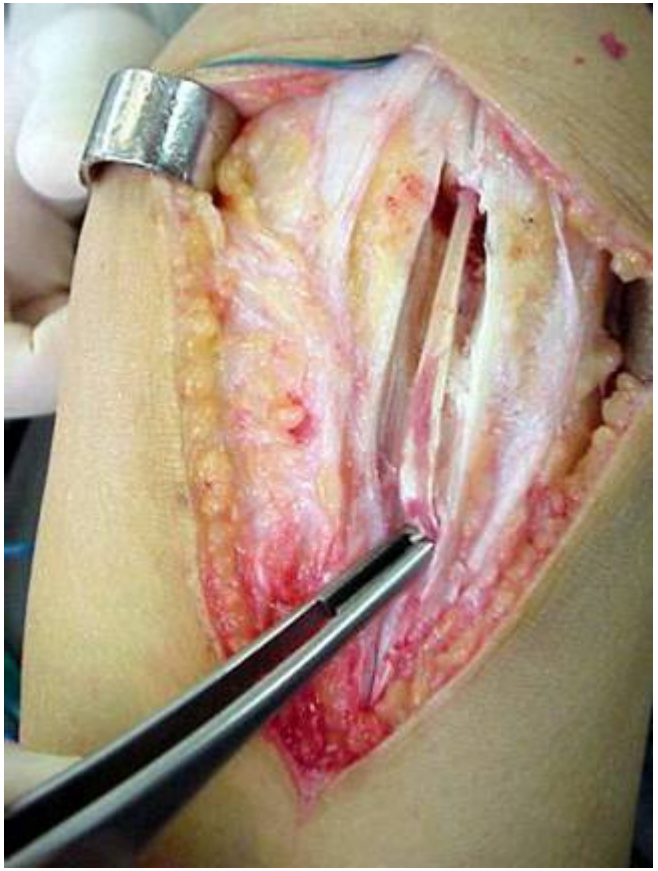

Técnica M. Amatuzzi

Reforça da zona central do tendão patelar com autoenxerto livre tendinoso (m. semitendinoso)



H. Clínicas
Universidade Federal de S. Paulo

Técnica M. Amatuzzi



H. Clínicas
Universidade Federal de S. Paulo

Patellar tendinosis: a follow-up study of surgical treatment.

Ferretti A, Conteduca F, Camerucci E, Morelli F.

BACKGROUND: Patellar tendinopathy (jumper's knee) is an overuse syndrome that frequently affects athletes. A retrospective study was done to analyze the results at a minimum of five years after the performance of a surgical technique in competitive athletes. METHODS: From 1985 to 1995, thirty-two patients (thirty-eight knees) affected by patellar tendinopathy were treated surgically after failure of nonoperative treatment. All knees were operated on by the same surgeon using the same surgical technique: longitudinal splitting of the tendon, excision of any abnormal tissue that was identified, and resection and drilling of the inferior pole of the patella. The results in twenty-seven patients (thirty-three knees), including twenty-two athletes (twenty-seven knees) who were still involved in sports activities (or wished to still be involved) at a competitive level at the time of final follow-up, were reviewed at a mean of eight years postoperatively. The results were evaluated according to symptoms and the ability to return to full sports activities. RESULTS: The result was excellent in twenty-three knees (70%), good in five, fair in one, and poor in four at the time of the long-term follow-up. Eighty-two percent of the patients who tried to pursue sports at their preinjury level were able to do so, and 63% of those knees were totally symptom-free. CONCLUSIONS: The outcome of the described surgical treatment appears to be satisfactory; however, the results are less predictable in volleyball players.

J Bone Joint Surg Am. 2002 Dec; 84-A(12):2179-85.

Muscles Ligaments Tendons J. 2013 Jan 21;2(4):267-72. Print 2012 Oct.

Arthroscopic treatment of chronic patellar tendinopathy in high-level athletes.

Alaseirlis DA, Konstantinidis GA, Malliaropoulos N, Nakou LS, Korompilias A, Maffulli N.

