CASO
Reconstrucción de ruptura de aparato extensor con malla de polipropileno

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Caso

- **MASCULINO**
- **70 AÑOS**
- **2014 RTR EN OTRO CENTRO**
  - Infección temprana. Toilette + Bactrim forte x 6 meses
  - Morganella Morgani
- **6 MESES SIN MEJORÍA**
  - Toilette más ruptura aparato extensor. Mala evolución clínica
- **2015 RETIRO DE IMPLANTE + ESPACIADOR DE CEMENTO**

- Laboratorio:

  - GB 8400
  - VHS 85
  - PCR 28,9

Reestadificación infectológica

- **Al ingreso en la derivación se decide realizar nueva toilette quirúrgica con múltiples biopsias para cultivo y espaciador fijo con atb**
- **Tto ATB específico 3 meses**

- **Cultivos M. Morgani y Estafilococo coagulasa -**

- **Laboratorio control a los 3 meses:**

  - GB 8400
  - VHS 16
  - PCR 1

Técnica quirúrgica con malla de polipropileno

Malla de polipropileno (Prolene, Johnson & Johnson) 25x35cm

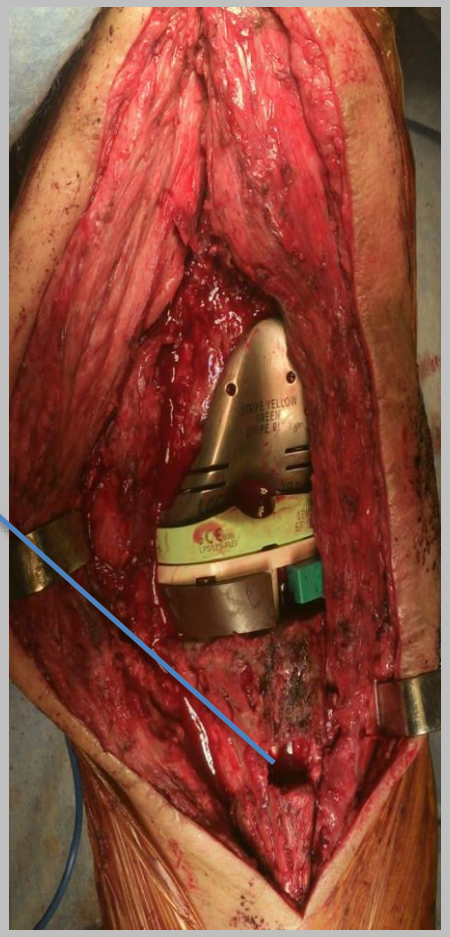
Crea un injerto tubular de 8 a 10 capas y de 2 a 2.5 cm de ancho

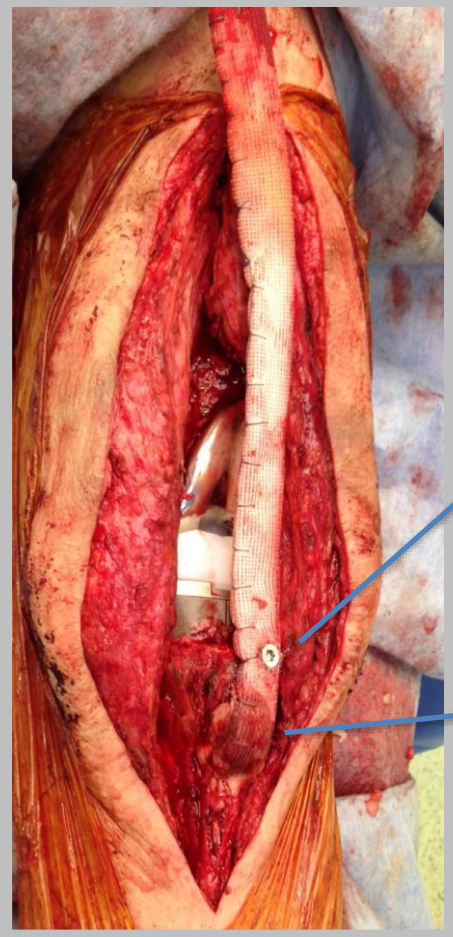
Fija con sutura no reabsorbible.

Técnica quirúrgica con malla de polipropileno

Se coloca la malla intramedular por una ventana ósea por debajo de la tuberosidad anterior de la tibia cementadola en posición anteromedial. Luego se agrega fijación con un tornillo.

