

Parotidectomy in parotid cancer

- Mohammad Shirkhoda, MD
- Associated professor of surgical oncology
- Cancer institute
- Rasht 1402/12



SURGICAL INDICATIONS

- ❑ Although most parotid neoplasms are benign:
 - some benign neoplasms may enlarge and cause significant deformity
 - or local tissue destruction
 - while others may degenerate into malignancy.

- ❑ Parotid lesions that are malignant or indeterminant should also be removed, regardless of the tumor grade.
 - High-grade malignancies include high-grade mucoepidermoid carcinoma, carcinoma ex-pleomorphic adenoma, solid type adenoid cystic carcinoma, squamous cell carcinoma, salivary duct carcinoma, and adenocarcinoma
 - low-grade mucoepidermoid carcinoma is regarded as low grade, while all remaining malignancies are in the intermediate-grade group

• **Therefore, the majority of parotid masses should be removed**

PREOPERATIVE EVALUATION

- **Biopsy**
 - In most circumstances, a tissue diagnosis is required prior to parotidectomy.
- The mainstay of tissue sampling for parotid lesions is fine needle aspiration (FNA).
- Core needle biopsy (CNB) should be reserved for when FNA is nondiagnostic to either avoid open surgery or better define the disease for surgical planning.

CNB

- CNB is generally reserved for situations in which FNA is nondiagnostic, but there is a **compelling reason** to obtain a preoperative histologic assessment for:
 - Pathologies that do not require excision (eg, systemic disease such as lymphoma or sarcoidosis)
 - Patients who are too ill to tolerate parotid surgery
 - When preoperative knowledge of the histology is required for operative planning

CNB

- Although CNB of the parotid gland has traditionally been avoided due to the potential for facial nerve injury or needle tract seeding, more contemporary studies have shown CNB to be safe with a high accuracy and low complication rate.
- Current CNB technique that uses ultrasound guidance to ensure appropriate sampling of the mass is becoming more commonplace.

Open biopsy

RARE;

- should only be performed after FNA/CNB, usually with the goal of obtaining **additional tissue for lymphoma assessment**, or if the lesion is felt to be systemic in nature (eg, sarcoid or another inflammatory process).
- Open biopsy should **not be performed** on a suspected primary salivary neoplasm or a malignant process; such parotid masses are generally **removed in toto** for both diagnosis and treatment (ie, "grand biopsy").
- Occasionally, open biopsy may also be necessary **to diagnose deep lobe tumors**.

Imaging

❑— Parotid imaging has evolved from sialograms and plain films to the more discriminating multiplanar images produced by CT and MRI.

➤ In contemporary practice,

- ultrasonography is performed to guide FNA or CNB of parotid lesions.
- CT and MRI are used primarily as an adjunct to FNA/CNB in determining the **extent of surgery required**, as well as providing an **assessment of adjacent cervical lymph nodes**.
- Neither CT nor MRI can independently differentiate between benign and malignant lesions.

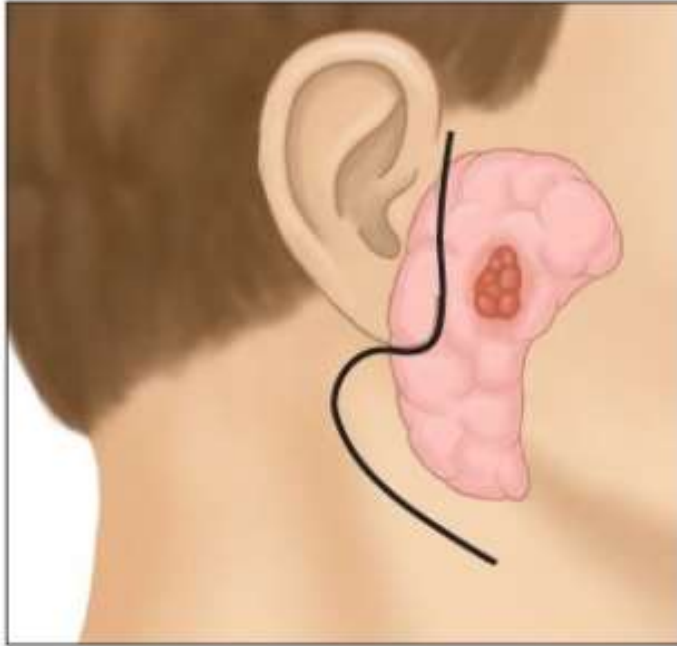
SURGICAL TECHNIQUES



Incisions

- The **modified Blair incision** is the standard approach to exposing the parotid gland.
- A **modified facelift incision** may be used in select patients with a lesion in the tail of the parotid gland

