

SURGICAL ANATOMY

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The normal thyroid gland weighs 20–25 g. The functioning unit is the lobule supplied by a single arteriole and consists of 24–40 follicles lined with cuboidal epithelium. The follicle contains colloid in which thyroglobulin is stored (Figure 55.2). The arterial supply is rich, and extensive anastomoses occur between the main thyroid arteries and the branches of the tracheal and oesophageal arteries (Figure 55.3). There is an extensive lymphatic network within and around the gland. Although some lymph channels pass directly to the deep cervical nodes, the subcapsular plexus drains principally to the central compartment juxtathyroid – ‘Delphian’ and paratracheal nodes and nodes on the superior and inferior thyroid veins (level VI) – and from there to the deep cervical (levels II, III, IV and V) and mediastinal groups of nodes (level VII) (Figure 55.4). The relationship between the recurrent laryngeal nerve (RLN) and the thyroid is of supreme importance to the

- operating surgeon. A branch of the vagus, the nerve recurs round the arch of the aorta on the left and the subclavian artery on the right. The clinical significance of this is that on the left the nerve has more distance in which to reach the tracheo-oesophageal groove and therefore runs in a medial plane. On the right, there is less distance and the nerve runs more obliquely to reach the tracheo-oesophageal groove. Approximately 2% of nerves on the right are non-recurrent and will enter the larynx from above. The nerve runs posterior to the thyroid and enters the larynx at the cricothyroid joint. This entry point is at the level

Figure 55.2 Histology of the normal thyroid. Left vagus nerve (X) Common carotid artery Internal jugular vein Inferior thyroid vein Left recurrent laryngeal nerve Figure 55.3 The thyroid gland from behind. Submandibular gland Internal carotid Digastric artery muscle Mylohyoid muscle II Hyoid bone I Internal jugular vein Omohyoid Internal carotid muscle artery III Sternocleidomastoid Cricoid muscle cartilage V VI IV Trapezius muscle Right common Anterior scalene carotid artery muscle VII Internal jugular vein Manubrium Left common carotid artery Figure 55.4 Cervical lymph node levels. Right vagus nerve (X) Superior thyroid gland parathyroid Thyroid gland (right lobe) Inferior parathyroid gland Right recurrent laryngeal nerve Inferior thyroid artery

binds the thyroid to the trachea. This is the point at which the nerve is at most risk of injury during surgery. In terms of surgical anatomy, the nerve can be located in the tracheo-oesophageal groove, where it forms one side of Beahrs’ triangle (the other two sides are the carotid artery and the inferior thyroid artery) or at the cricothyroid joint. The nerve will normally be found as the thyroid lobe is mobilised laterally lying under the most posterolateral portion of the gland called the tubercle of Zuckerkandl. SURGICAL ANATOMY

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