ACL SURGICAL MANAGEMENT
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ST CHARLES SPORTS MEDICINE SYMPOSIUM
ST CHARLES ORTHOPEDICS
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Anterior Cruciate Ligament

• Medial tibia to lateral femoral condyle
• 2 bands
  – Anteromedial
    • Taut in knee flexion
  – Posterolateral
    • Taut in knee extension
• Resists anterior translation of tibia on femur and hyperextension of knee
ACL INJURIES

100,000 reconstructions per year
70% noncontact injuries
Higher incidence in female athletes
NON OPERATIVE MANAGEMENT

Patient activity level
Degree of injury/concurrent injuries
Instability symptoms
PT/bracing with activity
OPERATIVE TREATMENT OF ACL INJURIES

Athletes involved in cutting/pivoting type sports
ACL injuries in conjunction with meniscal tears/multi ligament injuries
Individuals with instability with ADL’s
TIMING OF SURGERY

Typically 4 to 6 weeks post injury
Resolution of effusion
Restore ROM
Recovery of concomitant ligament injuries
RAFT ALTERNATIVES

Autograft options
- Hamstring/Central third patella tendon/quad tendon
- Allograft tendon
- Synthetic Grafts
ACL GRAFT CONSIDERATIONS

Central third patella tendon my gold standard in high demand athlete
Hamstring tendon used in certain female athletes and younger patient
Allograft used in the older athlete
CENTRAL THIRD PATELLA TENDON

Ease of Harvest

Easily reproducible size and shape

Has earliest graft incorporation in bone tunnels
CENTRAL THIRD PATELLA TENDON

Most painful in earlier postoperative period
Issue with possible loss of extension
Anterior knee pain
Pain with kneeling
HAMSTRING ACL

Typically quadruple loop
Less painful postoperatively
Smaller incisions
Decreased incidence of PTF issues
HAMSTRING ACL DISADVANTAGES

- Saphenous nerve injury
- Increased joint laxity
- Hamstring weakness post surgery
- Longer time to graft incorporation
ALLOGRAFT ACL RECONSTRUCTION

Used in the older recreational athlete
Cases of revision surgery
Multiple ligament injuries
Smaller incisions
Decreased surgical times
ACL ALLOGRAFTS

Higher failure/retear rates
Associated with a risk of disease transmission
BTB VS HAMSTRING TENDON

Graft incorporation/ligamentization
Graft creep
Joint laxity
Knee strength testing deficits
AM VS TRANS-TIBIAL DRILLING

AM provides better access to footprint of AM and PL bundles
AM allows a lower and more oblique position of tunnel
Modifying TT approach to avoid vertical fem tunnel placement
TUNNEL FIXATION

Interference screws typically used in BTB grafts
Hamstring has various options
Physeal sparing techniques will use suspensory techniques

Tunnel Dilatation

- Under ream by 2mm
- Next 2mm increase done using dilators
- Compacts the bone than removing it
Postoperative bracing
Physical Therapy
Role of functional bracing
Return to Play
PO ST O P A C L R E C O N S T R U C T I O N

CPM has no added benefit
Early weightbearing
Cryotherapy
POSTOPERATIVE ACL THERAPY

0-4 weeks
   regain ROM and quad function
4-8 weeks
   progress with ROM
   D/C postoperative brace
2 months
   minimal effusion
   60% quad index
POSTOP ACL REGIMEN

10-12 weeks
  treadmill running and progression
Only if
  Quiet knee
  Good quad function 80% QI
POSTOP ACL REHABILITATION

4-5 months
  initial testing

Initial testing/quiet knee/90% QI/90% hop testing
If above met begin sports specific agilities
ACL POSTOP REGIMEN

6-7 months
  Repeat previous testing
  Continue progression
8-9 months
  repeat all prior tests and add T-test
ACL RETURN TO PLAY

8-9 months

surgeon evaluation

95% QI

94% on Y balance

single leg squat with < 4 errors

drop jump test – less than 6 errors

>90% on hop testing

<10-11 seconds on T-test
ACL RETURN TO PLAY

s/p ACL reconstruction
  return to any sport 81%-82%
  previous level competition 63%-65%
  competitive sports 44%-55%
  good outcome scores 85%

Inability to return
  fear of reinjury 19%
  functional issues with knee 13%
“So there he was — this big gorilla just laying there. And Jim says, ‘Do you suppose it’s dead or just asleep?’”