

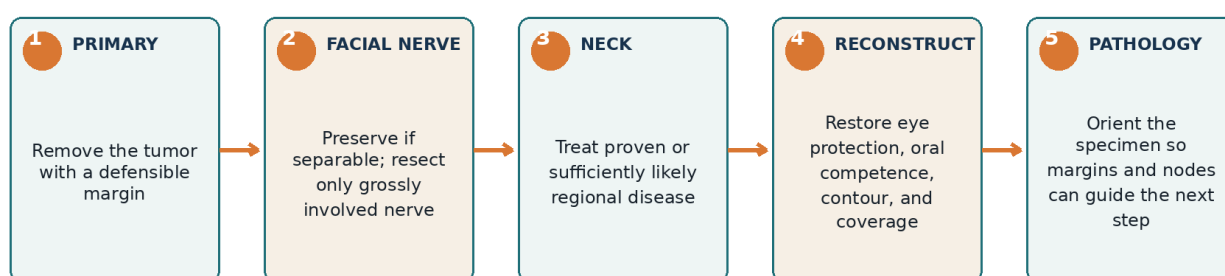
SALIVARY GLAND NEOPLASMS

VOLUME IV

Surgical Management and the Neck

From a resectable diagnosis to an oncologically sound first operation

THE FIRST OPERATION IS A FIVE-PART ONCOLOGIC PLAN



A smaller operation is appropriate only when it remains oncologically complete.

Figure 1. Original synthesis. A salivary-gland operation is planned simultaneously around the primary tumor, the facial nerve or other critical nerves, regional lymphatics, reconstruction, and the pathology map.

THE CENTRAL QUESTION | What must the first operation remove, preserve, stage, and reconstruct so that local-regional control is not compromised?

A first-principles guide for otolaryngology residents • Prepared July 2026

CHAPTER 0

Orientation

Surgery is not the last step after diagnosis. It is the point at which anatomy, biology, function, and future treatment must become one coherent plan.

Salivary-gland surgery is deceptively easy to describe and difficult to plan. “Parotidectomy” may mean removal of a 1.5-cm mobile benign lesion through a limited branch dissection, or an extended oncologic resection involving the facial nerve, skin, masseter, mandible, external auditory canal, neck dissection, nerve grafting, and soft-tissue reconstruction. The operation name is therefore less important than the set of oncologic and functional tasks it must accomplish.

This volume follows the resident through that planning sequence. It begins with the questions that change the operation, then develops parotidectomy extent, facial-nerve management, deep-lobe and parapharyngeal disease, surgery of the other salivary sites, management of the cN0 and cN+ neck, reconstruction, complications, and specimen communication. Postoperative radiation, systemic therapy, recurrence, and surveillance are intentionally reserved for Volume V except where they directly influence the first operation.

Learning objectives

- Build a surgical plan from tumor identity, grade, anatomic extent, nerve function, nodal risk, and reconstructive cost.
- Distinguish extracapsular dissection, partial superficial, superficial, total conservative, radical, and extended parotidectomy.
- Identify the facial nerve reliably using multiple landmarks and explain when antegrade or retrograde dissection is useful.
- Preserve an uninvolved facial nerve, recognize indications for branch or trunk sacrifice, and select a practical immediate reanimation strategy.
- Plan surgery for deep-lobe, parapharyngeal, submandibular, sublingual, and minor-gland malignancies.
- Treat the cN0 and cN+ neck according to primary site, T category, grade, histology, and regional drainage.
- Anticipate early and late complications and create an operative specimen map that remains useful at tumor board.

Contents

Chapter	Core question
1. Building the operation	Which preoperative facts can change the primary, nerve, neck, or reconstruction plan?
2. Parotidectomy extent	How much gland and adjacent tissue must be removed?
3. Facial nerve	When should the nerve be preserved, resected, and reconstructed?
4. Deep lobe and PPS	How does a tumor medial to CN VII change exposure and risk?
5. Other salivary sites	How do submandibular, sublingual, and minor-gland operations differ?
6. The cN0 neck	When is elective regional treatment justified, and which levels are at risk?
7. The cN+ neck	How should known nodal disease and intraparotid nodes be treated?
8. Reconstruction and complications	How are function, contour, and wound integrity protected?
9. Pathology and workflow	How does the surgeon make margins and nodes interpretable?
10. Cases and boards review	Can the framework generate a defensible operation under uncertainty?

EVIDENCE NOTE | Salivary-gland cancers are rare and heterogeneous. ASCO and ESMO-EURACAN recommendations combine retrospective evidence with expert consensus. The guide labels decisions that remain institution- and case-dependent.

CHAPTER 1

Building the Operation Before Incision

The first operation should be designed around plausible extension of disease, not merely the most reassuring interpretation of the biopsy.

The surgical plan begins by asking what information could force the team to do something meaningfully different. A low-grade T1 superficial parotid carcinoma with intact facial movement and no suspicious nodes may be treated with a limited but formal oncologic resection. A high-grade T3 lesion with skin fixation, subtle lower-division weakness, and level II adenopathy requires an entirely different room, consent, reconstructive plan, and pathology strategy. Both are “parotid cancer,” but almost none of the operational details are interchangeable.

BUILD THE OPERATION FROM THE FEATURES THAT CAN CHANGE IT

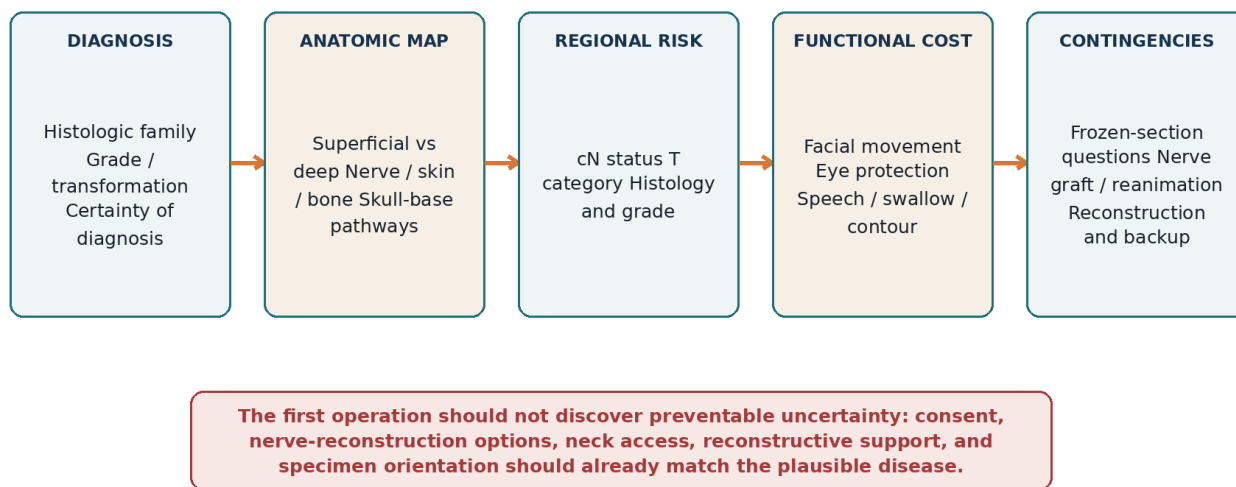


Figure 2. Original synthesis. Diagnosis, anatomic mapping, regional risk, functional cost, and contingencies are the five inputs that should be explicit before surgery.

1.1 The preoperative data that change surgery

Domain	Questions the resident should answer	How the answer changes the operation
Tumor identity	Is malignancy proven? Is the entity low grade, high grade, or uncertain? Is high-grade transformation possible?	Determines margin ambition, gland extent, neck strategy, frozen-section questions, and likelihood of adjuvant therapy.
Local extent	Superficial or deep? Skin, masseter, mandible, EAC, mastoid, parapharyngeal space, floor of mouth, or skull base?	Determines exposure, need for adjacent-structure resection, reconstructive team, and whether resection is realistically complete.
Nerve status	House-Brackmann or branch-specific function? Pain, numbness, tongue weakness, or named-nerve spread?	Changes consent, proximal/distal nerve mapping, graft availability, and need for immediate eye protection or dynamic reanimation.
Regional status	cN0 or cN+? Intraparotid node versus primary? Which levels are suspicious?	Determines elective versus therapeutic neck dissection and whether parotid nodal tissue must be included.
Patient / treatment course	Comorbidity, prior surgery or radiation, need for postoperative RT, baseline hearing, vision, swallowing, and shoulder function?	Changes reconstructive cost, vessel planning, wound strategy, and acceptable functional trade-offs.

1.2 Consent is an operative rehearsal

A useful consent discussion mirrors the branching logic of the operation. The patient should understand the expected operation and the credible extensions: additional gland removal, neck dissection, sacrifice of an involved nerve branch or trunk, skin or bone resection, nerve grafting, static facial procedures, tracheostomy, feeding access, and

regional or free-flap reconstruction when relevant. Consent should not be a maximalist list of every imaginable complication; it should be a transparent description of the decisions the team may need to make if the actual disease is worse than the preoperative sample suggests.

OPERATING-ROOM RELEVANCE | When nerve sacrifice is plausible, arrange a donor-nerve plan, facial-reanimation expertise, ophthalmic protection strategy, and compatible anesthetic monitoring before the patient is asleep.

