

Q8 Outline the anatomy relevant to performing a percutaneous tracheostomy (March 2009, Q10 March 2012)

Tracheostomy – insertion of a tube through the anterior portion of the neck into the trachea to facilitate ventilation

Trachea:

- Extends from the inferior end of the larynx (C6) into the thorax and terminates at the level of the sternal angle, where it divides into the right and left mainstem bronchi.
- Initially anterior, then moves posteriorly as it descends to move behind the sternal notch
- A fibrocartilaginous tube 10cm long, on average 2.3cm wide and 1.8cm AP diameter, supported by incomplete cartilaginous tracheal rings, which keep the trachea patent. The first ring is the largest.
- The tracheal rings are joined by fibroelastic tissue. They are deficient posteriorly where the trachea lies anterior to the oesophagus; the posterior gap is spanned by the involuntary smooth trachealis muscle

Relationships:

- Lateral - carotid sheaths (common carotid arteries, vagus and internal jugular veins), thyroid lobes, inferior thyroid arteries, recurrent laryngeal nerves
- Inferior to the isthmus of the thyroid gland are the inferior thyroid veins and thyroidea artery (if present)
- Posterior – oesophagus, vertebral column

Relevant surface anatomy (in midline of neck):

- Hyoid bone (at level of C3)
- Thyroid cartilage
- Cricothyroid membrane
- Cricoid cartilage (at level of C6)
- Thyroid gland
- Sternohyoid muscle just lateral to midline structures, overlies sternothyroid and thyrohyoid muscles

Layers of dissection in tracheostomy:

- Skin
- Subcutaneous tissue
- Fat
- Pretracheal fascia (superficial and deep)
- Passage through the fibroelastic tissue in between the 1st and 2nd rings (common in perc trache) or 2nd/3rd or 3rd/4th (surgical trache)
- Trachea