Ventana Osea





Fijación tornillo 4.5 mm

Cementado malla

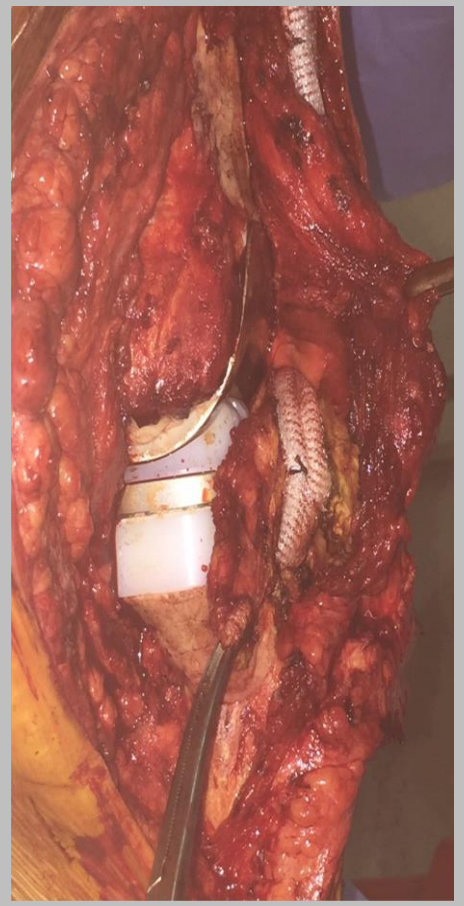
Técnica quirúrgica con malla de polipropileno

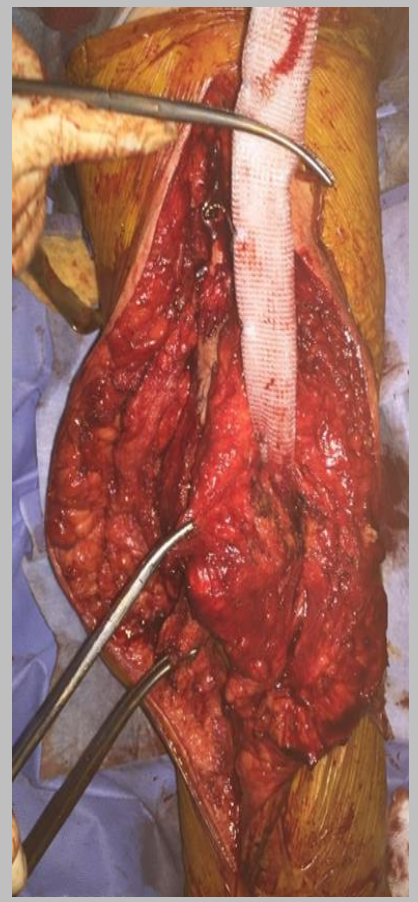
Se interpone tejido fibroso entre la malla y el inserto de polietileno para evitar la abrasión del
mismo.

Se realiza un ojal en el borde superoexterno rotuliano donde se desliza la malla.

Se sutura la malla sobre el tendón cuadricipital.

Esto se realiza en **máxima extensión**.





Protocolo de rehabilitación

inmovilización con yeso cruropédico por 8 semanas

Luego de retirar el yeso, se permite carga completa a lo largo de 4 a 6 semanas con ferula en extension de rodilla.

Movilización pasivo-asistida entre 0-30 grados progresando semanalmente según tolerancia a partir de los 12 semanas

3 meses pop

1 año pop

Discusión

La ruptura del aparato extensor luego de una artroplastia de rodilla está descripta como una complicación grave, cuya prevalencia es de aproximadamente 0.17% a 2,5%.

Conlleva a grandes limitaciones funcionales como dificultad para deambular, falta de extensión de rodilla activa, inestabilidad y las consiguientes caídas frecuentes.