1.3 Frozen section: ask a question, not “What is it?”

Intraoperative pathology is most useful when the result can change a defined action. Reasonable questions include whether a suspicious node is metastatic, whether a separately submitted true margin contains carcinoma, whether a mass is clearly malignant rather than benign, or whether high-grade features justify extending the neck dissection. Frozen section is less reliable for full salivary classification and grade because many diagnoses depend on architecture, special studies, and complete sampling. ASCO specifically cautions against major-harm decisions such as facial-nerve sacrifice based on an indeterminate preoperative or intraoperative diagnosis alone.[1]

Focused question	Potential action	Important limitation
Is this intraparotid or cervical node metastatic?	Convert staging dissection to therapeutic neck dissection; complete appropriate parotid nodal basin.	Sampling error and unusual histology may still limit certainty.
Is this separately submitted true margin positive?	Re-resect the mapped anatomic margin if feasible.	A shaved specimen edge may not represent the patient-side margin.
Is the lesion unequivocally malignant?	Avoid a benign enucleation-type operation; widen oncologic plan.	Exact entity and grade may remain unresolved.
Is this nerve segment involved?	Consider additional proximal/distal resection only if the tumor and anatomic findings are convincing.	Perineural invasion may be focal; crush and cautery artifact complicate interpretation.

CHAPTER SYNTHESIS

- The operative plan is built from diagnosis, anatomy, regional risk, functional cost, and contingencies.
- Consent should describe credible branches of the operation, especially nerve, neck, and reconstruction decisions.
- Frozen section is strongest when it answers a focused question that changes a preplanned action.
- Major irreversible harm should not follow from an indeterminate salivary diagnosis alone.

CHAPTER 2

Parotidectomy Extent and Operative Planes

Remove the disease completely while limiting dissection that does not improve oncologic control.

The parotid is divided into superficial and deep “lobes” by the facial nerve for surgical convenience; no true fascial septum separates them. This matters because the proper operation cannot be chosen by lobe terminology alone. The real questions are where the tumor sits relative to the nerve, whether a tumor-free plane exists, whether intraparotid nodes are at risk, and whether adjacent skin, muscle, bone, or ear canal is involved.

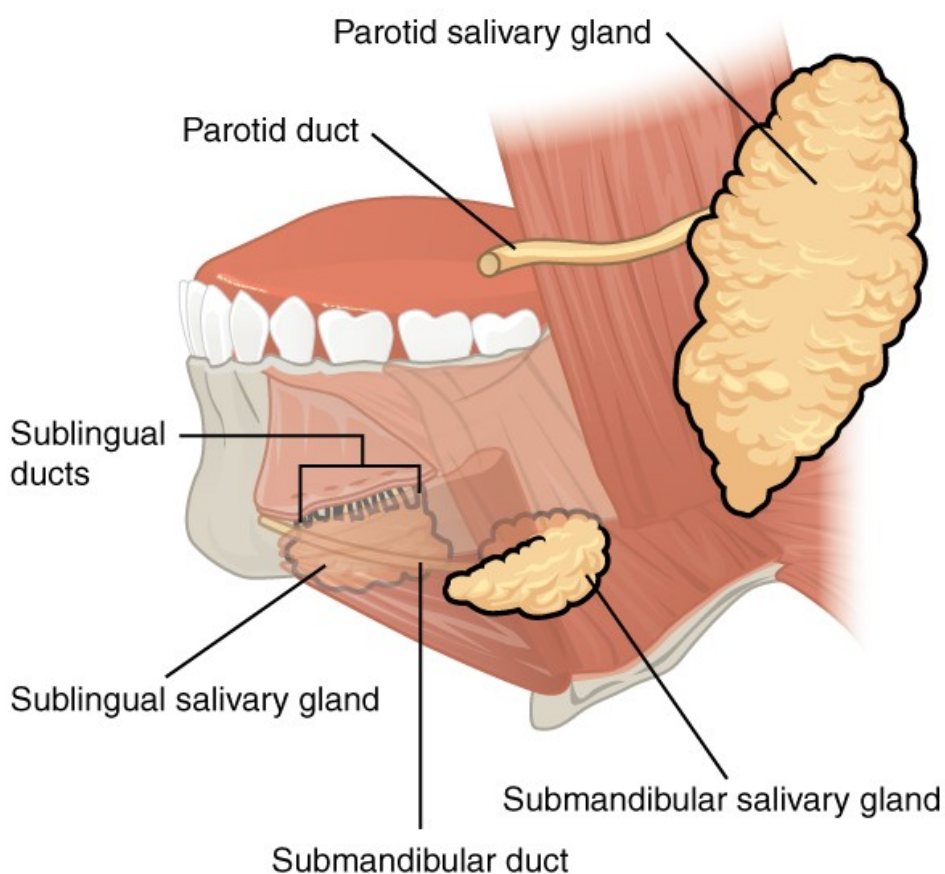
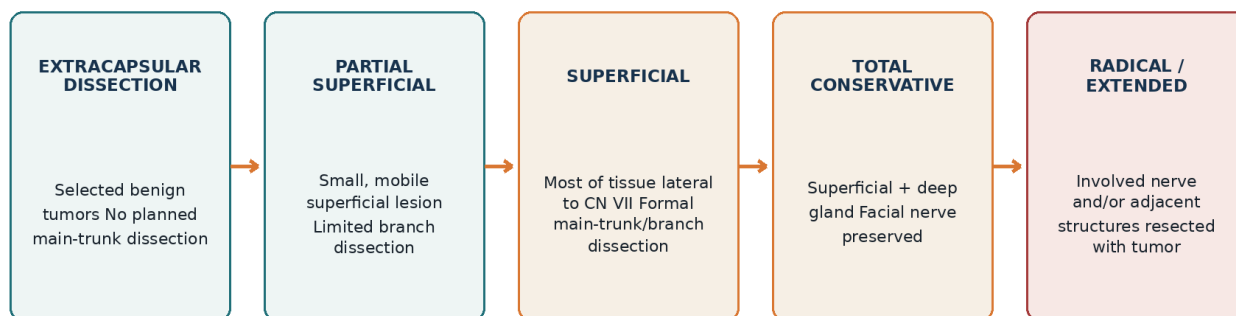


Figure 3. Major salivary glands and ducts. OpenStax College, “2408 Salivary Glands,” CC BY 3.0, via Wikimedia Commons. The parotid operation is uniquely organized around the facial-nerve plane.

2.1 The vocabulary of parotid surgery

PAROTIDECTOMY EXTENT IS A SPECTRUM - NOT A MORAL HIERARCHY



BENIGN DISEASE: minimize morbidity while maintaining an **intentional resection to extent; never spare involved t**

MALIGNANCY: match

Figure 4. Original synthesis. Parotidectomy extent is selected by disease and anatomy; a larger operation is not automatically better, and a smaller operation is not automatically safer.

Operation	What is intentionally exposed or removed	Typical role	Oncologic caution
Extracapsular dissection	Tumor with a cuff of gland; no planned main-trunk dissection.	Selected benign, mobile, superficial tumors in experienced hands.	Not an enucleation; avoid when malignancy, fixation, facial weakness, or an unsafe plane is suspected.
Partial superficial parotidectomy	Tumor-bearing superficial gland with limited branch dissection.	Selected small superficial benign tumors and appropriately located T1-T2 low-grade carcinomas.	Requires a deliberate tumor-free plane and adequate pathologic orientation.
Superficial parotidectomy	Most gland lateral to CN VII; main trunk and relevant branches dissected.	Common formal operation for superficial tumors; at least this extent for many high-grade or advanced cancers.	“Superficial” does not address deep disease or involved adjacent structures.
Total conservative parotidectomy	Superficial and deep gland removed with CN VII preserved.	Deep-lobe tumors; high-grade/advanced cancers with separable nerve; intraparotid nodal concern.	Nerve preservation is appropriate only if resection remains complete.
Radical / extended parotidectomy	Tumor plus involved nerve; extended adds skin, muscle, bone, EAC, or other structures.	Gross neural or adjacent-structure invasion.	Plan immediate reanimation and reconstruction; do not use the label to substitute for a margin map.

2.2 Malignant superficial tumors

ASCO allows partial superficial parotidectomy for appropriately located superficial T1-T2 low-grade carcinomas. The key phrase is “appropriately located.” The lesion should be well mapped, facial function intact, the diagnosis reasonably secure, and a complete oncologic excision possible without violating the tumor. The objective is not to remove an arbitrary quantity of normal parotid; it is to obtain a defensible margin while preserving uninvolved nerve and minimizing unnecessary dissection.[1]

High-grade or T3-T4 parotid cancer is different. Because these tumors carry greater risks of occult deep extension and intraparotid nodal metastasis, ASCO recommends at least superficial parotidectomy with consideration of subtotal or total parotidectomy. The decision still depends on anatomy: total gland removal is not a ritual, but it is often necessary to clear the tumor and the intraparotid nodal basin.[1]

2.3 Finding the facial nerve: use a constellation

Antegrade dissection begins at the main trunk after identifying several converging landmarks. The posterior belly of digastric defines the inferior depth; the tympanomastoid suture and cartilaginous external auditory canal guide the surgeon superiorly; the tragal pointer is convenient but mobile; the mastoid tip and styloid region provide additional

orientation. No single landmark is perfect, especially after large tumors, prior surgery, inflammation, or radiation. The safest mental model is a three-dimensional zone in which multiple fixed structures agree.

Landmark	Practical use	Common error
Posterior belly of digastric	The nerve trunk lies just superior to its superior border near the mastoid attachment.	Following the muscle too anteriorly or dissecting deep before defining its posterior attachment.
Tympanomastoid suture	A relatively fixed bony landmark that points toward the stylomastoid foramen.	Confusing soft tissue or periosteum for the suture line.
Tragal pointer	Rapid surface orientation; trunk is usually inferomedial to the pointer.	Treating a mobile cartilage tip as a precise ruler.
External auditory canal cartilage	Maintains a safe plane along the canal and leads toward the pointer region.	Buttonholing the canal or drifting into tumor.
Mastoid tip / styloid region	Defines posterior depth and proximal nerve neighborhood.	Blind deep dissection around the styloid and vessels.