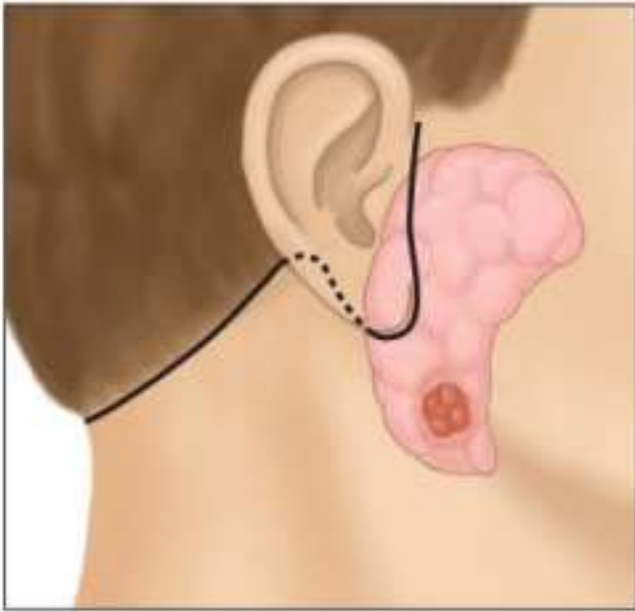
Modified Blair incision for parotidectomy



When laid out correctly and closed meticulously, this incision is quite cosmetic.

The horizontal limb should be at least 3.5 cm inferior to the lower border of the mandible to protect the marginal mandibular branch of the facial nerve and carried anteriorly enough to adequately expose the region of the parotid gland to be removed.

Facelift incision for parotidectomy



lesions in the parotid tail and posterior parotid gland are most suitable to this approach.

A systematic review and meta-analysis found that cosmetic satisfaction was significantly higher using this approach when compared with the modified Blair incision .

The tumors removed using the modified facelift approach were smaller, and facial palsy and salivary complication rates were comparable between the groups.

Extent of resection

- The present trend of parotid surgery is toward using minimally invasive techniques to reduce the volume of normal parotid tissue removed while maintaining an adequate tumor margin.
- The goals of this trend are to:
 - maintain a low tumor recurrence rate
 - and reduce the incidence of major surgical complications, namely facial weakness due to facial nerve injury and Frey syndrome

- Small (<4 cm), mobile, benign, and peripheral tumors without preoperative or intraoperative concerns may be safely removed using an **EXTRACAPSULAR TECHNIQUE BY EXPERIENCED PAROTID SURGEONS** (who can recognize high-risk features and convert to partial or complete parotidectomy when necessary).
- ●
- Most benign and low-grade malignant tumors can be removed by **partial superficial parotidectomy**.
- ●
- Very large benign or malignant tumors should be removed by **complete superficial parotidectomy**.
- ●
- Tumors that **involve the deep lobe** of the parotid gland should be removed with **total parotidectomy**.

Complete superficial parotidectomy

- — Complete superficial parotidectomy is the gold standard of parotid surgery to which other less extensive procedures are compared.
- This technique entails complete dissection of the lateral, superficial lobe of the parotid gland with identification and dissection of all branches of the facial nerve.
- This provides a comprehensive assessment of the tumor with maximal margins but also can result in significant complications and cosmetic deformities due to the loss of a substantial volume of tissue in the pretragal and mandibular ramus areas.
- The high complication rate has driven surgeons toward performing less extensive dissection for primary parotid tumors.
 - **The main indications for superficial parotidectomy at this time are parotid metastases from cutaneous carcinoma or extensive gland involvement from any tumor.**

Partial superficial parotidectomy

- — Partial superficial parotidectomy is the most commonly performed procedure in parotid surgery.
 - It involves facial nerve identification and dissection with removal of a cuff of normal tissue surrounding the excised tumor.
- ❑ The rationale behind limiting the resection to an appropriate cuff of normal tissue is related to the closest margin found during resection.
- ✓ Most tumors of significant size will abut a branch of the facial nerve. Since a functional nerve that is abutting a tumor should not be removed, the margin in this area will be minimal.
- ✓ Therefore, if the closest margin (near the nerve) is a millimeter or less, it would be unnecessary for the same tumor to have a multicentimeter margin in another area (eg, the cranial aspect of the superficial lobe for an inferiorly based tumor).
- Reducing the amount of normal tissue removed results in fewer complications and a shorter surgical duration and obviates the need for defect reconstruction required for a complete superficial parotidectomy .
 - ***This procedure is the standard for many parotid surgeons when removing benign parotid tumors.***

