

Compression, injury, or irritation to the neurovascular structures (brachial plexus, subclavian artery & vein) at the root of the neck or upper thorax.

### Causes

- Cervical ribs
- Scalenus anterior hypertrophy
- Congenital fibromuscular bands
- Elongated transverse process of C7
- Hyperextension injury → fibrosis & scarring
- Extension of axillary vein thrombosis
- Musicians at higher risk.

### Assessment

*History:* May be postural symptoms often worse at night. Neurological (paraesthesiae, pain usually C8/T1 nerve roots, but also C5-7), vascular (pain, claudication, swelling)

*Exam:* May be normal. Subtle weakness, venous distension oedema, cyanosis, pale, pulseless, bruits. May be affected by elevated arm stress test (EAST - abducting flexed arm to 90° - in a "hands-up" gesture - and clenching/opening hand for 3 mins.) or hyperabduction test (hand lifted above head and pulse checked).

### Investigation

*Imaging:* C-spine XR (cervical ribs), CXR (Pancoast tumour), Doppler studies, angiography

*Other:* Nerve conduction studies.

### Management

- Analgesic - NSAIDs
- Physiotherapy
- Referral to vascular surgeon
- First rib resection/removal of scalenus anterior

### Complications and Prognosis

Generally prognosis is good unless it is severe enough to merit surgery and spontaneous recovery will occur but sometimes complications occur:

- Chronic pain
- Loss of function
- Depression
- Neurological complications
- Thrombosis, ischaemia or pseudoaneurysm