BOARD TRAP | The tragal pointer does not “identify” the facial nerve by itself. The tympanomastoid suture and posterior belly of digastric are generally more fixed; safe identification uses multiple landmarks.

2.4 Antegrade versus retrograde dissection

Antegrade dissection provides early control of the trunk and is the standard approach for many formal parotidectomies. Retrograde dissection begins at a peripheral branch and proceeds proximally. It is useful when the main-trunk region is distorted, when a small tail tumor is adjacent to a known peripheral branch, or when only a limited portion of the nerve must be exposed. Retrograde dissection is not inherently “less invasive”; it simply chooses a different route to the same neural anatomy. The resident should know reliable distal branches—marginal mandibular near the facial vessels, buccal branches near Stensen duct, and temporal branches over the zygomatic arch—while recognizing that branching variability is substantial.

2.5 Nerve monitoring and dissection technique

Electrophysiologic monitoring helps confirm neural tissue, map a distorted branch pattern, and provide feedback about traction or thermal injury. It does not replace anatomy, prevent every injury, or prove that a nerve is oncologically free. Avoid long-acting neuromuscular blockade when monitoring is planned. Maintain a bloodless field with fine bipolar hemostasis away from the nerve, dissect on the nerve epineurium only as needed, and move the gland off the nerve rather than pulling the nerve out of the gland.

CHAPTER SYNTHESIS

- Parotid “lobes” are surgical relationships to CN VII, not independent fascial compartments.
- Partial superficial parotidectomy may be oncologically appropriate for selected small low-grade superficial cancers.
- High-grade and advanced parotid cancers usually require at least superficial and often total gland resection because of extent and intraparotid nodal risk.
- Facial-nerve identification is safest when multiple landmarks agree; monitoring supplements but never replaces anatomy.

CHAPTER 3

Facial Nerve: Preserve, Sacrifice, Reconstruct

The nerve should be preserved when oncologically separable and reconstructed when oncologic resection requires sacrifice.

Facial-nerve management is the central functional decision in parotid cancer. Two errors are possible. The first is sacrificing an uninvolved nerve because malignancy is feared. The second is leaving gross tumor on the nerve to preserve movement. The correct decision is not based on the emotional value of the nerve or the aggressiveness of the tumor name alone; it is based on preoperative function, imaging, direct operative findings, and whether a clean dissection plane exists.

FACIAL-NERVE DECISION: FUNCTION IS EVIDENCE, BUT GROSS INVOLVEMENT IS THE OPERATIVE TEST

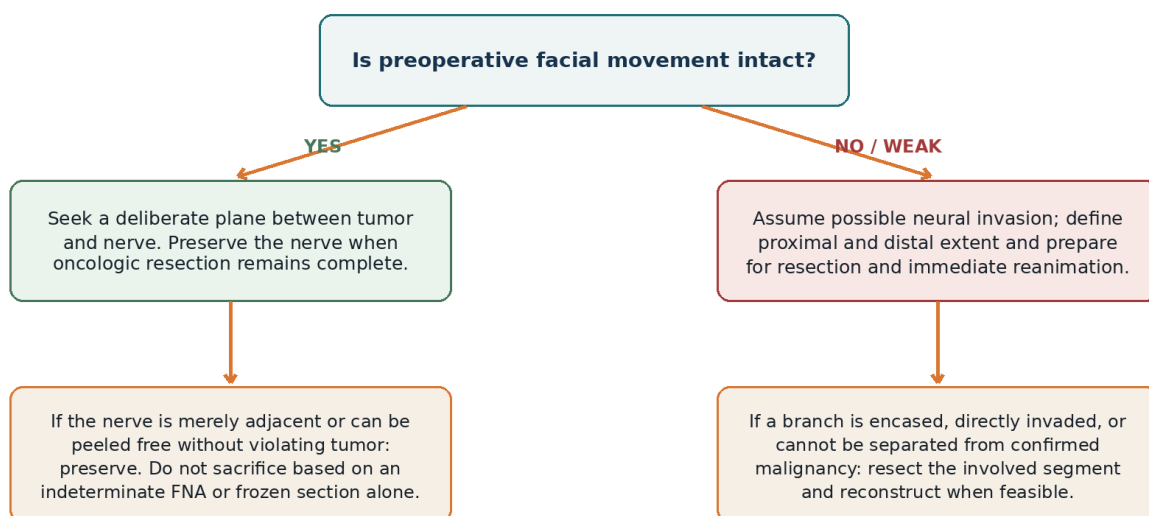


Figure 5. Original synthesis based on ASCO guidance. Preserve an intact, separable nerve; resect branches that are grossly encased or invaded by confirmed malignancy.

3.1 Intact preoperative function

Normal movement strongly favors nerve preservation, but it does not prove that the nerve is uninvolved microscopically. The surgeon should attempt a careful dissection plane. If the tumor peels from the nerve without rupture and a complete resection remains possible, preservation is appropriate even for high-grade histology. Nerve sacrifice does not compensate for a close margin elsewhere and does not improve oncologic logic merely because the tumor is malignant.

3.2 Weakness or paralysis before surgery

Preoperative weakness implies neural invasion until proved otherwise, particularly when it is progressive or branch-specific. The team should map which divisions remain functional, image the extracranial and intratemporal pathways when indicated, and plan a proximal and distal resection strategy. A functioning segment should not be sacrificed beyond the extent needed for clearance. Conversely, grossly involved nerve should be removed en bloc with tumor rather than shaved to preserve a nonfunctional branch.

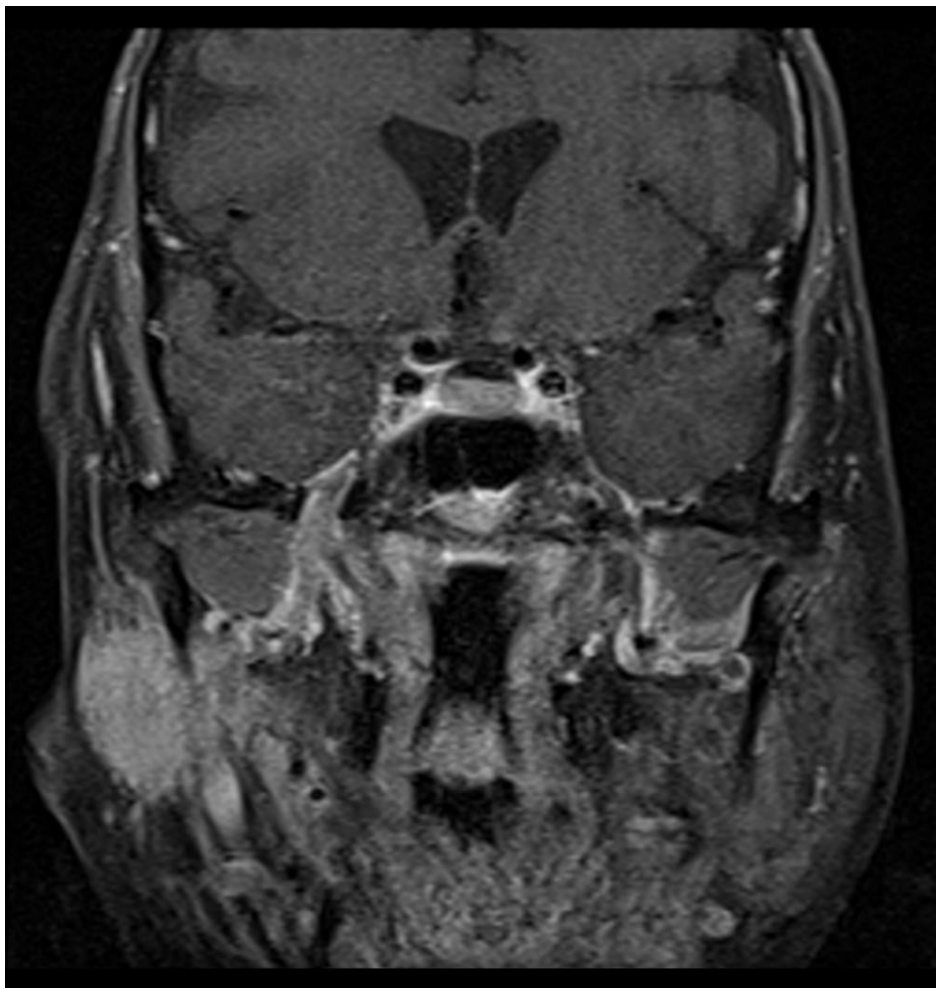


Figure 6. Coronal fat-suppressed postcontrast T1 MRI demonstrating parotid adenoid cystic carcinoma with perineural spread along a trigeminal pathway. Jto410, CC BY-SA 3.0, via Wikimedia Commons. Named-nerve spread changes both the resection map and the postoperative treatment field.

3.3 What constitutes gross involvement?

Finding	Interpretation	Operative implication
Tumor merely touches or displaces nerve	Not equivalent to invasion.	Seek a careful plane; preserve if separable without tumor violation.
Focal adherence with preserved epineurial plane	May represent fibrosis or microscopic extension.	Use judgment, focused margin sampling, and avoid reflex sacrifice from uncertainty alone.
Nerve enters tumor, is encased circumferentially, or cannot be separated	Gross involvement is likely.	Resect the involved branch/segment with proximal and distal control.
Preoperative paralysis with tumor at corresponding branch/trunk	High probability of neural invasion.	Plan resection and immediate reanimation; assess skull-base extension.
Positive microscopic margin on preserved nerve without gross involvement	A postoperative risk problem, not proof that radical re-resection is always beneficial.	Discuss re-resection feasibility versus adjuvant treatment in multidisciplinary conference.