Extracapsular dissection/nodectomy

- — For these techniques, *the facial nerve is not identified* or specifically dissected prior to isolation of the parotid mass. Instead, dissection proceeds in a plane several millimeters away from the mass (extracapsular dissection [ECD]) or immediately adjacent to the mass with a narrow margin of normal parotid tissue (nodectomy/minimal margin ECD).
- The rationale for both approaches is similar to that of partial superficial parotidectomy and also resides in the minimal margin obtained in a superficial parotidectomy along the facial nerve branches. In superficial parotidectomies, it is common to have a margin of several centimeters within the parotid tissue but a close or "positive" margin along the nerve itself, if it has to be peeled off the tumor. Since the recurrence rates are very low with superficial parotidectomy, and the margins along the nerve are very close, it stands to reason that a close or narrow margin adjacent to the mass may also suffice.

❑ Tumors selected for this approach should be:

- <4 cm, mobile,
- peripherally located,
- and have a benign fine needle aspiration (FNA; most often pleomorphic adenoma or Warthin's tumor)
- and should not have any worrisome intraoperative features, such as fibrotic or inflammatory involvement of the surrounding tissue, invasion of adjacent structures, or any other clinical concerns.
- ❖ Additionally, many feel this technique should be performed only by experienced parotid surgeons who can recognize concerning, high-risk clinical features and readily convert the procedure to a standard partial or complete superficial parotidectomy when necessary.

One should always discuss with the patient preoperatively the potential for converting to a standard superficial parotidectomy in case concerning intraoperative features are encountered

Total parotidectomy

- — In modern surgery, total parotidectomy is no longer used routinely to treat benign diseases.
- Instead, total parotidectomy is used for removal of either a deep lobe tumor or the entire gland plus intraparotid nodal groups for complete extirpation of a high-grade parotid malignancy.
- However, removal of the lateral lobe to manage a deep lobe benign tumor is not always necessary, as the superficial lobe may often be mobilized and elevated off the facial nerve through careful dissection, providing access to the deep lobe, thus allowing excision with excellent control of the facial nerve. The superficial lobe can then be replaced in its normal position, ameliorating the cosmetic defect often seen following total parotidectomy.

Left deep lobe parotidectomy



Mobilization of superficial lobe during left deep lobe parotidectomy. Mass noted between nerve branches.

- ❑ Total parotidectomy may be used **for larger high-grade malignancy** in the absence of deep lobe involvement to ensure complete removal of the tumor and all intraparotid nodes.
- In a multisurgeon review of 75 patients who underwent total parotidectomy for high-grade malignancies, deep lobe parotid nodal metastasis occurred in 22.7 percent of patients and could occur without superficial parotid nodal metastasis .
- High-grade parotid malignancies, such as high-grade mucoepidermoid carcinoma, carcinoma ex-pleomorphic adenoma, adenocarcinoma, squamous cell carcinoma, and salivary duct carcinoma, are most often managed in this fashion.
- ❑ Metastatic disease from a skin cancer to the parotid gland may also warrant a total parotidectomy, but the data are evolving

Enucleation (no longer performed)

— Enucleation is a procedure whereby the **capsule of a tumor is incised** and the tumor removed from within by blunt dissection.

This technique is never indicated for a primary parotid neoplasm and is **not part of contemporary parotid surgery**.

Recurrence rates are very high, and this **technique can lead to tumor spillage and multifocal recurrence** in pleomorphic adenoma.

Facial nerve sacrifice

- During parotid surgery, the facial nerve can be preserved in almost all circumstances.
- Facial nerve involvement requiring sacrifice generally indicates a high-grade parotid cancer or metastatic skin cancer.
- Traditionally, the nerve is resected when it is encased by malignancy. This would necessitate an
- intraoperative frozen section of the tumor to establish a definitive diagnosis of malignancy, rather than relying solely upon a preoperative biopsy.
- The current debate surrounds the degree of nerve involvement by malignancy that would necessitate sacrifice.

- predictive of the need **for nerve sacrifice**:

- ✓ Preoperative facial nerve dysfunction
- ✓ preoperative pain
- ✓ total parotidectomy

- Most agree that an intact nerve on the surface of the malignancy should be peeled off the tumor and left intact and in situ but that frank nerve involvement, heralded by:

- ✓ loss of function preoperatively
- ✓ circumferential involvement of the nerve,
- ✓ or visible disease within the nerve sheath,

- **requires nerve sacrifice.**

When facial nerve sacrifice is anticipated, all distal branches of the facial nerve should be identified during parotid dissection to assess nerve involvement and facilitate immediate reconstruction.

