TKA and extensor mechanism dysfunction

Val D'Isère 2012

J Victor, MD, PhD

Extensor dysfunction

- Neurological
  - Congenital
    - ✓ spina bifida
  - Acquired
    - ✓ poliomyelitis
    - ✓ parkinson
- Mechanical: // ext. mech.
  - Traumatic
    - ✓ tendon rupture
    - ✓ patella fracture
  - Degenerative

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Spina Bifida

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Not a good indication for TKA

E.D. 38 y spina bifida

- Two crutches
- Very difficult and painful gait

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N.P. 57 y

- R knee poliomyelitis sequelae
- Deteriorating valgus and dysfunction R
- L knee progressively symptomatic

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N.P. 57 y

- Quad's L: 5/5 - R: 3/5
- Hyperextension 10° R
- Shortening R

QUID?

Osteotomy R femur

Was this a good idea?

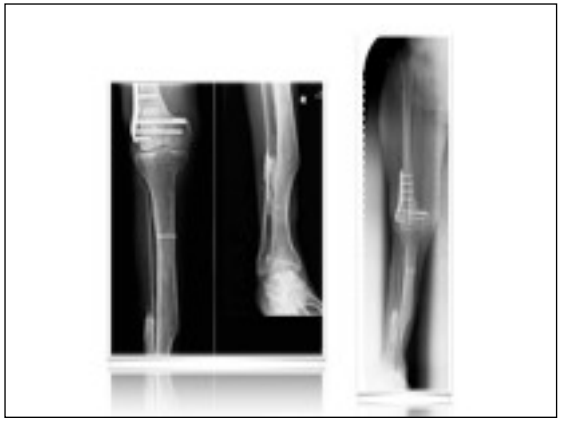
6 weeks

3 months

4 months

6 months

8 months



Surgical Management of Gonarthrosis in Patients With Poliomyelitis

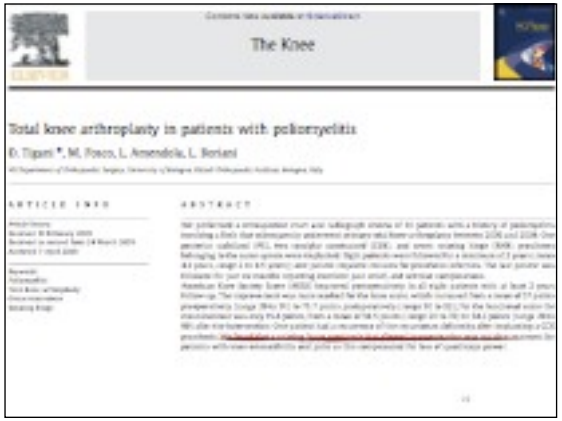
Brendan M. Patterson, MD,* and John N. Insall, MD†

Abstract: The authors reviewed nine cases of degenerative disease of the knee in patients with a history of poliomyelitis. All patients were treated with a cemented total knee arthroplasty. The average follow-up period was 6.8 years (range, 6 months to 13 years), and the average follow-up knee score using the Hospital for Special Surgery rating scale was 70. Three of the patients required revision total knee arthroplasty to a more constrained implant. Pain relief was predictably very good and knee stability was initially improved. However, many of the patients suffered a decline in ambulatory ability with time. **Key words:** knee, arthroplasty, poliomyelitis.

Total Knee Arthroplasty in Patients With Poliomyelitis

Louis Jordan, MD, Mordechai Kligman, MD, and Thomas P. Sculco, MD

Abstract: Between 1991 and 2001, 17 primary total knee arthroplasties were performed in 15 patients with limbs affected by poliomyelitis. Eight patients had a constrained condylar knee design, 8 a posterior stabilized design, and 1 a hinged design. Mean follow-up was 41.3 months. The mean Knee Society knee score improved from 45 preoperatively to 87 postoperative. Knee stability was obtained in all patients, including 4 patients with less than antagonistic quadriceps strength. Radiologic evaluation showed satisfactory alignment with no signs of loosening. Complications included 1 case of deep venous thrombosis and 2 knees that required a manipulation for stiffness. Pain relief, functional improvement, and knee stability can be achieved after constrained total knee arthroplasty in patients with poliomyelitis despite impaired quadriceps strength, and osseous and soft tissue abnormalities. **Key words:** poliomyelitis, total knee arthroplasty, constrained condylar knee.



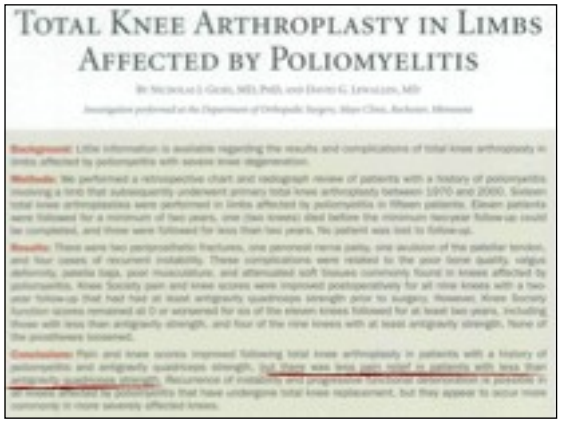
The Knee

Total knee arthroplasty in patients with poliomyelitis

D. Tigani *, M. Fosco, L. Amendola, L. Boriani

ARTICLE INFO

ABSTRACT



TOTAL KNEE ARTHROPLASTY IN LIMBS AFFECTED BY POLIOMYELITIS

Background: Little information is available regarding the results and complications of total knee arthroplasty in limbs affected by poliomyelitis with severe knee degeneration.