Causa

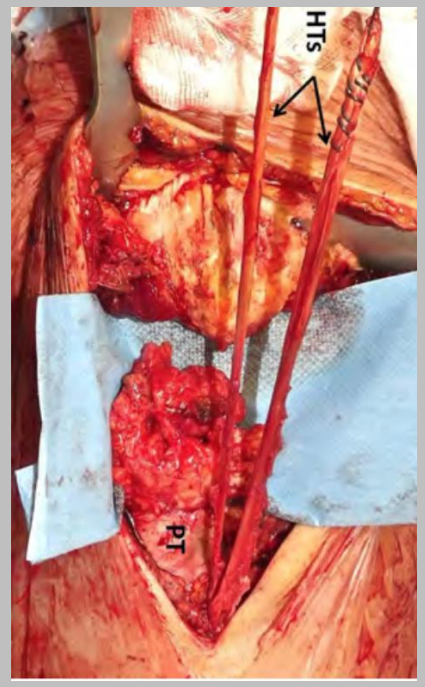
- Intraoperatoria
- Trauma – Caída
- Mal posición de componentes protésicos
- Infección
- Aguda – subaguda - crónica

Diagnóstico

- Historia clínica previa
- **Exámen clínico (déficit extensión activa)**
- Radiografías
- RMN
- Ecografía

Opciones terapéuticas

- Tratamiento Conservador
- **Reparación** directa del tejido
- **Reconstrucción** (Auto)
- **Transplante** aparato extensor
- **Malla Sintética**
- **Artrodesis**



Autoinjerto

Aloinjerto

Malla sintética

Reconstruction of Patellar Tendon Disruption After Total Knee Arthroplasty

Results of a New Technique Utilizing Synthetic Mesh

James A. Browne, MD, and Arlen D. Hanssen, MD

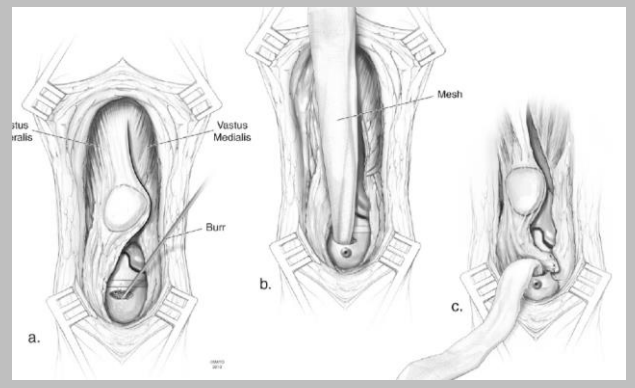
Investigation performed at the Mayo Clinic, Rochester, Minnesota

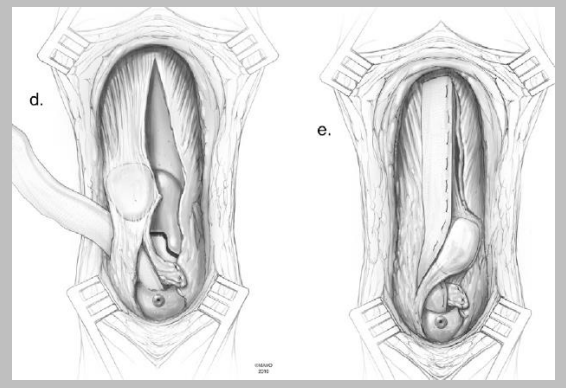
13 pacientes tratados con malla de polipropileno

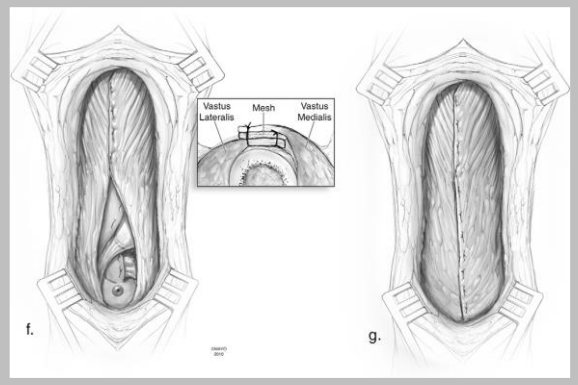
4 fracasos por infección

9 pacientes con menos de 10 grados de déficit de extensión

6 años de seguimiento







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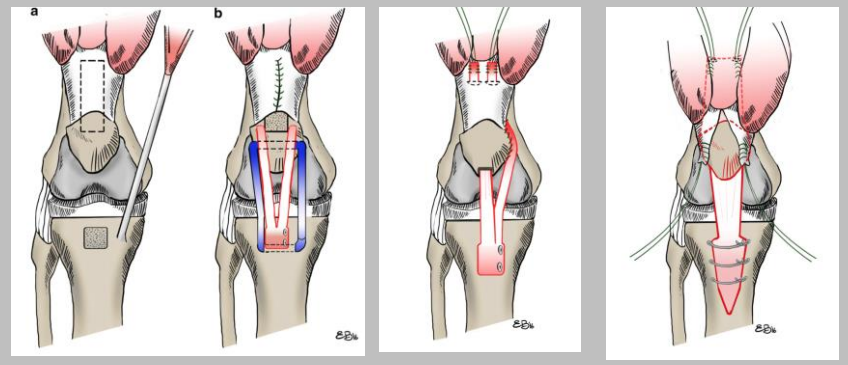
KNEE