Once the diagnosis of malignancy is confirmed on frozen section, the nerve is sacrificed, and frozen section assessment of the remaining nerve stumps should be performed to ensure a negative nerve margin.

This is particularly important for neurotropic tumors, such as adenoid cystic carcinoma, which can track along the nerve for significant distances, despite a normal appearance of the nerve.

This may require performing a mastoidectomy to access the proximal facial nerve for both assessment and reconstruction

Facial nerve reconstruction

- Facial nerve reconstruction should be performed if possible.
Immediate reconstruction is preferred and optimal, but delayed reconstruction may be considered under certain circumstances
- Reconstruction using a cable graft is most common, employing the greater auricular or sural nerves
- when immediate reconstruction is not possible, the cut ends of the nerve should be tagged with a permanent suture and the location of the nerve carefully described in the operative note to allow easier identification at a subsequent procedure.

Neck dissection

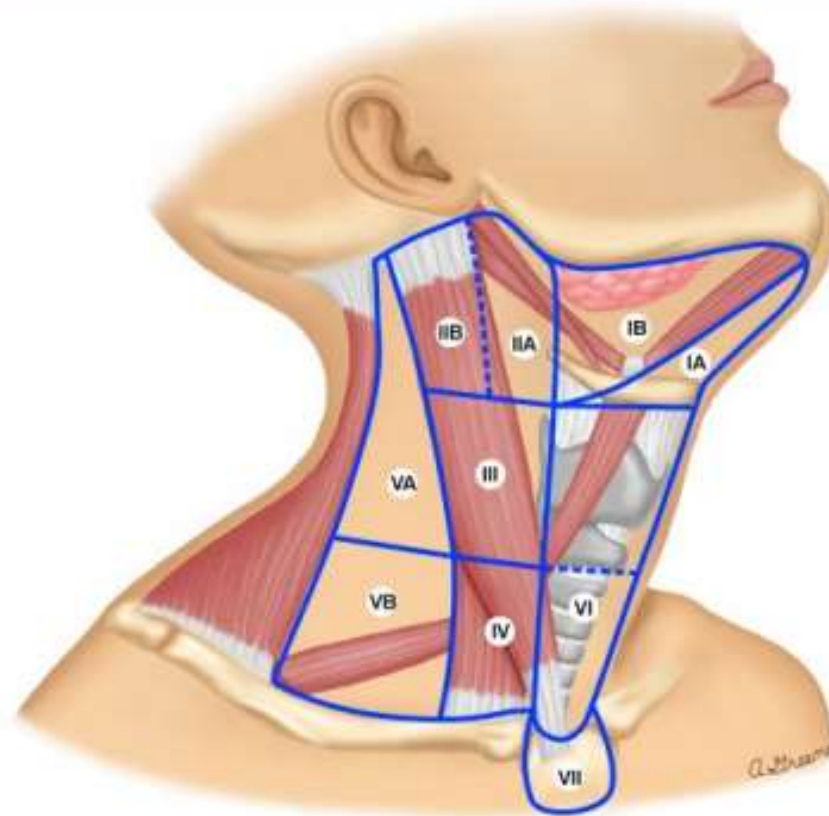
— A concurrent neck dissection should be performed when there is clinical or imaging evidence of nodal metastasis.

THE EXTENT OF THE NECK DISSECTION should cover the nodal basins at risk, including levels II, III, and Va, with extension to other levels dictated by the extent of disease and nodal burden.

Level I is potentially another primary nodal basin. Level V should be dissected when disease is clinically evident in other cervical levels, most commonly level II .

- There is ongoing debate about the need to perform a neck dissection in the absence of clinically evident metastatic disease.
- In several large studies of elective neck dissection in patients with clinically node-negative salivary gland tumors, occult nodal metastasis was more likely to occur in T3/4 tumors than in T1/2 tumors and more likely to occur in high-grade tumors than in low-/intermediate-grade tumors.
- As such, many feel that patients at the highest risk of harboring occult nodal disease have high-grade tumors and thus would require postoperative radiation anyway.
- A review of 1547 patients with high-grade but clinically node-negative parotid cancer from the National Cancer Database found no survival benefit for elective neck dissection when controlling for adjuvant therapy and cancer type

Lymph node levels of the neck



Level I, submental (IA) and submandibular (IB);
level II, upper internal jugular nodes; level III,
middle jugular nodes; level IV, low jugular nodes;
level V, posterior triangle nodes; level VI, central
compartment; level VII, superior mediastinal nodes.

با سپاس از توجه شما

