

# **Suprascapular Neuropathy In Athletes**

See also Shoulder Injuries

See also Rotator Cuff Tear in Athletes

See also Shoulder Rehabilitation

## **Background**

### 1. General info

- Rare peripheral neuropathy caused by entrapment or compression of suprascapular nerve
  - May be underreported
  - Commonly seen in athletes who participate in overhead sports
    - Volleyball players
    - Baseball pitchers
    - Tennis players
    - Weightlifters
    - Badminton players
  - Seen most commonly in elite volleyball players "volleyball shoulder"

### 2. Website:

- Wheelless' Textbook of Orthopaedics: Suprascapular Nerve
- [http://www.wheelsonline.com/ortho/suprascapular\\_nerve](http://www.wheelsonline.com/ortho/suprascapular_nerve)

## **Pathophysiology**

### 1. Pathology

- Compression, traction or entrapment of suprascapular nerve
  - Most common at suprascapular notch or spinoglenoid notch
- Presentation: young overhead athlete with ill-defined shoulder pain
  - Pain with overhead movements
  - Most common:
    - Isolated infraspinatus atrophy
    - Can also see weakness and/or atrophy of supraspinatus and infraspinatus

### 2. Incidence/ prevalence

- Relatively rare
- Often misdiagnosed
- 1-2% of total number of pathological conditions causing shoulder girdle pain and dysfunction

### 3. Risk factors

- Age < 40
- Overhead exercise/ activities
  - Tennis
  - Volleyball
  - Pitching-especially baseball
  - Weightlifting
  - Badminton
- Can occur 2° to systemic dz (Lupus)
- Can occur by direct trauma
  - Clavicle fxs
  - Proximal humeral epiphysis fxs
  - Scapular fxs

- Dislocation of glenohumeral and acromioclavicular joint
- Penetrating injuries to region

## **Diagnostics**

### 1. History

- Overhead activities or direct trauma to shoulder girdle
- Usually dominant arm
- May have isolated infraspinatus atrophy w/o pain or decr in performance

### 2. Physical exam

- Weakened external rotation and abduction
  - May complain of weakness with overhead activities
- Deep dull profuse posterior (mostly lateral) pain at rest
  - Burning pain radiating to neck and arm
- Atrophy of supraspinatus and infraspinatus muscles in severe cases
  - May be difficult to visualize atrophy d/t trapezius muscle

### 3. Diagnostic testing

- Diagnosis typically made on basis of
  - Clinical signs
  - Abnormal electrodiagnostic studies
  - Exclusion of other shoulder pathology
- Lab evaluation:
  - Rheumatologic work-up if suspected
- EMG
  - Increased spontaneous activity
  - Decreased amplitude
  - Fibrillation
  - Polyphasic activity
- Imaging
  - X-ray
    - Visualize bony trauma and cervical spine
    - Typically normal in absence of trauma
  - MRI to evaluate for:
    - Treatable anatomical lesions
    - Nerve entrapment
    - Rotator cuff pathology

## **Differential Diagnosis**

1. Brachial plexopathy
2. Disorders of cervical spine
3. Cervical discopathy
4. Glenohumeral pathology
5. Tendonitis/ impingement
6. Rotator cuff tears
7. C5-6 radiculopathy
8. Adhesive capsulitis
9. Acromioclavicular joint dz
10. Thoracic outlet syndrome

## **Therapeutics**

1. Acute treatment
  - Heat
  - NSAIDs
  - Injection of local anesthetic
  - Modify activities to limit Sx
    - Overhead motion
    - Carrying backpacks
    - Horizontal adduction
    - Lifting heavy objects
2. Further mgmt
  - Evaluate for ganglion or other space occupying lesion causing focal nerve compression
    - If present, refer for surgery
  - In absence of well-defined lesion causing compression, non-operative Tx recommended
    - Most respond to 6 mos of conservative Tx
      - Surgery indicated for symptoms refractory to conservative Tx
    - Some literature suggests early surgical intervention as Tx of choice
      - High success rate
      - Athlete more likely to regain full muscle strength and bulk
      - Surgery should be followed w/physical therapy
    - 6 month physical Tx program
      - Change biomechanics
      - Use resistance and proprioceptive neuromuscular facilitation exercises
      - Strengthen scapula stabilizing muscles
      - Strengthen rotator cuff muscles
  - Recovery
    - Slow
    - Averages 60% prior muscle strength
    - Most athletes return to competition with no noticeable performance deficits despite residual weakness and atrophy
    - May substantially affect performance in elite athletes
  - If pain persists 6 mos after onset of symptoms consider surgical referral
  - Early Dx before muscle atrophy occurs is associated w/good prognosis
3. Long-term care
  - Consider operative care for continued pain

## **Follow-Up**

1. Return to office
  - 1 wk initial follow-up
  - Recommend earlier follow-up for progressive symptoms and pain
2. Refer to specialist
  - Physical therapist
    - If surgery not indicated
  - Orthopedic surgeon
    - For space occupying lesions, persistent pain

## **References**

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