

Introduction to Surgical Oncology

Introduction to Surgical Oncology – Study Notes

1. Definition & Scope

Term	Meaning
Surgical Oncology	A subspecialty of surgery focused on the operative management of cancer, including diagnosis, staging, curative resection, and palliative procedures.
Oncologic Principles	Guidelines that govern how cancer surgery is planned and performed to maximize tumor control while preserving function and quality of life.

2. Core Objectives of Surgical Oncology

1. **Accurate Diagnosis & Staging** – Obtain tissue, assess disease extent, and determine resectability.
 2. **Curative Resection** – Remove the primary tumor with negative margins (R0 resection).
 3. **Regional Control** – Address lymphatic spread (lymphadenectomy, sentinel node biopsy).
 4. **Symptom Palliation** – Relieve pain, obstruction, bleeding, or functional impairment.
 5. **Multidisciplinary Integration** – Coordinate with medical oncology, radiation oncology, pathology, radiology, and supportive care teams.
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3. Fundamental Oncologic Surgical Principles

Principle	Practical Implication
Wide Excision with Negative Margins	Aim for ≥1cm radial margin for most solid tumors; adapt to anatomic constraints (e.g., head & neck, pancreas).
En-Bloc Resection	Remove tumor together with contiguous involved structures (vessels, organ segments) to prevent tumor spillage.
Lymph Node Management	Perform systematic nodal dissection or sentinel node mapping based on tumor type and stage.
Avoid Tumor Manipulation	Minimize handling, use protective bags, and maintain intact specimen to reduce seeding.

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Principle

Practical Implication

Preserve Function	Balance oncologic clearance with organ-preserving techniques (e.g., sphincter-preserving rectal surgery).
Margin Assessment	Intraoperative frozen section when feasible; postoperative pathological evaluation guides adjuvant therapy.
Multimodality Planning	Schedule surgery after neoadjuvant chemo-/radiotherapy when it improves resectability or survival.

4. Surgical Oncology Workflow

1. Initial Evaluation

- History, physical exam, performance status (ECOG/Karnofsky).
- Imaging: CT, MRI, PET-CT, ultrasound.
- Laboratory workup (CBC, CMP, tumor markers).

2. Staging

- TNM system (Tumor size/extent, Node involvement, Metastasis).
- Stage guides operability and need for neoadjuvant therapy.

3. Multidisciplinary Tumor Board

- Review imaging, pathology, patient factors.
- Decide on surgical candidacy, sequence of therapies, and need for clinical trial enrollment.

4. Preoperative Planning

- Optimize comorbidities (cardiopulmonary, diabetes, nutrition).
- Discuss reconstruction options (flaps, prosthetics).
- Obtain informed consent emphasizing risks, benefits, alternatives.

5. Operative Phase

- Patient positioning & exposure.
- Adherence to oncologic principles (margin, lymphadenectomy).

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- Intraoperative pathology when indicated.

6. Postoperative Care

- Early mobilization, pain control, DVT prophylaxis.
- Pathology review ? margin status, nodal count, tumor grade.
- Discuss adjuvant therapy (chemotherapy, radiation, targeted agents).

7. Surveillance

- Scheduled