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platysma is divided and the subplatysmal flap is raised until the parotid gland is visualised and continued above, remaining below the superfi - cial musculoaponeurotic fascia, which connects the temporalis fascia and the platysma. This allows a suitable flap to be raised with the entire subcutaneous fat lifted o ff the parotid gland. The flap is developed anteriorly with elevation o ver the parotid - gland but not onto the masseteric fascia to prevent damage to the nerve branches as they exit the gland (Figure 54.12b). Parotid gland mobilisation - The fascia between the sternocleidomastoid and the parotid is dissected in the avascular plane. The greater auricular nerve is dissected up to the ear lobule and its anterior branches are divided (Figure 54.12c). The gland is then dissected o ff the - sternomastoid muscle and fibrofatty tissue overlying the inter - nal jugular vein to identify the posterior belly of the digastric muscle, which is then traced to the mastoid process. The e xter - - nal jugular vein is preserved as it provides a good landmark - for the facial nerve plane. The parotid is then mobilised from the tragal cartilage and the bony external auditor y meatus, exposing its tip – the ‘tragal pointer’. The two avascular planes are then connected by blunt and sharp dissection, identifying the tympanomastoid suture. Facial nerve localisation The facial nerve is usually identified by the antegrade tech - nique using anatomical landmarks, which are fairly constant, and is delineated from the trunk to the peripheral branches (Figure 54.12d): /uni25CF tragal (Conley’s) pointer: the facial nerve lies 1 /uni00A0 cm deep and inferior to the tip of the tragal cartilage; /uni25CF digastric muscle: the facial nerve can be identified above the upper border of the posterior belly of the digastric muscle; /uni25CF tympanomastoid suture: the facial nerve lies inferior to this suture line as it overlies the stylomastoid foramen.

Extracapsular dissection Adequate parotidectomy Super /f_i cial parotidectomy Total conservative parotidectomy Radical parotidectomy

Modi /f_i ed Blair incision Retroauricular incision External jugular vein (c) (d) Greater auricular nerve traced to ear lobule Mastoid tip (e) Patey’s fascia (f) Centripetal dissection Figure 54.12 (a) Incision planning showing the modi /f_i ed Blair incision and the retroauricular incision. the super /f_i cial musculoaponeurotic system layer, preserving the external jugular vein. dividing the branches going on to the parotid gland. (d) Tragal pointer and the digastric muscle used in combination to identify the facial nerve exiting the stylomastoid foramen in the centre. (e) Dissection of the nerve in Patey’s fascia: dissecting the nerves of the main trunk from the periphery to the centre. (f) Centripetal dissection of the parotid gland towards the parotid duct in the centre. Subplatysmal plane Incising the platysma Parotid tissue Tragal pointer Facial Digastric nerve muscle Cervicomandibular division (g) Ligating the parotid duct (b) Subplatysmal /f_l ap elevation to identify (c) Greater auricular nerve traced as far as the ear lobule, (g) Ligation of the parotid duct.

the parotid gland, fibrofatty tissue and the stylomastoid branch of the posterior auricular artery . Dissection of the glandular tissue and artery exposes the nerve. Bleeding can be brisk; this can be controlled with pressure, adrenaline (epinephrine) neuropatties and bipolar electrocautery . Identification of the facial trunk by a retrograde dissec tion technique is useful in revision cases with altered anatomy and fibrosis. It relies on the identification of one of the main branches of the nerv e (usually the buccal branch in relation to the parotid duct), which is then traced proximally to the main trunk. Centripetal dissection Once the main trunk is identified, a curved fine artery forceps is used to dissect in Patey’s plane above the nerve, taking care to avoid stretching the nerve (Figure 54.12e). The glandular tissue is dissected o ff the nerve and divided laterally .

