"Head and Neck Clinicals (Part 5/5)"

》 Esophageal Perforation:

The lower end of the pharynx and the beginning of the esophagus lie directly behind the cricoid cartilage.

It is crucial to avoid making a posterior incision through the cricothyroid membrane, especially in young children, due to their small laryngeal diameter.

》 Hemorrhage:

Small branches of the superior thyroid artery cross the front of the cricothyroid membrane and anastomose with one another, and should be avoided during the procedure.

》 Tracheostomy

Indications: Used in patients with extensive laryngeal damage or infants with severe airway obstruction.

Anatomical Risks: The procedure involves careful dissection to avoid damaging major vascular structures (carotid arteries, internal jugular vein), the thyroid gland, nerves (recurrent laryngeal branch of the vagus and vagus nerve), pleural cavities, and the esophagus.

Procedure:

1) Identification: Locate the thyroid and cricoid cartilages; extend the neck to bring the trachea forward.

2) Incision: Make a vertical midline skin incision from the cricothyroid membrane to the suprasternal notch.

3) Layer Dissection: Incise superficial fascia, platysma, and avoid anterior jugular veins.

4) Deep Fascia: Incise the deep cervical fascia.

5) Pretracheal Muscles: Split pretracheal muscles two fingerbreadths above the sternal notch.

6) Tracheal Rings: Palpate tracheal rings; apply traction to the cricoid cartilage to prevent lateral movement of the trachea.

7) Decision for Site: Choose the site for tracheostomy (second ring preferred, sometimes lower if necessary).

8) Incision and Insertion: Make a vertical incision in the trachea and insert the tracheostomy tube.

Complications:

Hemorrhage: Avoid anterior jugular veins and secure branches of the thyroid arteries, especially if the thyroid isthmus is transected.

Nerve Paralysis: Damage to recurrent laryngeal nerves, which ascend between the trachea and esophagus, may result in hoarseness or breathing difficulties.

Pneumothorax: Risk of puncturing the cervical dome of the pleura, particularly in children due to the high level of the pleura.

Esophageal Injury: The esophagus lies posterior to the trachea and can be injured, particularly in infants due to their small tracheal diameter.

» Thyroid Gland Swellings and Movement on Swallowing:

The thyroid gland is connected to the larynx and trachea via pretracheal fascia, explaining why it moves upwards during swallowing. This movement is significant for diagnosing pathologic neck swelling that involves the thyroid.

» Thyroid Gland and the Airway:

Enlargement of the thyroid gland can compress the trachea, especially if there is pathologic growth.

» Retrosternal Goiter:

The thyroid's downward expansion is not limited by the sternothyroid muscles, leading to retrosternal goiters. These can compress the trachea and cause dyspnea or severe venous compression.

》 Thyroid Arteries and Important Nerves:

The superior thyroid artery is close to the external laryngeal nerve, which supplies the cricothyroid muscle, and its damage leads to hoarseness.

The inferior thyroid artery branches near the recurrent laryngeal nerve, which supplies the vocal cords, and damage to this nerve can affect voice quality.

》 Thyroidectomy and Parathyroid Glands:

The parathyroid glands are usually located on the posterior surface of the thyroid. Care is needed during thyroidectomy to avoid damaging these glands.

The inferior parathyroid glands may be located in the superior mediastinum due to their development alongside the thymus.