

# PRINCIPLES OF SURGICAL ONCOLOGY

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# INTRODUCTION

*Surgical oncology, as its name suggests, is the specific application of surgical principles to the oncologic setting. These principles have been derived by adapting standard surgical approaches to the unique situations that arise when treating cancer patients.*

# Multidisciplinary Team

- Surgeons
- Medical oncologists
- Radiation oncologists
- Reconstructive Surgeons
- Pathologists
- Radiologists
- Primary Care Physicians

# Definitions

- **Primary (or definitive) therapy**

en bloc resection of tumor with adequate margins of normal tissues and in some cases regional lymph nodes

- **Adjuvant therapy**

refers to radiation therapy and systemic therapies, including chemotherapy, immunotherapy, hormonal therapy, and increasingly, biologic therapy

# Goals of Treatment

- Primary goal of surgical and radiation therapy  
: **local and regional control**
- Primary goal of systemic therapies  
: **systemic control** by treating distant foci of subclinical disease to prevent recurrence.

# Roles of Surgery in Cancer

- Prevention of Cancer
- Diagnosis of Cancer
- Treatment of Cancer

# Cancer Staging

American Joint Committee on Cancer (AJCC)

Union Internationale Contre Cancer

(International Union Against Cancer, UICC)

three components:

- Primary tumor (T),
- Nodal metastases (N),
- Distant metastases (M)

Clinical staging (cTNM

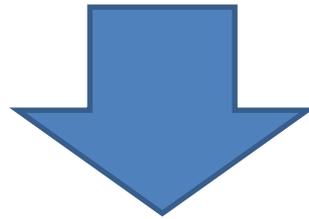
or TNM), Pathologic staging

(pTNM), re-treatment (rTNM) or autopsy staging

(aTNM)

# Diagnosis of Cancer

**Acquisition of tissue for exact histologic diagnosis**



**Biopsy**

# Biopsy

- **Aspiration Biopsy**
- **Needle Biopsy**
- **Incisional Biopsy**
- **Excisional Biopsy**

# Needle Biopsy

- A core of tissue is obtained through a specially designed needle introduced into the suspect tissue.
- The core of tissue provided by needle biopsy is sufficient for the diagnosis of most tumor types.
- Soft tissue and bony sarcomas often present major difficulties in differentiating benign and reparative lesions from malignancies and often cannot be diagnosed accurately.
- Needle tract tumor seeding

# Incisional Biopsy

- removal of small wedge tissue from a larger tumor mass.
- Incisional biopsies often are necessary for diagnosis of large masses that require major surgical procedures for even local excision.
- Incisional biopsies are the preferred method of diagnosing soft tissue and bony sarcoma

# Excisional Biopsy

- Excision of entire suspected tumor tissue with little or no margin of surrounding normal tissue
  - Excisional biopsy is the procedure of choice for most tumors if it can be performed without contaminating new tissue planes or further compromising the ultimate surgical procedure
- e.g. Lymph node biopsy

# Principles of Surgical Biopsy (1)

- Needle tracks or scars should be placed carefully so that they can be conveniently removed as part of the subsequent definitive surgical procedure.
- Care should be taken to avoid contaminating new tissue planes during the biopsy procedure.
- It is not uncommon to take biopsy samples from several suspected lesions at one time.
- Care should be taken to avoid using instruments that may have come in contact with tumor when obtaining tissue from a potentially uncontaminated area.

# Principles of Surgical Biopsy (2)

- Adequate tissue samples must be obtained to meet the needs of the pathologist.
- mark distinctive areas of the tumor carefully to facilitate subsequent orientation of the specimen by the pathologist.
- Certain fixatives are best suited to specific types or sizes of tissue..
- Placement of radiopaque clips during biopsy and staging procedures is sometimes important to delineate areas of known tumor and to guide the subsequent delivery of radiation therapy to these areas.

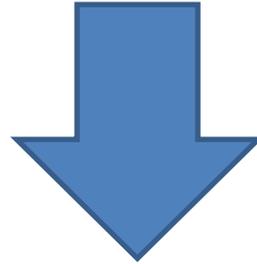
# Treatment of Cancer

- Curative Resection of Primary Cancer
- Cytoreductive Surgery
- Metastatic Disease
- Oncologic Emergencies
- Palliation
- Reconstruction and Rehabilitation

# Surgical Challenges in Curative Treatment of Solid Tumors

- Identification of patients who cured by local treatment alone;
- Best balance between local cure vs. morbidity
- Apply adjuvant treatments which improve the local control and distant metastasis.

# Cancer type and the site of involvement



Vary in selection of the appropriate local therapy  
in cancer treatment

# Definitive surgical therapy with sufficient margins is sufficient local therapy

- wide excision of primary melanomas of skin can be cured locally by surgery alone in 90% of cases.
- The resection of colon cancers with a 5-cm margin from the tumor results in anastomotic recurrences in fewer than 5% of cases.

# Oncologic Oncologic Emergencies Emergencies

- Exsanguinating Hemorrhage
- Perforation
- Drainage of Abscesses
- Impending Destruction of Vital Organs

# Palliation

- Relief of Pain
- Relief of Functional Abnormalities  
(Relieve mechanical problems e.g. intestinal obstruction)
- Improve the Quality of Life
- Advances Stage : Non Surgical Intervention

# Reconstruction and Rehabilitation

- Reconstruction and rehabilitation after definitive Tx
- Improve function and cosmetic appearance
- Free flaps using microvascular anastomotic techniques is having a profound impact on the ability to bring fresh tissue to resected or heavily irradiated areas.
- Lost function (especially of extremities) often can be restored by surgical approaches.
- Lysis of contractures or muscle transposition to restore muscular function damaged by previous surgery or radiation therapy

**Thank You**