Starting with the lower cervicomandibular division and its further divisions into the cervical, marginal mandibular and lower buccal branches, the entire course of each branch is identified until it exits the gland. Each of the branches is dissected in a sequential manner in a centripetal dissection working towards the parotid duct (Figure 54.12f). Thereafter, the upper temporozygomatic divi sion is traced onto its temporal, zygomatic and upper buccal branches, similarly reaching the duct. Thus at the end of the dissection the entire superficial part of the gland remains attached to the parotid duct, which can be clamped and lig to deliver the specimen (Figure 54.12g). Total conservative parotidectomy In a tumour straddling the superficial and deep lobes across Patey's plane, following removal of the superficial lobe, the deep lobe is dissected o ff the temporal veins and terminal branches of the external carotid artery . This results in complete removal of the suprafacial and subfacial parotid gland with preservation of the facial nerves – a total conservative parotidectomy . Radical parotidectomy In malignant tumours with extraparenchymal spread and facial nerve invasion, it is imperative to remove the involved struc tures. Radical parotidectomy involves removal of all parotid gland tissue and elective division of the involved facial nerve branches as well as the structures inv olved, most commonly the masseter muscle. It is imperative to repair the facial nerves when a segment has been removed. The branches supplying the orbicularis oculi and oris are prioritised in the reconstruc tion using cable grafts from either the greater auricular nerve or the sural nerve. Extracapsular dissection Extracapsular dissection for select benign parotid tumours is practised to avoid facial nerve dissection. It is reported to be as safe as parotidectomy . With a similar incision the subcutaneous flap is elevated above the platysma. At the site of the tumour Victor Minor , Russian neurologist, described the starch iodine test in 1928. expose the tumour. The tumour is dissected carefully in an extracapsular plane, visualising the facial nerve branches. Use of intraoperative nerve monitoring makes this safer. Howev er, in the absence of monitoring, careful dissection and a high level of suspicion before cutting any tissue is critical for uneventful - surgery . After excision the fascia is sutured with absorbable sutures, followed by skin closure. Drain placement and closure Sternomastoid muscle flaps or acellular dermal sheets may be used to cover the parotid bed. This attempts to prevent cross-innervation of the subcutaneous gland and overlying skin by the auriculotemporal nerve to avoid Frey's syndrome. A suction drain tube is placed and anchored beneath the posterior belly of the digastric muscle. The drain is brought out posterior to the suture line. The skin is sutured in layers. Complications Temporary facial palsy is commonly seen in the lower branches, especially the marginal mandibular nerve. Most patients tend to recover over time. When the zygomaticotemporal division is a ff ected, eye care is essential to protect the cornea. - Parotidectomy is a clean operation and hence infection is rare. Postoperative management of the drains following aseptic precautions and timely removal decreases the risk of infection. Haematoma is uncommon and is usually pre ventable ated with appropriate intraoperative haemostasis. Small haema - tomas usually resolve without intervention. Extreme collection causing discoloration suggests a possible bleeding diathesis that requir es appropriate management and evacuation of the haematoma. Sialocele is pre ventable by underrunning the capsule, where possible, to avoid exposure of the main acinar ductal system. Treatment includes the use of anticholinergics to reduce salivar y secretion, aspiration and pressure dressings. Longstanding salivary fistulae may require low-dose radiation. Hollowing of the retromandibular area can be reduced with autologous fat grafts, which can be placed at the time of primary surgery . - Frey's syndrome (gusta tory sweating) results from cross-innervation of the dermal sweat glands by the regener - ating postganglionic parasympathetic nerve fibres of the auriculotemporal nerve. It occurs in most patients but is often not significant; patients rarely mention it unless it is ex cessive.

Common presentations are sweating and flushing in the - preauricular region during meals. Minor’s starch iodine test identifies the region a ff ected. In it iodine is painted in the preauricular region, dried and covered with starch. Salivary stimulation causes sweating, which turns the starch blue. Frey’s syndrome can be reduced either by raising a thick flap with all subcutaneous fat over the parotid or by interposition of tissue, such as a sternocleidomastoid flap, temporalis fascia, allo - dermal tissue or autologous fat between the skin and the surgical bed. Its incidence can be reduced by extracapsular aponeurotic system. Treatment includes use of antiperspirants in mild cases; in more severe cases, tympanic neurectomy or botulinum toxin injection at the site of perspiration is used, which is ver y e ff ective. Summary box 54.8 Complications of parotid gland surgery /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF Management of established Frey’s syndrome /uni25CF /uni25CF /uni25CF

Haematoma formation Infection Deformity: unsightly scar and retromandibular hollowing Temporary facial nerve weakness Transection of the facial nerve and permanent facial weakness Sialocele Facial numbness Permanent numbness of the ear lobe associated with great auricular nerve transection Frey’s syndrome Antiperspirants, usually containing aluminium chlorohydrate Denervation by tympanic neurectomy The injection of botulinum toxin into the affected skin

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