HOW I REPAIR AN ACUTE PATELLAR TENDON RUPTURE

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PATELLAR TENDON RUPTURE

SERIOUS INJURY REQUIRING PROMPT DIAGNOSIS AND TREATMENT
DELAYED SURGERY AFFECT THE FINAL RESULTS

Lohwe 1994
Greis 2005

Kannus 1991

PATELLAR TENDON RUPTURE

HIGH-ENERGY TRAUMA OR CUMULATIVE MICROTRAUMA

QUADRICEPS > 40 Y.
PATELLAR < 40 Y.

ASSOCIATED TO SYSTEMIC DISEASE

- LES
- RHEUMATOID ARTHRITIS
- CHRONIC RENAL FAILURE
- DIABETES
- GOUT
- HYPERTHYROIDISM
- HYPERCALCEMIA
- STEROID INJECTIONS
- (PREVIOUS HARVESTING)

891 BIOPSY SPECIMENS
100% OF RUPTURED TENDONS SHOWED HYSTOPATHOLOGICAL CHANGES VS 34% IN CONTROL GROUP

Kannus 1991

ONLY DEGENERATED TENDONS WOULD RUPTURE

McMaster 1933
Stover 1951
Ramscoor 2006
PATELLAR TENDON RUPTURE OCCURS

- PATELLAR BONE TENDON JUNCTION / INFERIOR POLE PATELLAR FRACTURE
- MIDSUBSTANCE (laceration)
- AVULSION FRACTURE OF THE TIBIAL TUBEROSITY (children)

DIAGNOSIS

- HISTORY
- SWELLING AND PAIN
- GAP IN THE TENDON (US)
- ACTIVE KNEE EXTENSION WEAKNESS
- PATELLA ALTA AT LATERAL X-Ray

ACUTE SURGICAL REPAIR

AUGMENTATION WITH MERSILENE or ARTIFICIAL LIG.
OLD TECHNIQUES

NEW TECHNIQUE:
REPAIR USING SUTURE ANCHORS
21% REPORTED FAILURES at 29-month MEAN FOLLOW-UP

OLD TECHNIQUES

Levin 1976
Miskew 1980
Kelly 1984
Fujikawa 1994
Scott 1994
Ong 2000

NEW TECHNIQUE:
REPAIR USING SUTURE ANCHORS
21% REPORTED FAILURES at 29-month MEAN FOLLOW-UP

ACUTE SURGICAL REPAIR

WITH RUNNING INTERLOCKING SUTURES
WHEN THE RUPTURE OCCURS WITHIN THE SUBSTANCE OF THE TENDON

Scott 1994

ACUTE SURGICAL REPAIR

INTO A BONY THROUGH
WHEN THE RUPTURE OCCURS AT THE OSTEOTENDINOSUS JUNCTION

Scott 1994
Ong 2000

ACUTE SURGICAL REPAIR

21% REPORTED FAILURES at 29-month MEAN FOLLOW-UP

Bushnell 2008
Bushnell 2008
CASE REPORT: 20 YEARS OLD PROFESSIONAL BASKET PLAYER, weight 100 Kg, height 1.98 m

FAILED REPAIR USING SUTURE ANCHORS

DIFFICULT MANAGEMENT (ANCHORS ARE DIFFICULT TO REMOVE, HIGH RISK OF PATELLAR FRACTURE, POSSIBLE INFECTION IN CASE OF SKIN TEAR BY PULLED-OUT ANCHORS)

Acute Surgical Repair

1) AUGMENTATION WITH AUTOGENOUS TISSUE: HAMSTRINGS (ST or GR + ST)

2) AUGMENTATION WITH ALLOGRAFT
   - PATELLAR TENDON
   - ACHILLES TENDON
   - FASCIA LATA

3) AUGMENTATION WITH AUTOGENOUS TISSUE COMBINED WITH ALLOGRAFT

Our Choice: AUGMENTATION WITH HAMSTRINGS and ALLOGRAFT (Achilles tendon)

Reinforce with Steel Wire to Protect the Repair

AUGMENTATION WITH ALLOGRAFT (fascia lata) AND STEEL WIRE TO PRESERVE INTACT AUTOGENOUS TISSUE (HAMSTRINGS)

McLaughlin 1947

Kelikian 1956
Scuderi 1991
Haas 1992
Larson 1995
POSSIBLE DIFFICULTIES

- LACK OF AUTOGENOUS TISSUE
- QUADRICEPS CONTRACTURE AND RETRACTION OF PROXIMAL PORTION if delayed surgery (> 6 days)
- DIFFICULT WOUND HEALING (ematoma)

RESULTS OF PATELLAR TENDON REPAIR

EXCELLENT FUNCTION IN ACUTE REPAIR WITH OR WITHOUT AUGMENTATION

CHRONIC REPAIR LESS FAVORABLE OUTCOME
LESS MUSCULAR PERFORMANCE

Siwek 1981
Larsen 1986
Ramsey 1995

Ecker 1979
Larsen 1986
Larson 1995
Lindy 1995
Falconiero 1996
McNally 1998
Marer 1999
Greis 2005
Ramseier 2006

REHABILITATION

BRACE FOR 4 WEEKS WITH PROGRESSIVE WEIGHT BEARING
ROM 0-30' ALLOWED IN THE FIRST 2 WEEKS TO AVOID ADHESION

- QUADRICEPS CONTRACTION
- ELECTRICAL STIMULATION

INTENSIVE PROGRAM AFTER 4-6 WEEKS

PATELLAR TENDON RUPTURE: CONCLUSIONS

- DEBILITATING INJURY
- PROMPT DIAGNOSIS ESSENTIAL
- DIFFERENT TYPE OF RUPTURE
- PREPARED TO COMBINE DIFFERENT SURGICAL TECHNIQUE
- LONG AND DIFFICULT REHABILITATION

Thank You
MANAGEMENT OF ACUTE PATELLAR TENDON RUPTURE IN TKA IN CASE OF INADEQUATE AUTOGENOUS TISSUE AUTOGRAFT (ASSOCIATE EVERY TIME THE REINFORCE WITH STEEL WIRE TO PROTECT THE REPAIR)

Emerson 1994
Zanotti 1995