Paravertebral Region & Root Of Neck

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PARAVERTEBRAL (Lateral Vertebral) MUSCLES

- Extend obliquely from transverse processes of cervical vertebrae to the upper two ribs.
- Lie under cover of sternocleidomastoid.
- Covered by prevertebral layer of deep cervical fascia.
- Consists of:
  - Scalenus posterior.
  - Scalenus medius.
  - Scalenus anterior.
Scalenus Posterior

- **Smallest** and most deeply situated muscle in this group.

**ORIGIN**-
- **Posterior tubercles** of the transverse processes of C4, C5, and C6 vertebrae.

**INSERTION**-
- Outer surface of the 2nd rib, behind the tubercle for Serratus anterior.

**NERVE SUPPLY**-
- Anterior primary rami of lower three cervical (C6, C7, and C8) spinal nerves.

**ACTIONS**-
- Bends the cervical vertebral column to the same side (when the 2nd rib is fixed).
- Elevates the 2nd rib (when upper attachment is fixed).
Scalenus Medius

ORIGIN-

- Posterior tubercles and costo-transverse bars of the transverse processes of C2- C6 vertebrae.

INSERTION-

- Upper surface of the 1st rib, between the tubercle of the rib and groove for subclavian artery.

NERVE SUPPLY-

- Anterior primary rami of C3-C8 spinal nerves.

ACTIONS-

- Bends the cervical vertebral column to the same side (when the 1st rib is fixed).
- Elevates the 1st rib (when upper attachment is fixed) - accessory muscle of respiration.
Scalenus Anterior

• ‘Key muscle’ at the root of the neck.

• Most superficial and lies deep to Sternocleidomastoid muscle.

• It is a useful ‘surgical landmark’.

**ORIGIN**

• Anterior tubercles of the transverse processes of all typical cervical (C3- C6) vertebrae.

**INSERTION**

• Scalene tubercle on inner border of the 1st rib.

• Ridge on the upper surface of 1st rib separating the groove for subclavian artery posteriorly and groove for subclavian vein anteriorly.
NERVE SUPPLY-

- Anterior primary rami of C4, C5, and C6 spinal nerves.

ACTIONS-

- Flexion of cervical part of vertebral column.
- Elevates the 1st rib — *accessory muscle of respiration.*
Relations of Scaleneus Anterior

ANTERIOR-

One nerve-
1. Phrenic Nerve.

Two arteries-
1. Suprascapular artery.
2. Transverse cervical artery.

Two veins-
1. Anterior jugular vein.
2. Subclavian vein.

Two muscles-
1. Inferior belly of omohyoid.
2. Clavicular head of Sternocleidomastoid

Carotid sheath.

Clavicle bone.
Relations of Scalenus Anterior contd...

POSTERIOR-
- Roots of brachial plexus.
- 2\textsuperscript{nd} part of Subclavian artery.
- Scalenus medius muscle.
- Cervical pleura.
- Suprapleural membrane.
Scalene Triangle

LOCATION-
• Above the first rib between Scalenus anterior and Scalenus medius muscle.

CONTENTS-
• Trunks of brachial plexus.
• Subclavian artery.
Cervical Rib

- Costal elements of 7th cervical vertebra undergo abnormal development and form cervical rib.
- Cervical rib arises from anterior tubercle of transverse process of 7th cervical vertebra.
- Occurs in less than 0.5% of population.
- Cervical rib may have free anterior end, may be connected to the 1st rib by a fibrous band or may articulate with the 1st rib.
Cervical Rib contd...

- **Complete cervical rib** passes laterally and forward between the *Scalenus anterior* and *Scalenus medius* muscles and joins with the first rib close to the insertion of scalenus anterior.

- More often it is unilateral.

- More frequent on the right side.

- Lower trunk of brachial plexus arches over the cervical rib.
Scalene Syndrome

ETIOLOGY:

- Cervical rib.
- Spasm of scalene muscles.

CLINICAL PRESENTATION:

Due to compression on lower trunk of brachial plexus:

- Sensory loss of medial one and half fingers of the hand and part of forearm.
- Tingling sensation and numbness along the inner border of forearm and hand.
- Progressive paresis and wasting of hypothenar muscles of the hand.

Due to occlusion of Subclavian artery:

- Ischemic pain and absence of radial pulse.
Scalene Syndrome contd...

• Compression of Subclavian artery may result in an aneurysm, which is a potential source of emboli to the hand.

• Emboli may cause gangrene of the finger tips.

LOCAL COMPLICATIONS-

• Tender supraclavicular lump which is bony hard and fixed.
Scalenovertebral Triangle OR Triangle of Vertebral Artery

- A deeply placed triangular space at the root of the neck.

**BOUNDARIES—**

**Medial—**
Inferior oblique part of Longus colli.

**Lateral—**
Medial border of Scalenus anterior.

**Apex—**
Transverse process of C6 vertebra.

**Base—**
1st part of subclavian artery.
Boundaries of Scalenovertebral Triangle contd...

**Floor-**

1. Transverse process of C7 vertebra.

2. Ventral ramus of C8 spinal nerve.


**Roof-**

Carotid sheath
CONTENTS-

• 1st part of vertebral artery.

• Thyrocervical trunk.

• Inferior thyroid artery.

• Sympathetic chain with stellate ganglion.

• Ansa subclavia.