FIRST PRINCIPLE | A nerve can be anatomically close to cancer and still oncologically preservable. The decisive question is whether a complete tumor resection can be achieved through a legitimate plane.

3.4 Immediate reconstruction when nerve is sacrificed

Primary reanimation is generally preferable to delayed reconstruction because distal motor targets remain available, scar is limited, and the patient avoids a prolonged period without a plan. The best technique depends on the gap, availability of a proximal facial-nerve stump, number of distal branches, radiation plan, patient age and goals, and the need for immediate eye and oral-commissure support.

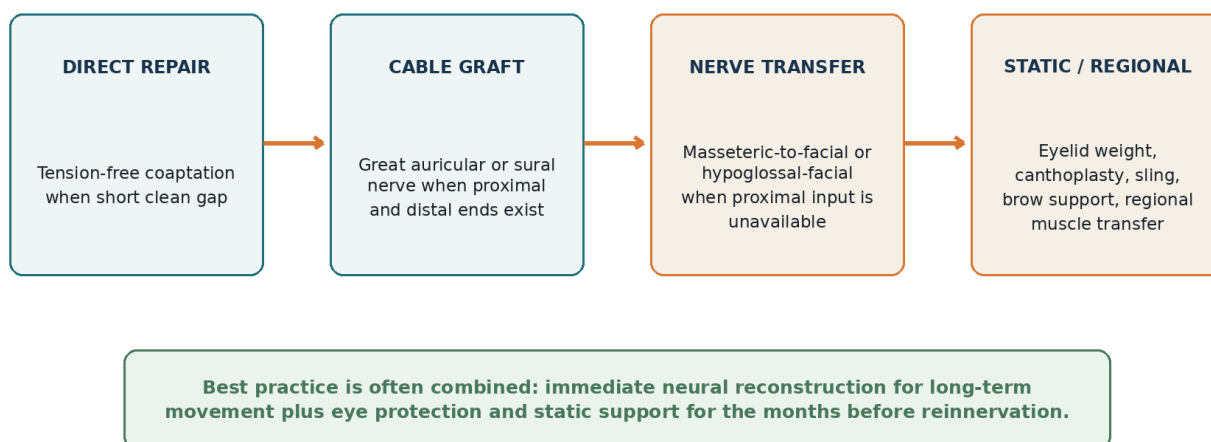
IMMEDIATE FACIAL REANIMATION: REBUILD THE SIGNAL, THEN PROTECT THE FACE WHILE IT RECOVERS

Figure 7. Original synthesis. Neural reconstruction and static protection solve different time-scale problems and are often combined.

Situation	Preferred neural strategy	Adjuncts / limitations
Short gap, clean ends, no tension	Direct neuroorrhaphy.	Rare after oncologic resection; tension is not acceptable.
Proximal trunk and distal branches available	Interposition cable graft, commonly great auricular or sural nerve.	Reinnervation takes months; branching grafts may be needed.
No usable proximal facial stump but viable distal branches	Masseteric-to-facial transfer; selected hypoglossal-facial techniques.	Masseteric transfer provides strong, relatively rapid movement but initially requires biting; hypoglossal transfer trades tongue morbidity depending on technique.
Long-standing denervation or absent distal targets	Regional muscle transfer or free functional muscle transfer.	More complex; timing and patient factors determine candidacy.
Any immediate paralysis with eye or oral risk	Upper-lid weight, canthoplasty, lubrication, static sling, brow support as indicated.	Static procedures protect function before or without dynamic recovery.

3.5 Great auricular nerve: sensation versus graft utility

The greater auricular nerve may be preserved when oncologically safe to reduce auricular and lobular numbness. When facial-nerve grafting is anticipated, it can provide a convenient donor with minimal additional exposure. The decision should be made before it is casually divided. If a longer or multi-cable graft is required, the sural nerve is often more versatile.

3.6 Immediate postoperative facial assessment

Document branch-specific movement as soon as the patient can cooperate: forehead elevation, eye closure, nasal movement, smile, lower-lip depression, and resting tone. A global House-Brackmann score is useful but may hide an isolated lower-division injury. Protect the cornea immediately when closure is incomplete. Unexpected complete paralysis after a nerve-preserving operation warrants review of monitoring events, operative anatomy, and the possibility of transection or severe compression; management is time sensitive and institution specific.

CHAPTER SYNTHESIS

- Preserve the facial nerve when preoperative function is intact and a complete resection plane exists.
- Resect branches that are grossly encased or directly invaded by confirmed malignancy; do not base sacrifice on an indeterminate diagnosis alone.
- Immediate reconstruction is preferred when feasible and often combines a neural strategy with static eye and oral support.
- Document branch-specific function before and after surgery.

CHAPTER 4

Deep-Lobe and Parapharyngeal Disease

A tumor medial to the facial nerve changes exposure, vascular risk, and the way the nerve must be mobilized.

Deep-lobe parotid tumors may remain clinically occult until they create an oropharyngeal bulge or parapharyngeal-space mass. The prestyloid parapharyngeal space contains fat, deep parotid tissue, minor salivary tissue, and branches of V3; poststyloid lesions raise a different neurovascular differential. The imaging question is therefore not simply “Is there a parapharyngeal mass?” but “Where did it arise, how does it displace fat and vessels, and is there a corridor for complete resection without uncontrolled neural or vascular injury?”

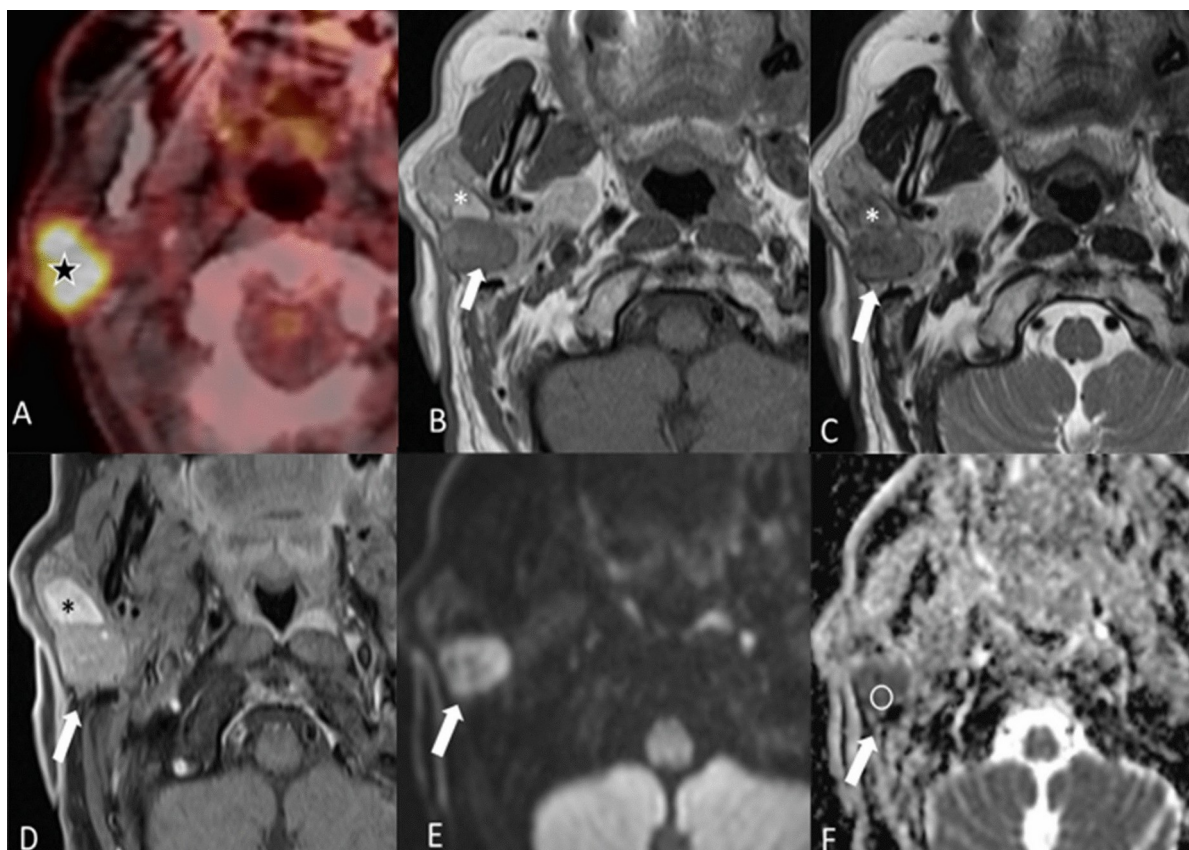


Figure 8. Pleomorphic adenoma involving superficial and deep parotid with an hourglass configuration and extension through the stylomandibular tunnel. Kim et al., *BMC Medical Imaging* 2022; CC BY 4.0.

4.1 Surgical approach options

Approach	Best suited for	Advantages	Limitations / hazards
Transparotid	Deep-lobe tumor with parotid origin and manageable medial extent.	Direct control of facial nerve and gland; familiar anatomy.	Requires extensive nerve dissection and mobilization; vascular depth can be challenging.
Transcervical	Well-encapsulated prestyloid PPS tumor with inferior access.	Avoids splitting parotid and may limit nerve dissection.	Superior skull-base exposure is limited; facial nerve and parotid attachment may be less controlled.
Combined transparotid-transcervical	Large deep-lobe/PPS tumors or uncertain attachment.	Two working angles, control of nerve and neck vessels.	More dissection and potential morbidity.
Mandibulotomy-assisted	Exceptional very large, vascular, recurrent, or skull-base tumors without safe access.	Maximal exposure and vascular control.	Major functional and reconstructive cost; not routine for benign prestyloid masses.
Transoral / robotic selected approach	Small, medially bulging, carefully selected lesions.	Avoids external incision.	Limited vascular control and margin assessment; generally inappropriate when malignancy or major-vessel proximity is suspected.