Surgical options for chronic patellar tendon rupture in total knee arthroplasty

Alfredo Lamberti[1] · Giovanni Balato[1] · Pier Paolo Summa[1] · Ashok Rajgopal[2] · Attique Vasdev[2] · Andrea Baldini[1]

- Retrospectivo
- 21 pacientes
- 3 grupos de 7 pacientes cada uno
  - 1 Autoinjerto de isquiotibiales
  - 2 Aloinjerto aquiles
  - 3 Aloinjerto completo aparato extensor



- Mejores resultados funcionales con aloinjerto de Aquiles
- Seguimiento a 3 años promedio

Discusión

Contents lists available at ScienceDirect

The Knee

Review

Synthetic mesh vs. allograft extensor mechanism reconstruction in total knee arthroplasty — A systematic review of the literature and meta-analysis

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ABSTRACT

Background: Extensor mechanism disruption after total knee arthroplasty (TKA) is a devastating complication. Reconstruction with allograft and synthetic mesh has been described. However, these reports have typically been small case series, and controversy exists with regard to which reconstruction technique is optimal.

Methods: The authors performed a systematic review using PUBMED, MEDLINE, EMBASE, BIOSIS, Clinicaltrials.gov, and Cochrane Database of Systematic Reviews identifying 14 articles meeting inclusion criteria and producing 204 knees for comparison. Studies with repairs performed under full knee extension were included. Case reports and non-English studies were excluded. Available demographics and clinical outcome data were collected from each study. Appropriate statistical analysis was performed to compare the variables.

Results: Baseline demographics and patient complexity were similar between the two cohorts. Reconstruction success rates (76% allograft vs. 74% mesh), average time to diagnosis/treatment, Knee Society Scores (KSS), knee range of motion/extensor lag, and complication rates yielded no statistical difference. Synthetic mesh was used more frequently with concomitant revision of components.

Discussion: This systematic review shows equivalent success of allograft and synthetic mesh with approximately 25% failure rate in both groups. Periprosthetic joint infection remains a common and significant complication and reason for failure in both groups. Overall, synthetic mesh showed equivalent extensor mechanism reconstruction success as allograft but with much lower cost, near universal availability, lack of disease transmission, and potential for diminishing graft stretch-out. Future research in larger case series or comparative study is needed to help aid in management of this largely unsolved problem in total knee reconstruction.

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Review article

Extensor tendon ruptures after total knee arthroplasty

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ABSTRACT

Extensor tendon rupture is a rare but serious complication after total knee arthroplasty (TKA) that impairs active knee extension, thereby severely affecting knee function. Surgery is usually required. Surgical options range from simple suturing to allograft reconstruction of the entire extensor mechanism and include intermediate methods such as reconstruction using neighbouring tendons or muscles, synthetic ligament implantation, and partial allograft repair. Simple suturing carries a high failure rate and should therefore be routinely combined with tissue augmentation using a neighbouring tendon or a synthetic ligament. After allograft reconstruction, outcomes are variable and long-term complications common. Salvage procedures for managing the most severe cases after allograft failure involve reconstruction using gastrocnemius or vastus flaps. Regardless of the technique used, suturing must be performed under tension, with the knee fully extended, and rehabilitation must be conducted with great caution. Weaknesses of available case-series studies include small sample sizes, heterogeneity, and inadequate follow-up duration. All treatment options are associated with substantial failure rates. The patient should be informed of this fact and plans made for a salvage option. Here, the main techniques and their outcomes are discussed, and a therapeutic strategy is suggested.

Todas las técncas con altas tasas de fracasos

Escaso número de pacientes en las series

Series heterogéneas

Corto seguimiento

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Review article

Extensor tendon ruptures after total knee arthroplasty

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Table 1
Recapitulation of previously published data.

