Rotator Cuff Denervation Syndromes

- Parsonage-Turner syndrome, acute brachial neuritis, neuralgic amyotrophy, acute brachial radiculitis, quadrilateral space syndrome, idiopathic teres minor edema, neurogenic edema, denervation edema
- Edema within rotator cuff muscle(s) from motor nerve abnormality
  - May also involve deltoid muscle

Imaging

- Diffuse T2WI ↑ signal in 1 or more rotator cuff muscles
- ↑ T1 signal fat within muscle
- ↓ muscle bulk

Pathology

- Viral neuritis: Parsonage-Turner syndrome
- Fibrous bands
  - Quadrilateral space syndrome
  - Suprascapular nerve compression
- Paralabral cyst
  - Infraspinatus ± supraspinatus atrophy
- Stretch/traction nerve injury
  - Prior fracture, dislocation, or surgery
  - Overhead throwing athletes
  - Idiopathic teres minor atrophy
  - Brachial plexus injury
- Cervical radiculopathy, spinal cord injury, brachial plexus or periscapular mass

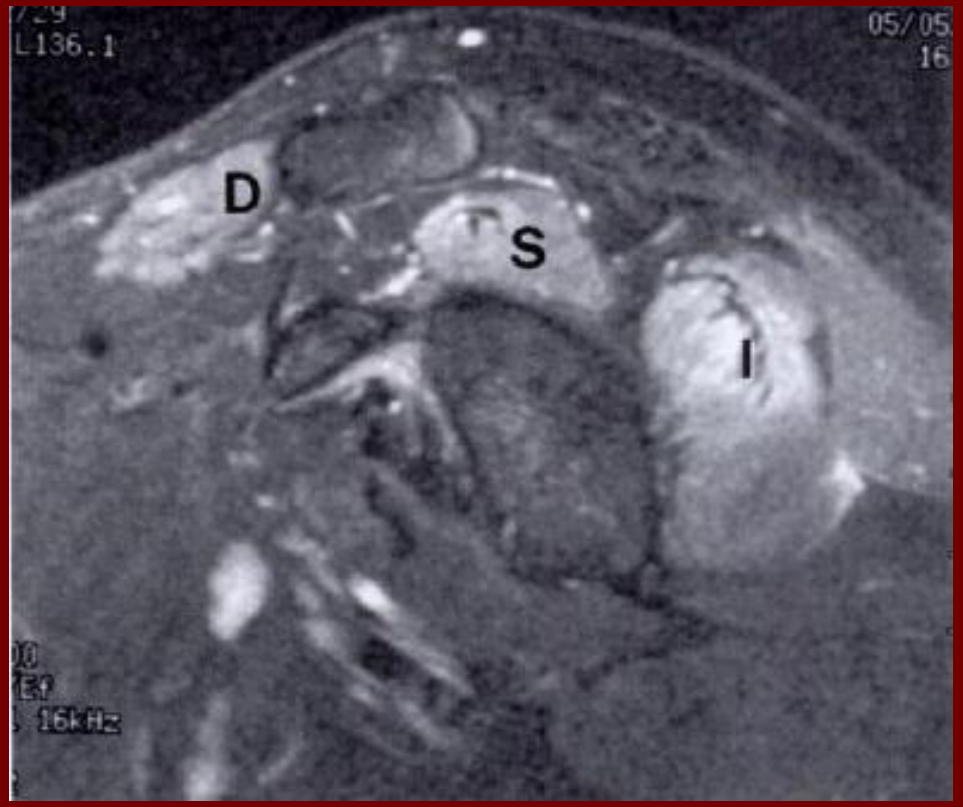
Parsonage-Turner syndrome

- Usually involves suprascapular nerve
- ~ 90% have denervation edema of supraspinatus and infraspinatus muscles
- 2/3 have ≥ 3 muscles involved
  - Deltoid is 3rd most commonly involved muscle
  - Can have deltoid edema without teres minor edema if neuritis only of 6th cervical nerve portion of axillary nerve

Parsonage-Turner syndrome (acute brachial neuritis)

marked high signal intensity throughout the supraspinatus muscle *(S)* and in the deltoid muscle (arrow)

Parsonage-Turner syndrome (acute brachial neuritis)



Idiopathic teres minor atrophy

- Older patients with cuff tears or degenerative joint disease (DJD) and chronic irritation of axillary nerve branch
- Younger patients with inflexible fascial compartment