4.2 Delivering the deep lobe

In a transparotid approach, the superficial gland is removed or mobilized and the facial nerve branches are dissected sufficiently to permit safe movement. The deep lobe is separated from the mandibular ramus, styloid apparatus, pterygoid musculature, and parapharyngeal fat. External carotid branches and the retromandibular vein may limit delivery. Blind traction on the tumor can avulse a vessel or stretch multiple facial branches simultaneously. The principle is circumferential release under direct vision, not forceful “delivery.”

4.3 Malignancy changes the corridor

A benign-appearing deep-lobe tumor may be dissected along a capsule with careful avoidance of rupture. Suspected malignancy requires a wider view: facial-nerve involvement, masticator-space invasion, skull-base extension, mucosal breach, and nodal disease all change the operation. A transoral biopsy through intact oropharyngeal mucosa can contaminate the surgical plane and should not be routine when a salivary tumor is suspected. When the lesion reaches the skull base or major vessels, resectability should be discussed before an exploratory operation rather than discovered after uncontrolled exposure.

BOARD TRAP | A prestyloid parapharyngeal mass that displaces the carotid space posteriorly is commonly salivary in origin. A poststyloid mass that splays or displaces carotid and jugular structures raises neurogenic and paraganglionic diagnoses.

CHAPTER SYNTHESIS

- Deep-lobe tumors may extend through the stylomandibular tunnel into the prestyloid parapharyngeal space.
- Approach selection is based on origin, size, superior extent, vascular relationships, and malignancy risk.
- Transparotid exposure provides facial-nerve control but requires extensive neural mobilization.
- Circumferential release under direct vision is safer than forceful delivery of a deep tumor.

CHAPTER 5

Submandibular, Sublingual, and Minor-Gland Surgery

Outside the parotid, the operation is defined less by a named gland procedure and more by the surrounding mucosa, floor of mouth, nerves, bone, and neck.

5.1 Submandibular malignancy

A malignant submandibular tumor should not be treated as a routine gland excision. The gland lies within level Ib and is surrounded by regional lymphatic tissue; the marginal mandibular, lingual, and hypoglossal nerves, facial vessels, mylohyoid, hyoglossus, floor-of-mouth mucosa, and mandibular periosteum may be involved. ESMO-EURACAN recommends removal of the gland and surrounding level Ib nodes for tumors confined to the gland. For high-grade cN0 disease, selective neck dissection of levels I-III is standard in that guideline.[2]

Structure	Operative relationship	Clinical consequence of injury or invasion
Marginal mandibular nerve	Superficial to facial vein/fascial layer near mandible; protect with subfascial technique or deliberate identification.	Lower-lip asymmetry; preoperative weakness may indicate tumor involvement.
Lingual nerve / submandibular ganglion	Medial to gland; ganglion rootlets connect nerve to gland and are divided during mobilization.	Ipsilateral tongue numbness and dysgeusia; direct invasion may require sacrifice with counseling.
Hypoglossal nerve	Deep and inferior near hyoglossus, below lingual nerve and duct.	Tongue weakness; involvement implies advanced disease.
Wharton duct	Arises from deep gland and runs forward in floor of mouth, crossing the lingual nerve relationship.	Ligate toward oral opening; floor-of-mouth extension may require mucosal resection.
Facial artery and vein	Vein superficial; artery has tortuous relation to gland.	Bleeding, loss of recipient vessels, or need for en bloc resection if invaded.
Level Ib nodes	Surround the gland and may be difficult to distinguish from direct extension.	Remove with malignant gland specimen; orientation matters for staging.

OPERATIVE PEARL | The Hayes-Martin maneuver elevates the facial vein and fascial layer to protect the marginal mandibular nerve, but routine sacrifice of the facial vessels may remove useful recipient vessels. Preserve them when feasible and oncologically sound.

5.2 Sublingual gland cancer

Sublingual neoplasms have a high malignant fraction and sit in a crowded floor-of-mouth compartment. Surgery often requires removal of the gland with adjacent floor-of-mouth tissue rather than a narrow “gland excision.” Map Wharton duct, lingual nerve, submandibular duct papilla, mandibular periosteum, tongue musculature, and contralateral extension. The neck is managed according to grade, T category, and oral-cavity drainage. Reconstruction must prevent tethering of the tongue and preserve a watertight separation between the oral cavity and neck.

5.3 Palatal and oral minor-gland tumors

Minor-gland tumors are staged and approached according to their anatomic site. A palatal tumor may require mucosal, soft-palate muscular, periosteal, or bony resection depending on depth. Pressure remodeling of bone is not the same as destructive invasion; imaging and intraoperative findings should distinguish them. The greater and lesser palatine neurovascular bundles, maxillary sinus, nasal floor, pterygopalatine fossa, and skull-base nerve pathways determine the deep margin.

The operation should produce an interpretable deep margin. A smooth submucosal mass cannot simply be “shelled out” because several low-grade malignancies are deceptively circumscribed, and adenoid cystic carcinoma can extend along nerves well beyond the visible mass. Obturator, local flap, regional flap, or free tissue reconstruction is chosen according to defect size, dental-bearing bone, velopharyngeal function, and anticipated radiation.

5.4 Sinonasal, laryngeal, and other minor-gland sites

At uncommon sites, the salivary histology does not replace site-specific surgical principles. Sinonasal tumors may require endoscopic or open skull-base resection; laryngeal tumors are treated according to airway and organ-preservation considerations; external auditory canal tumors require temporal-bone planning. The neck risk can be lower than in oral cavity or oropharyngeal minor-gland cancers, and ESMO does not recommend routine elective neck dissection for several of these low-nodal-risk sites.[2]

Site	Primary surgical problem	Common boards-relevant point
Submandibular	Gland embedded in level Ib with marginal, lingual, and hypoglossal nerves nearby.	High-grade cN0 disease usually receives levels I-III elective treatment.
Sublingual / floor of mouth	Ducts, lingual nerve, tongue mobility, mandibular periosteum, oral-neck separation.	Treat like an oral-cavity primary for regional drainage.
Hard palate	Deep margin may include periosteum or maxillary bone; reconstruct oral-nasal separation.	Adenoid cystic carcinoma is nerve-seeking despite slow growth.
Soft palate / oropharynx	Velopharyngeal function and bilateral nodal drainage.	Elective neck treatment more often includes II-IV.
Sinonasal / skull base	Margins near orbit, dura, cranial nerves, and carotid.	Low nodal risk does not mean low local or perineural risk.

CHAPTER SYNTHESIS

- Malignant submandibular surgery includes the gland and regional level Ib tissue; high-grade cN0 disease usually extends to levels I-III.
- Sublingual and floor-of-mouth tumors require a margin-based oral-cavity operation, not a narrow gland excision.
- Minor-gland cancers follow site-specific anatomy and staging while retaining histology-specific behavior.
- Pressure bone remodeling and true destructive invasion are different findings with different resections.

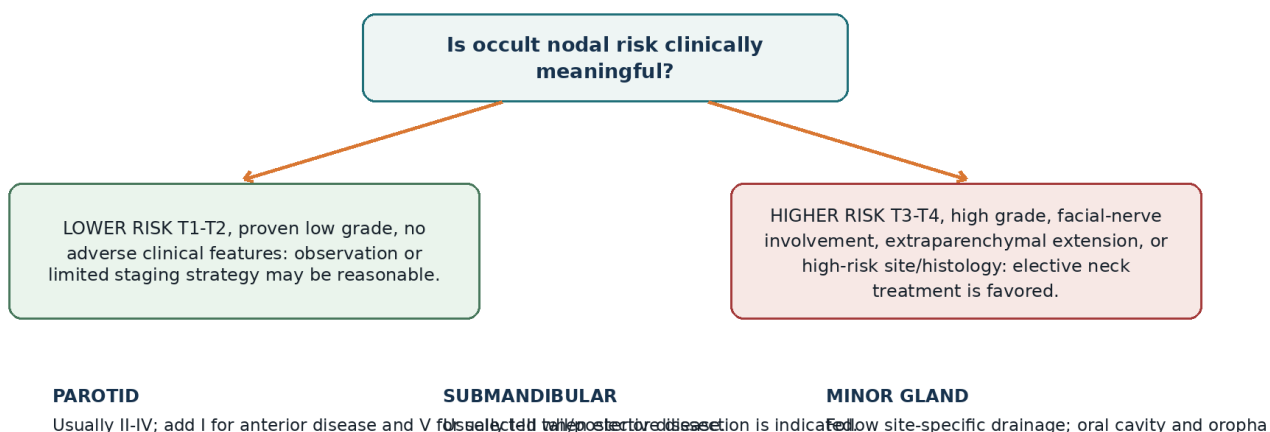
CHAPTER 6

The Clinically Negative Neck

Elective treatment is justified when the probability and consequence of occult disease outweigh the morbidity of regional therapy.

The cN0 neck is the most debated surgical problem in salivary cancer because the occult nodal risk varies dramatically by site, T category, grade, age, and histology. A single policy for every salivary malignancy is therefore indefensible. ASCO recommends elective neck treatment for T3-T4 tumors and high-grade malignancies. ESMO-EURACAN provides site-specific options that include elective neck dissection, limited staging dissection with frozen section, elective irradiation, or observation in carefully selected lower-risk patients.[1,2]

THE cN0 NECK: TREAT OCCULT RISK, NOT ANXIETY



Elective neck dissection and elective neck irradiation are alternative regional strategies; choose in multidisciplinary.