Author (ref.)	Year	n	Technique	Location	Follow-up (months)	Mean residual extension lag	Mean flexion range	Complications
Augmentation by synthetic material								
Fernandez-Baillo et al. [20]	1993	1	Dacron	QT	12			None
Fujikawa et al. [21]	1994	1	Leeds-Keio	PT	Not specified	5°	87°	None
Aracil et al. [22]	1999	5	Leeds-Keio	4 PT, 1 QT	56 (38–84)	Lag in 3 pts: 5°, 10°, 10°	98° (90°–110°)	1 superficial infection
Fukuta et al. [23]	2004	2	Leeds-Keio	PT	38 (36–40)	5° lag in 1 pt	107° (105°–110°)	None
Browne and Hanssen [16]	2011	13	Polypropylene	PT (5 failed allografts)	42 (11–118)	10°	103°	3 failures followed by re-operation 1 infection
Autologous tendon and muscle transfer								
Cadambi and Engh [24]	1992	8	ST ± Gracilis	PT	30 (12–48)	5°	80°	None
Chiou et al. [25]	1995	1	LG	PT with skin necrosis	18	10°	100°	None
Jaureguito et al. [26]	1997	6	MG	4 PT, 2 extensive EMD with absence of the patella	33 (26–41)	24° (0°–50°)	100° (65°–130°)	1 stiffness (MGA) 1 infection
Busfield et al. [27]	2004	9	MG	4 infections 4 allograft failures	21 (7–31)	11° (0°–50°)	92° (55°–125°)	1 amputation 1 skin necrosis
Jarvela et al. [17]	2005	1	ST	PT	12	0°	80°	None
Whiteside [28,29]	2014	5	MG or LG ± Vastus muscles	Allograft failures	39 (20–51)			None
Allografts								
Emerson et al. [30]	1990	13	Complete	PT	23 (6–51)	8° (0°–20°)	103°	None
Emerson et al. [12]	1994	15	Complete	PT	49 (26–84)	Lag in 3 pts: 20°, 25°, 40°	106° (80°–130°)	3 recurrent ruptures
Zanotti et al. [31]	1995	1	Bone-patellar tendon-bone	PT	24	No residual extension lag		None
Leopold et al. [32]	1999	7	Complete	Not specified	39 (6–115)	59° (40°–80°)	108° (90°–130°)	6 secondary ruptures 1 ATT non-union 4 re-operations
Nazarian and Booth [33]	1999	40	Complete	22 PT, 8 QT, 4 patellar fractures	3.6 (2–10)	Mean lag: 13° No lag in 23 pts	98° (89°–108°)	8 recurrent ruptures followed by re-operation
Parker et al. [11]	2003	7	Achilles	Not specified	Not specified			Not specified
Burnett et al.[a] [34–36]	2006	19	10 Achilles 9 complete allografts	13 PT, 5 patellar fractures, 1 after patellectomy	56 (24–96)	14° (0°–90°)	99° (0°–120°)	3 recurrent ruptures 1 re-operation
Malhotra et al. [37]	2008	4	Bone-patellar tendon-bone	PT	21 (14–30)	10° lag in 1 pt	95° (90°–100°)	1 superficial infection
Ares et al. [38]	2014	5	Achilles	PT	25	1.4° ± 2°	102° ± 5.7°	None
Diaz-Ledezma et al. [39]	2014	29	Achilles	11 PT, 15 QT, 3 patellar fractures	42 (12–90)	Lag in 3 pts: 10°, 15°, 20°	>110°: 10 pts 90°–110°: 6 pts <90°: 1 pt	11 recurrent ruptures 4 infections

ST: semi-tendinosus; PT: patellar tendon; QT: quadricipital tendon; EMD: extensor mechanism defect; MG: medial gastrocnemius; LG: lateral gastrocnemius; pts: patients; Manip. GA: manipulation under general anaesthesia; ATT: anterior tibial tuberosity.
[a] Series identical to that reported by Barrack in 2003.

CONSIDERACIONES FINALES

Reconstrucción con malla sintética de polipropileno obtiene resultados funcionales aceptables y comparables con las reconstrucciones alográficas

Todas las series reportadas tanto con reconstrucciones con malla sintética como con alo o autoinjertos presentan altas tasas de complicaciones

La reconstrucción con malla sintética es de un bajo costo comparado con los aloinjertos siendo una opción aceptable en casos de rescates funcionales por pérdida del aparato extensor.

MUCHAS GRACIAS

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HOSPITAL ITALIANO