Author information

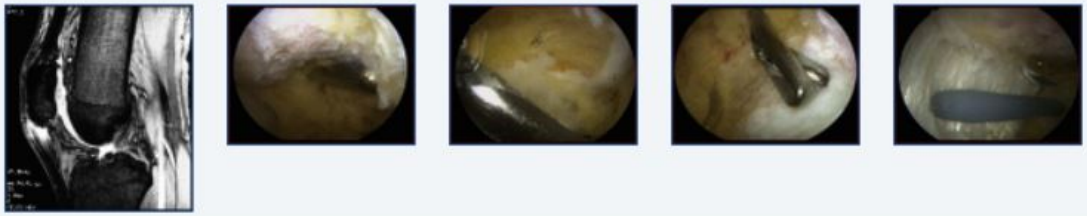
Abstract

To present the results of arthroscopic treatment of patellar tendinopathy in high-level competition athletes. Eleven high-level athletes presented chronic patellar tendinopathy which did not respond to long term conservative treatment. Average age of the patients was 24.8 ±3.4 years old. All patients received an arthroscopic procedure with osteoplasty of the distal patellar pole, debridement of the underlying Hoffa fat pad and of the degenerated areas of the proximal posterior patella tendon and cauterization of the visible neo-vessels. Mean duration of follow-up was 17.4±4 months. Patients showed a major improvement in the Lysholm score from 49.9±5.2 to 92.5±7 and in the VISA P score from 41.2±5.2 to 86.8±14.9 on tenth post-operative week. All patients had returned to sports activities by the twelfth postoperative week. Arthroscopic treatment of chronic patellar tendinopathy found to be a minimal invasive and safe technique which produced satisfactory results.

KEYWORDS: Hoffa fat impingement, patellar tendinopathy

PMID: 23738308 [PubMed] PMCID: PMC3666542 **Free PMC Article**

Images from this publication. See all images (5) Free text



LinkOut - more resources

Display Settings: Abstract

Send to:

Knee Surg Sports Traumatol Arthrosc. 2013 Feb;21(2):351-7. doi: 10.1007/s00167-012-2100-9. Epub 2012 Jun 20.

Open versus arthroscopic surgical treatment of chronic proximal patellar tendinopathy. A systematic review.

Marcheggiani Muccioli GM, Zaffagnini S, Tsapralis K, Alessandrini E, Bonanzinga T, Grassi A, Bragonzoni L, Della Villa S, Marcacci M.

Author information

Abstract

PURPOSE: A general agreement on the best surgical treatment option of chronic proximal patellar tendinopathy is still lacking. The purpose of this systematic review was to investigate if arthroscopically assisted procedures have been reported better results compared to open surgery and to assess the methodology of studies.

METHODS: Twenty-one studies were included in the review. Surgical outcomes were defined referring to the functional classification described by Kelly et al. (Am J Sports Med 12(5):375-380, [11]): return to sport was regarded as the ability of training at the original level before injury with mild or moderate pain and success as the improvement after surgery with symptom reduction. Methodological analysis was performed by two reviewers adopting the Coleman Methodology Score (CMS) (range 0-100, best score 100).

RESULTS: Only one randomized controlled trial (RCT) met inclusion criteria; all other included studies were case series. Median sample size 24, range 11-138, mean age at surgery 26.8 ± 3.2 years, mean follow-up 32.5 ± 18.4 (median 31, range 6-60) months. Return to sport rate: global 78.5 %, open group 76.6 % and arthroscopic group 84.2 %. Success rate: global 84.6 %, open group 87.2 % and arthroscopic group 92.4 %. Differences between groups were not statistically significant. CMSs were positively correlated with the year of publication ($P < 0.05$).

CONCLUSIONS: Minimally invasive arthroscopically assisted procedures have not reported better statistically significant results when compared to open surgery in the treatment of chronic proximal patellar tendinopathy. The methodology of studies in this field has improved over the past 15 years, but well-designed RCTs using validated patient-based outcome measures are still lacking.

LEVEL OF EVIDENCE: Systematic Review, Level IV.

PMID: 22714975 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms

LinkOut - more resources

Mensagem a reter

- As tendinopatias são lesões de sobrecarga cujo melhor tratamento é a prevenção
- Quando instituidas a primeira e grande opção é o tratamento conservador
- A opção pela cirurgiadeve ser sempre uma opção de recurso!
  - Depende da experiência e opinião do cirurgião

Muito obrigado

XXIV CURSO
DE REABILITAÇÃO
E TRAUMATOLOGIA
DO DESPORTO

Coimbra, 25 de Janeiro de 2014