Figure 9. Original synthesis. The cN0 decision begins with occult-risk stratification and then selects a regional strategy and levels based on the primary site.

6.1 Risk factors for occult nodal disease

Higher-risk feature	Why it matters
T3-T4 primary or extraparenchymal extension	Correlates with larger burden, invasion, and greater nodal prevalence.
High-grade histology or high-grade transformation	Strongest recurring biologic predictor of nodal metastasis.
Facial-nerve involvement / fixation / skin invasion	Markers of advanced aggressive parotid disease.
Node-seeking entities	Salivary duct carcinoma, high-grade mucoepidermoid carcinoma, carcinoma ex pleomorphic adenoma, adenocarcinoma NOS, and several poorly differentiated carcinomas carry substantial risk.
Primary site	Submandibular and oral/oropharyngeal minor-gland cancers often have greater occult risk than low-grade parotid tumors.
Older age in parotid series	Included in ESMO risk stratification but should not override stronger tumor factors.

6.2 Parotid cN0 neck

For a high-risk cN0 parotid carcinoma, operative elective management generally includes levels II-IV. Level I is added when the primary is anterior or when drainage and imaging suggest risk; level V is considered for selected large tail or posterior tumors. Some centers perform level II staging dissection with frozen section and extend to a comprehensive dissection if positive. Others perform planned II-IV dissection or use elective neck irradiation, particularly when postoperative radiation to the primary is already likely. The choice should be made before surgery so that a limited neck dissection is not mistaken for definitive treatment when the frozen section is falsely negative.

6.3 Submandibular cN0 neck

The submandibular gland is located within level Ib, so even a confined low-grade malignancy is removed with surrounding level Ib nodes. When high grade or otherwise high risk, levels I-III are generally treated electively. The specimen should distinguish gland, direct soft-tissue extension, and true nodal metastasis when possible because direct extension into adjacent nodes can be difficult to classify.

6.4 Minor-gland cN0 neck

Minor-gland cancers follow the drainage of their anatomic site. Oral cavity tumors generally lead to levels I-IV; oropharyngeal tumors to II-IV and sometimes bilateral treatment depending on midline involvement. Advanced T category, high grade, high-grade mucoepidermoid carcinoma, and selected adenoid cystic carcinomas increase the rationale for elective treatment. For sinonasal, laryngeal, external auditory canal, and lacrimal sites, nodal risk may be too low to justify routine elective dissection, even though local and perineural risk can be high.[2]

SELECTIVE NECK LEVELS FOLLOW THE PRIMARY SITE AND THE PATTERN OF RISK

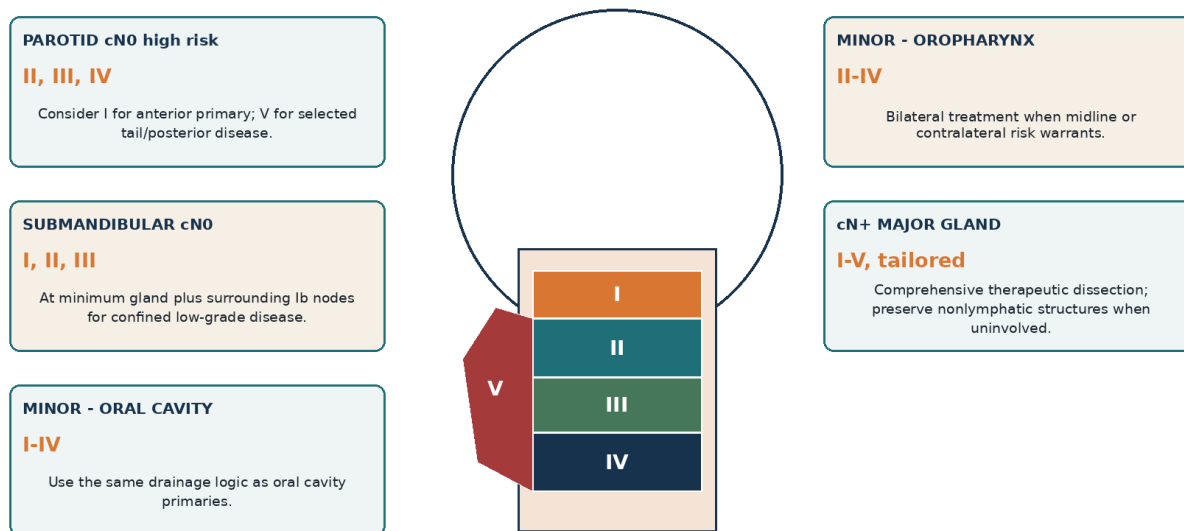


Figure 10. Original synthesis. Neck levels are selected by drainage pattern and disease burden; the figure summarizes common guideline-based operative patterns rather than substituting for patient-specific planning.

6.5 Elective neck dissection versus elective neck irradiation

Elective neck dissection	Elective neck irradiation
Provides pathologic staging, nodal count, extranodal-extension assessment, and may be combined with access or reconstruction.	Avoids surgical shoulder, sensory, and scar morbidity; efficient when postoperative RT to the primary is already indicated.
May reveal occult disease that changes postoperative fields and systemic-risk discussion.	Does not provide pathologic staging and can expose a larger tissue volume to radiation.
Requires selecting levels and accepting false-negative pathology from limited sampling.	Requires confidence that the planned radiation course and patient adherence will be completed.
Often favored when the neck is already entered or nodal information will materially change management.	Often favored when adjuvant RT is highly likely and an additional neck operation adds little value.

RESIDENT TAKEAWAY | The cN0 neck is not “observe versus dissect.” It is a risk-stratified choice among observation, staging dissection, planned elective dissection, and elective irradiation.

CHAPTER 7

The Clinically Positive Neck and Intraparotid Nodes

Known nodal disease requires therapeutic treatment of involved and at-risk basins, not merely removal of the largest node.

7.1 cN+ neck

Clinical or radiographic nodal disease changes the operation from elective staging to therapeutic dissection. ESMO-EURACAN recommends comprehensive levels I-V dissection for cN+ salivary-gland cancer. ASCO allows an ipsilateral dissection of involved and at-risk levels, extended to adjacent levels up to I-V. In practice, bulky or multilevel disease generally receives a comprehensive dissection, while carefully selected limited disease may be tailored. The spinal accessory nerve, internal jugular vein, and sternocleidomastoid muscle are preserved when not directly involved; “comprehensive” refers to lymphatic levels, not automatic sacrifice of nonlymphatic structures.[1,2]

7.2 Intraparotid nodes are not incidental anatomy

The parotid contains superficial and deep intraglandular lymph nodes that receive drainage from the scalp, temple, auricle, face, and external auditory canal. A parotid-region squamous carcinoma is therefore more often metastatic cutaneous SCC in an intraparotid node than a primary salivary SCC. For primary high-grade or advanced parotid carcinoma, intraparotid nodal metastasis also matters. At least superficial parotidectomy—and often total parotidectomy—is used to remove the relevant nodal basin as well as the primary.

Scenario	Primary operation	Neck operation
Primary parotid carcinoma, cN+	Parotidectomy matched to primary extent and intraparotid nodal basin; preserve CN VII if uninvolved.	Therapeutic ipsilateral dissection of involved and at-risk levels, commonly comprehensive I-V.
Cutaneous SCC metastatic to parotid node	Superficial or total parotidectomy based on nodal distribution and deep-lobe risk; identify skin primary and facial-nerve involvement.	Therapeutic neck dissection, typically including upper and mid-jugular at-risk levels; exact levels depend on drainage and institutional protocol.
Submandibular carcinoma, cN+	Gland and involved adjacent tissue en bloc with level I disease.	Therapeutic comprehensive or appropriately extended dissection; beware skip disease.
Minor-gland carcinoma, cN+	Site-specific resection of primary.	Therapeutic dissection follows mucosal-site drainage and bilateral risk.

7.3 Preserve structures unless cancer requires sacrifice

The operative report should name which nonlymphatic structures were preserved or sacrificed and why. Spinal accessory nerve involvement changes shoulder function; internal jugular vein sacrifice affects venous drainage; carotid encasement changes resectability; hypoglossal and vagus involvement alter speech and swallowing. Radical neck dissection is not defined by the number of nodal levels alone. A modified radical dissection removes levels I-V while preserving one or more of the accessory nerve, jugular vein, and sternocleidomastoid; a selective dissection preserves one or more nodal levels.

BOARD TRAP | A comprehensive neck dissection can preserve the spinal accessory nerve, internal jugular vein, and sternocleidomastoid. “Radical” refers to sacrifice of all three classic nonlymphatic structures, not simply levels I-V.

7.4 Contralateral neck

Major-gland cancers are usually lateralized and treated ipsilaterally unless nodal burden, midline extension, or unusual drainage creates contralateral risk. Minor-gland tumors of the soft palate, tongue base, and other midline structures behave more like their mucosal site and may require bilateral treatment. The decision should be based on the primary site and lymphatic anatomy rather than on the generic word “salivary.”

CHAPTER 8

Reconstruction and Complications

A successful resection must leave a protected eye, a sealed wound, stable oral function, and a face the patient can rehabilitate.

8.1 Reconstruction after parotidectomy

Small superficial defects may close primarily with acceptable contour. Larger total or radical parotidectomy defects create dead space, expose the facial nerve or graft, reveal mandible and carotid structures, and produce a visible preauricular hollow. Reconstruction is selected according to skin loss, soft-tissue volume, facial-nerve reconstruction, vessel coverage, prior radiation, and expected postoperative radiation.

