Scapular Fixation Surgery

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Medstar SportsHealth
Shoulder Joint

• Greatest range of motion of all the joints in the body
Basic Anatomy

- Scapula (shoulder blade)
- Humerus (upper arm)
- Clavicle (collar bone)
- Ribs
- Muscles
Muscles

• Many different muscles
  – Some primarily act across the ball and socket joint
  – Some primarily act across the rib cage and scapula
Shoulder Motion

- Normal shoulder motion results from the combined motion of the ball and socket joint AND the shoulder blade moving relative to the rib cage
Shoulder Motion
FSHD

- Primarily involves the muscles responsible for control of the scapula
  - Rhomboids
  - Serratus anterior
  - Trapezius
FSHD

- Loss of scapular muscle control
  - difficulty achieving overhead positions
    - Weakness, fatigue
    - Motion commonly less than shoulder height
  - scapular winging
    - Present at rest – discomfort against firm surfaces
    - Becomes more pronounced with attempted motion
FSHD
FSHD
Scapular Fixation

• Scapulothoracic fusion
  – fusion of the scapula to the underlying ribs
  – Fixes the scapula into a stable position
  • Creates a “stable platform” for the intact ball and socket muscles to function
    – Ease of achieving overhead positions
    – Less fatigue
    – Winging impossible
Surgical Candidates

• No significant medical concerns
• Poor shoulder function with desire to be better
• Involvement limited to the scapula muscles
  – normal rotator cuff and deltoid
Surgical Candidates

- Response to manual compression test
- Willingness to undergo the surgery and comply with post-operative restrictions
Surgical Procedure

• General anesthesia ("fully asleep")
• Face down
• Fully monitored
Surgical Procedure

• Incision along medial border of scapula
  – Expose inner margin of the scapula bone along its full length
  – Expose adjacent underlying rib levels
    • 3 to 5 ribs used
Surgical Procedure

• Wire scapula to the adjacent ribs
  – some surgeons use other techniques

• Bone graft the contact points
  – Hip bone (iliac crest) – probably best
  – Off –the- shelf products
  – +/- implantable bone stimulator to promote fusion (battery powered)
Surgical Procedure
Surgical Procedure
Surgical Procedure
Surgical procedure

- Typically 3 to 4 hours
- 1 to 2 units of blood loss
  - very rare to need a transfusion
Hospital Stay

• 3 to 5 days on average
  – 24 hours IV antibiotics
  – pain management -- significant

• Operated arm protected in a sling at all times
Possible Acute Complications

- Anesthesia
- Infection -- rare
- Neurologic -- rare
- Lung
  - Puncture (pneumothorax)
    - Chest tube
  - Blood (hemothorax)
  - Sense of shortness of breath
Rehab Protocol

• First 6 weeks
  – Sling – NO USE of extremity
  – Elbow, wrist, hand motion to avoid stiffness
  – May do some limited passive motion across shoulder
    • dangling activity
    • restricted pool activities
    • therapist
Rehab Protocol

• Weeks 7 to 12
  – Expect some early bone healing
  – Wean from sling
  – Progress passive motion
  – begin gentle active – assisted motion
    • Motion in water/pool (aquatic therapy)
  – Minimal muscle work
    • Limited to isometrics
  – May feed, dress, light desk-work
Rehab Protocol

- Weeks 12 to 18
  - Expect good bone-bone healing
  - Full active motion
  - May increase day to day functions
  - Limit weight to 5 to 7 pounds
    - Waist to shoulder activities
Rehab Protocol

- Weeks 19 and on
  - Expect solid fusion
  - Increase activities to tolerance
  - May do gentle strengthening or resistance activities
Results

• Improvement in shoulder function by six months, but can continue to improve up to one year from surgery
  – average about 60 to 65 degrees of improvement forward (flexion) and to the side (abduction)
  – Typically achieve approximately 145 degrees of forward elevation and abduction
Results

• Resolution of winging
• Improved shoulder contour & motion
Results

• Failure to heal ("nonunion")
  – uncommon
    • Smoking
    • Not compliant with post-op restrictions
    • Bilateral procedure (not recomended)

• Stiff shoulder
  – usually responds to therapy
  – prevention is key
Results

• Painful wires
  – Occasionally need to remove wires (< 10%)

• Deterioration of function
  – May lose motion if deltoid or cuff become involved over time, but other advantages remain
THANK YOU