Methods: We performed a retrospective chart and radiograph review of patients with a history of poliomyelitis involving a limb that subsequently underwent primary total knee arthroplasty between 1970 and 2000. Sixteen total knee arthroplasties were performed in limbs affected by poliomyelitis in fifteen patients. Eleven patients were followed for a minimum of two years, one (two knees) died before the minimum two-year follow-up could be completed, and three were followed for less than two years. No patient was lost to follow-up.

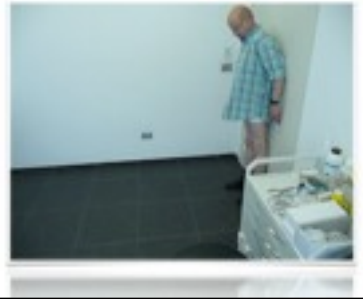
Results: There were two periprosthetic fractures, one peroneal nerve palsy, one avulsion of the patellar tendon, and four cases of recurrent instability. These complications were related to the poor bone quality, valgus deformity, patella baja, poor musculature, and attenuated soft tissues commonly found in knees affected by poliomyelitis. Knee Society pain and knee scores were improved postoperatively for all nine knees with a two-year follow-up that had had at least antigravity quadriceps strength prior to surgery. However, Knee Society function scores remained at 0 or worsened for six of the eleven knees followed for at least two years, including those with less than antigravity strength, and four of the nine knees with at least antigravity strength. None of the prostheses loosened.

Conclusions: Pain and knee scores improved following total knee arthroplasty in patients with a history of poliomyelitis and antigravity quadriceps strength, but there was less pain relief in patients with less than antigravity quadriceps strength. Recurrence of instability and progressive flexion-type deformities is prevalent in the knees affected by poliomyelitis that have undergone total knee replacement, but they appear to occur more commonly in more severely affected knees.

O.A. 35 Y

- Leukemia at age 14
- High dose corticosteroids:
- AVN L hip and R knee
- Infection R knee
- Dropfoot
- Lengthening femur

O.A. 38 y



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Acute quad's rupture after TKA

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Extensor mechanism rupture after TKA

- Simple repair often disappointing
- Repair and augmentation *grafting* for selected cases
- Allograft reconstruction of extensor mechanism in chronic insufficiency
  - Post-infection
  - Multi-revision

Extensor mechanism reconstruction with allograft

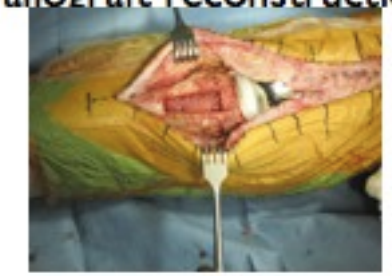
- Emerson 1990, 1994: fixation in flexion
  - Extension lag occurred
- Nazarian and Booth 1999: tight fixation in extension
  - Improved early results

Extensor mechanism reconstruction with allograft

- 20 consecutive cases
  - 7 minimal tension: all failures with mean extension lag of 59°
  - 13 tight tension in full extension: all successes with mean extension lag of 4.3° at 24 months

RS] Burnett, RA Berger, CJ Della Valle, SM Sporer, JJ Jacobs, WG Paprosky, AG Rosenberg. Extensor Mechanism Allograft Reconstruction After Total Knee Arthroplasty J. Bone Joint Surg. 2005;87:175-184

Extensor mechanism allograft reconstruction



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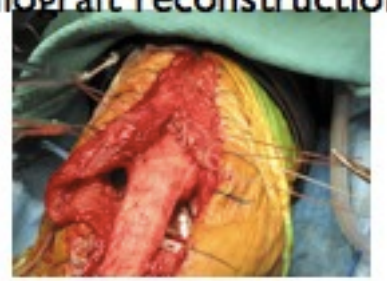

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M.M. °07/08/1939 L KNEE


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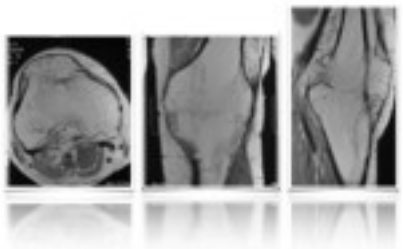
Extensor dysfunction

- Is one of the few remaining indications for arthrodesis of the knee

Case F.N.

Case F.N.



Case F.N.

- Has problems with
  - Sitting
  - Rising from a chair
  - Walking
  - Foot hygiene
- Overloads his ankle, hip, lumbar spine and contralateral knee

Why arthrodesis of the knee

- Creation of a limb that is
  - Stable
  - Painfree
  - Durable
  - And allows gait

- Function after arthrodesis of the knee is superior to that after above knee amputation

Conway JD, Mont MA, Bezwada HP. Arthrodesis of the knee. J Bone Joint Surg 2004; 86: 835-848