Reconstructive option	Useful role	Limitations
SMAS or local fascial flap	Separates skin from parotid bed, may reduce contour deformity and Frey syndrome in selected benign operations.	Unavailable or oncologically inappropriate when skin/SMAS is involved; limited volume.
Sternocleidomastoid flap	Local volume and coverage; no microvascular anastomosis.	Accessory-nerve and neck-dissection considerations; variable bulk and atrophy.
Temporoparietal fascia / regional flap	Thin vascularized coverage of nerve, vessels, or skin graft.	Limited volume; additional donor incision.
Fat graft / dermal-fat graft	Restores contour in selected clean beds.	Resorption and fat necrosis; less reliable in heavily irradiated or contaminated fields.
Free flap - ALT, radial forearm, others	Large volume, skin replacement, vessel coverage, complex composite defects.	Longer operation and donor morbidity; requires recipient-vessel plan.
Facial reanimation procedures	Restores eye protection, resting tone, and movement.	Often requires combined neural and static methods and long rehabilitation.

8.2 Early complications

Neck hematoma is the immediately dangerous complication because it can threaten the airway and compress nerve or flap structures. Rapidly expanding swelling, pain, drain failure, respiratory symptoms, or hemodynamic change demands urgent evaluation and often operative evacuation. Facial weakness should be documented branch by branch. Corneal protection begins immediately when closure is incomplete. Skin-flap compromise, infection, chyle leak after low neck dissection, and lower cranial-nerve deficits are managed according to the threatened function.

8.3 Sialocele and salivary fistula

A postoperative fluid collection that enlarges with eating suggests a sialocele. Initial management often includes aspiration when tense, pressure dressing, dietary and pharmacologic reduction of salivary stimulation, and selected botulinum toxin injection. Persistent external drainage is a salivary fistula. The team must distinguish a sterile salivary collection from infection, wound breakdown, or recurrent disease. Most resolve without reoperation, but exposed vessels, infected hardware, or threatened reconstruction changes the urgency.

8.4 Frey syndrome and contour deformity

Frey syndrome results from aberrant parasympathetic reinnervation of sweat glands after parotid surgery, causing gustatory sweating and flushing. Minor-starch iodine testing can map the region. Topical antiperspirants, anticholinergic agents, and botulinum toxin are treatment options; interposition tissue may reduce symptomatic Frey syndrome but does not eliminate it. Contour deformity is both aesthetic and functional when it exposes mandibular contour or distorts the ear and oral commissure.

8.5 First-bite syndrome

First-bite syndrome is severe parotid or upper-neck pain at the first bites of a meal that decreases with continued chewing. It is associated with sympathetic denervation around the external carotid plexus, often after deep-lobe, parapharyngeal, or upper-neck surgery. Counseling matters because the pain pattern is distinctive and may persist. Botulinum toxin to residual parotid tissue is among the better-supported interventions, while medications have variable benefit.

POSTOPERATIVE PROBLEMS ARE EASIER WHEN ORGANIZED BY TIME AND FAILED FUNCTION

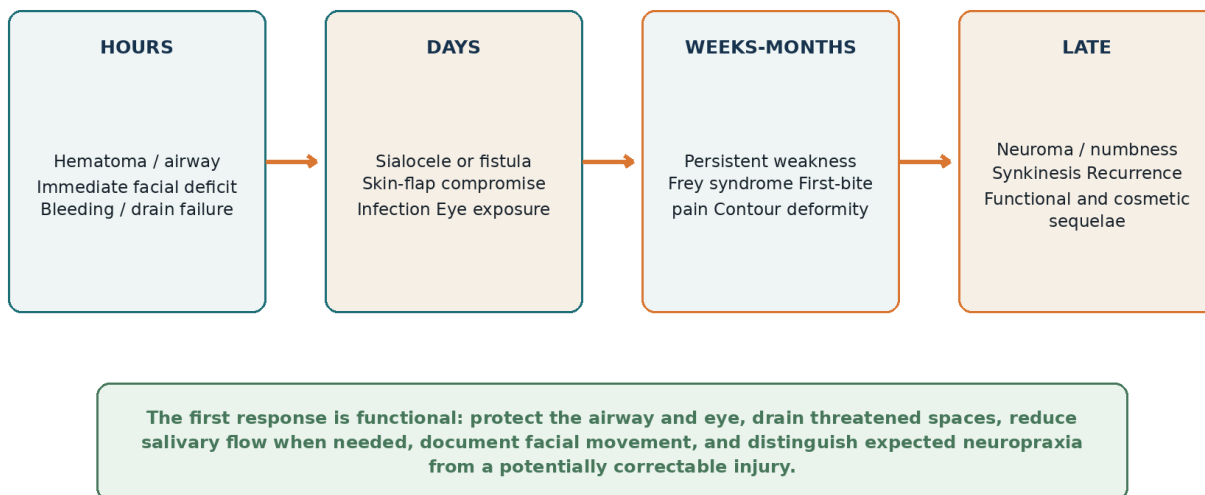


Figure 11. Original synthesis. Organizing complications by time and failed function produces a faster and safer response than memorizing an undifferentiated list.

8.6 Complication prevention is designed into the operation

Problem	Prevention / early strategy
Facial weakness	Baseline branch-specific exam; atraumatic dissection; minimize traction/thermal injury; document monitoring; immediate eye plan.
Hematoma	Meticulous hemostasis, blood-pressure control, appropriate drain, rapid response to expansion or airway symptoms.
Sialocele / fistula	Secure closure, drain management, pressure when appropriate, early salivary-reduction strategy.
Frey syndrome / contour	Interposition or volume reconstruction when indicated; counsel before surgery.
Shoulder dysfunction	Preserve accessory nerve when uninvolved; avoid traction; early physical therapy.
Lower cranial-nerve injury	Map extent preoperatively; identify nerves directly; counsel and arrange swallow/voice rehabilitation when sacrifice is possible.

CHAPTER SYNTHESIS

- Reconstruction is chosen for eye protection, oral competence, wound integrity, vessel/nerve coverage, and contour—not merely skin closure.
- Hematoma and exposure keratopathy are early functional emergencies.
- Sialocele, Frey syndrome, first-bite syndrome, and contour deformity reflect predictable anatomic consequences of surgery.
- Prevention begins with preoperative counseling and a reconstruction plan matched to the expected defect.

CHAPTER 9

Specimen Mapping, Margins, and Resident Workflow

The surgeon creates the anatomic language that allows pathology to guide postoperative treatment.

Salivary operations often produce irregular three-dimensional specimens with a facial-nerve surface, deep parapharyngeal surface, skin or mucosal edge, ductal end, and separately resected adjacent structures. A pathology report cannot reconstruct that anatomy from an unoriented mass. The surgeon should establish the map in the room: orient the specimen, name true patient-side margins, separate nodal levels, and record which nerves and structures were sacrificed.

SPECIMEN COMMUNICATION IS PART OF THE OPERATION

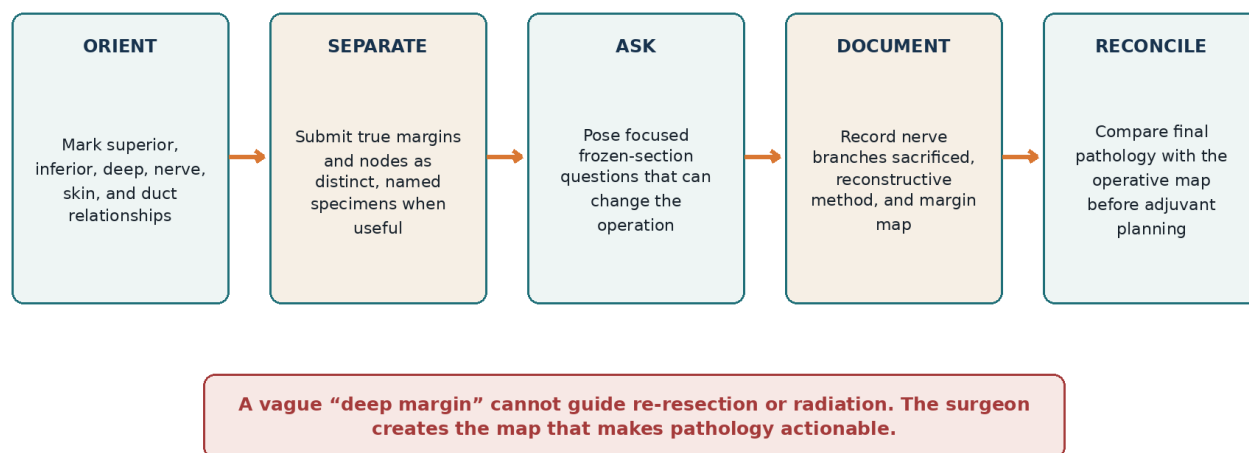


Figure 12. Original synthesis. Specimen orientation and focused frozen-section questions convert surgical anatomy into actionable pathology.

9.1 Margin strategies

Specimen type	Strength	Common pitfall
Oriented en bloc specimen	Preserves tumor-interface relationships and allows comprehensive final assessment.	Ink may not correspond to a clinically meaningful direction without surgeon orientation.
Separately submitted true margin from patient bed	Directly answers whether residual tissue at a mapped location contains tumor.	A negative small sample does not cancel a positive main-specimen margin elsewhere.
Shave margin from specimen	Broad sampling of specimen edge.	May obscure distance and cannot always distinguish patient-side tissue from tumor-side artifact.
Nerve margin	Can define proximal or distal neural clearance after sacrifice.	Perineural spread may be discontinuous or extend beyond a small sampled segment.
Bone margin	Useful when destructive invasion is resected.	Cautery and decalcification delay or complicate interpretation.

9.2 The resident’s pre-incision briefing

- Confirm the planned primary operation and the features that would extend it.
- State baseline facial and other cranial-nerve function.
- Review the imaging at the level of the facial nerve, deep lobe, skull-base foramina, skin, bone, and nodal levels.
- Confirm neuromonitoring, anesthetic plan, donor nerve, ophthalmic protection, reconstruction, and recipient vessels when relevant.
- Name the frozen-section questions and what action each possible result will trigger.
- Confirm how gland, nerve, margins, and each neck level will be labeled.

9.3 Intraoperative checkpoints

1. After flap elevation: reassess skin/SMAS involvement and whether the incision provides the planned neck and reconstructive access.
2. After nerve identification: confirm stimulation, branch anatomy, and tumor relationship before committing to gland mobilization.
3. Before nerve sacrifice: verify malignancy, gross involvement, proximal/distal plan, and reanimation readiness.
4. After primary removal: inspect the patient-side bed, not only the specimen; submit mapped true margins when they can change management.
5. After neck dissection: keep levels oriented and separate; record sacrificed structures and nodal rupture.
6. Before closure: confirm eye plan, hemostasis, drain position, nerve graft protection, reconstructive perfusion, and postoperative airway/nutrition plan.

9.4 Operative note elements

Element	What to document
Facial nerve	Antegrade/retrograde identification, branches dissected, stimulation, gross tumor relationship, any branch sacrificed, proximal/distal margins, reconstruction.
Primary extent	Superficial/deep gland, adjacent skin, muscle, bone, EAC, parapharyngeal or skull-base components.
Neck	Levels removed, structures preserved/sacrificed, gross extranodal extension, intraparotid nodes, complications.
Margins	Orientation sutures/clips, separately submitted true margins, frozen results and resulting actions.
Reconstruction	Flap or graft, recipient vessels, nerve coaptations, static procedures, drains, implant details.
Postoperative plan	Airway, eye care, facial exam, drain criteria, diet, antibiotics if indicated, rehabilitation consults.

RESIDENT TAKEAWAY | A clear operative note is not clerical polish. It is the only record that connects the final pathology report to the patient's actual anatomy.

CHAPTER SYNTHESIS

- Orient the specimen before anatomy is forgotten and separate true patient-side margins when useful.
- Frozen sections should be linked to preplanned actions.
- Document branch-specific facial-nerve findings and reconstruction in detail.
- Keep neck levels separate and record nonlymphatic structures preserved or sacrificed.

CHAPTER 10

Integrated Cases and Boards-Relevant Traps

Use the framework to generate the operation; do not memorize a procedure from the tumor name alone.

Case 1. Small low-grade superficial parotid carcinoma

A 42-year-old patient has a 1.6-cm mobile superficial parotid lesion. Core biopsy shows low-grade mucoepidermoid carcinoma. MRI shows a circumscribed tumor lateral to the retromandibular vein without nerve, skin, or nodal involvement. Facial movement is normal.

PLAN | A partial superficial parotidectomy may be appropriate if a complete margin can be achieved with deliberate branch dissection. Preserve CN VII. The cN0 neck may be observed because the tumor is T1-T2 and low grade, assuming pathology and imaging are concordant. Orient the specimen and avoid capsular violation.

Case 2. High-grade parotid carcinoma with intact facial function

A 66-year-old patient has a 4.2-cm parotid mass extending into the deep lobe with suspicious intraparotid and level II nodes. Core biopsy shows salivary duct carcinoma. Facial movement is intact.

PLAN | Total or subtotal oncologic parotidectomy with preservation of the facial nerve if a clean plane exists; therapeutic neck dissection because the neck is cN+; include the intraparotid nodal basin. Prepare for nerve grafting because intact function does not guarantee separability. Plan contour reconstruction and postoperative radiation discussion.

Case 3. Parotid cancer with progressive lower-division weakness

A 58-year-old patient has a fixed tail mass, progressive marginal mandibular and buccal weakness, and no distant disease. Imaging shows tumor along the lower division without skull-base extension.

PLAN | Plan radical parotidectomy of the involved division with preservation of uninvolved branches when possible. Obtain proximal and distal control, send focused nerve margins, and perform immediate cable grafting or nerve transfer plus static oral support as appropriate. Treat the neck according to grade/T category and clinical nodal status.

Case 4. Deep-lobe pleomorphic adenoma

A 39-year-old patient has a prestyloid parapharyngeal mass connected to the deep parotid through the stylomandibular tunnel. FNA is consistent with pleomorphic adenoma. There is no pain or cranial neuropathy.

PLAN | Use a transparotid, transcervical, or combined approach based on superior extent and attachment. Protect the capsule, release the tumor circumferentially, and avoid forceful delivery. A routine mandibulotomy is unnecessary for most benign prestyloid tumors.

Case 5. High-grade submandibular carcinoma, cN0

A 63-year-old patient has a 3-cm submandibular mass with high-grade adenocarcinoma on core biopsy and no radiographic nodes. Tongue and lower-lip function are normal.

PLAN | Resect the gland with surrounding level Ib tissue as part of a selective neck dissection of levels I-III. Preserve marginal mandibular, lingual, and hypoglossal nerves if uninvolved. Orient the deep floor-of-mouth and mandibular margins.

Case 6. Palatal adenoid cystic carcinoma with numbness

A 51-year-old patient has a 2-cm hard-palate submucosal mass and ipsilateral palatal numbness. MRI shows extension toward the greater palatine canal but no cervical nodes.

PLAN | Perform a margin-based palatal/maxillary resection that addresses the named nerve pathway and bone if invaded. The neck decision is individualized because adenoid cystic carcinoma is more nerve-seeking than node-seeking; oral-cavity site, stage, and high-grade transformation increase the rationale for elective treatment. Plan obturator or tissue reconstruction and postoperative radiation evaluation.

Classic boards traps

Trap	Correct principle
“Any parotid malignancy requires facial-nerve sacrifice.”	Preserve a functioning nerve when a tumor-free plane exists; sacrifice only grossly involved branches/segments.
“Total parotidectomy is always oncologically superior.”	Extent should match disease. Selected T1-T2 low-grade superficial cancers may be treated with partial superficial parotidectomy.
“The cN0 neck is observed because salivary cancers are rare.”	Elective treatment is favored for T3-T4 and high-grade disease; levels depend on site.
“A comprehensive neck dissection is a radical neck dissection.”	Levels I-V can be removed while preserving accessory nerve, jugular vein, and SCM.
“A parotid SCC is a primary salivary cancer.”	First exclude metastatic cutaneous SCC to an intraparotid node.
“A negative frozen section makes the nerve safe.”	Frozen sampling is limited; operative gross findings and final pathology remain decisive.
“Deep-lobe tumors are removed transorally because they bulge into the pharynx.”	Transoral access has limited vascular and margin control and is reserved for carefully selected lesions.
“Bone contact on imaging requires maxillectomy or mandibulectomy.”	Pressure remodeling differs from destructive invasion; resect bone according to true involvement.

ONE-PAGE CONSOLIDATION

The Salivary-Gland Operation in Ten Rules

1. Start with the management problem: primary extent, nerve, neck, reconstruction, and pathology map.
2. Use the least extensive operation that remains oncologically complete; never confuse limited surgery with enucleation.
3. For high-grade or T3-T4 parotid cancer, remove at least the superficial gland and consider total/subtotal resection because of deep and intraparotid nodal risk.
4. Preserve CN VII when function is intact and a clean plane exists; resect grossly encased or invaded nerve.
5. When nerve sacrifice is planned or possible, prepare immediate neural reconstruction plus eye and static support.
6. Deep-lobe tumors require deliberate facial-nerve mobilization and vascular control; approach selection follows origin and superior extent.
7. Malignant submandibular surgery includes level Ib; high-grade cN0 disease usually includes levels I-III.
8. Treat the cN0 neck for T3-T4 and high-grade disease; parotid levels are usually II-IV, modified by location.
9. Treat the cN+ neck therapeutically, often levels I-V, while preserving nonlymphatic structures unless involved.
10. Orient the specimen and document anatomy so final pathology can guide postoperative treatment.

Clinical situation	Defensible default
T1-T2 low-grade superficial parotid cancer, cN0	Partial superficial or superficial oncologic parotidectomy; preserve nerve; selected neck observation.
High-grade / T3-T4 parotid cancer, cN0	At least superficial, often total/subtotal parotidectomy; elective neck treatment, usually II-IV.
Parotid cancer with gross nerve invasion	Resect involved segment; immediate reanimation; treat neck according to risk/status.
Parotid cancer, cN+	Primary resection plus therapeutic involved/at-risk neck, often I-V.
High-grade submandibular cancer, cN0	Gland and level Ib within selective I-III neck dissection.
Oral/oropharyngeal minor-gland cancer, high grade or T3-T4	Site-specific primary resection plus elective site-specific neck treatment.
Low-risk sinonasal/laryngeal minor-gland cancer, cN0	Primary-site resection; routine elective neck dissection often not indicated.

FINAL SYNTHESIS | The correct operation is not defined by how much tissue is removed. It is defined by whether the disease is removed completely, the correct regional basin is addressed, critical function is preserved when oncologically safe, and unavoidable functional loss is reconstructed deliberately.

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Scope note

This guide is an educational synthesis for residents. It does not replace the current AJCC manual, CAP protocol, institutional multidisciplinary recommendations, or patient-specific surgical judgment. Exact elective neck levels, margin goals, facial-reanimation technique, and reconstructive method should be individualized.