

Surgery in Cancer Management: An Overview

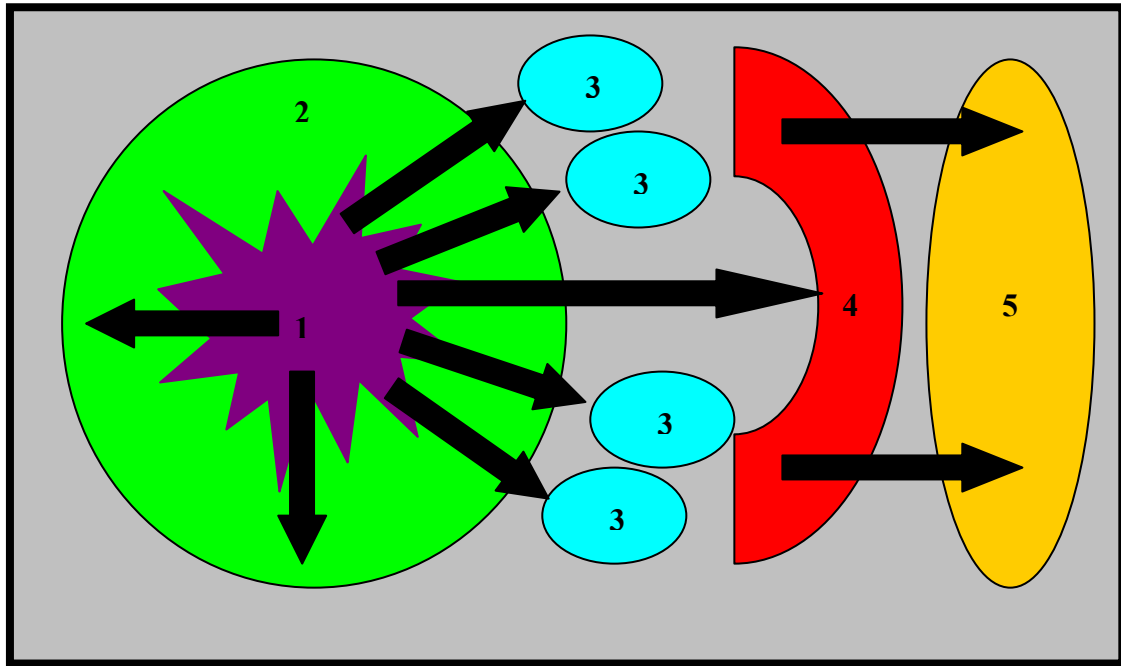
Surgery is a cornerstone in the management of the majority malignant diseases. It has many roles to play and share among a multi-disciplinary approach to an individual suspected or confirmed to have malignant neoplasm (*Cancer*). Basically, the extent surgical procedures are not the same for all patients and circumstances. The extent of tissues removed varies according to the aim or goal needed to be achieved. Moreover, understanding the natural history or behaviour of every specific type of cancer is mandatory while designing and tailoring the surgical approach.

Not One Size Fits All:

It should be remembered that cancer is a systemic disease in many instances (*involving the organ of origin and other locations in the body*), in other words; there is a problem beyond the confines of primary tumor where surgery will not be able to cover or solve the problem completely, and hence the need for other health care professionals (*Radiation and Medical Oncologists, Pathologists, Radiologists as well as Psychiatrists and Reconstructive Surgeons*) to share in decision making and establishing the therapeutic scenario for every patient.

Imagination of the Disease Extent:

The first step of the road to cure is to know every minute detail of disease extent; this will logically guide the future interventions. The following diagram illustrates the usual *Volume of Disease* that we have to deal with:



1. The tumor itself.
2. The surrounding tissues; either within the same organ or surrounding tissues and organs.
3. The regional lymph nodes.
4. Blood.
5. Distant organs.

The black arrows represent the spread of disease to surrounding normal tissues, then to the nearby lymph nodes, then blood stream to the final destination to other distant organs.

The above diagram is the most common scenario for cancer and every screening and early detection program adopted anywhere in the world aims to discover disease while in step (1) before spreading beyond the tumor to nearby tissues, lymph nodes and other organs, while in the smallest possible size to be detected.

Types of Surgical Procedures:

1. **Biopsy:** it means removal of a part or whole lesion or tumor to allow for identification of the types of cells and allows for many specific studies to be performed to predict the behaviour of cancer; rate of growth, aggression and others. Examples include removal of a mass in the breast and removal of a lymph node in the neck or lesion in the skin. It has to be mentioned that such biopsy should be obtained with strict oncologic guidelines so as not to compromise the outcome if further surgical resection will be needed. In some situations biopsy can be obtained by a needle if the tumor is visible as in breast tumors, or under guidance of ultrasound machine or CT-Scanners as for lesions in the liver or lymph nodes in the abdomen. The same principle is applied for biopsies obtained by the endoscopy from luminal organs (trachea, esophagus, stomach, rectum and colon).
2. **Radical Surgery:** it means to completely get rid of the local problem and entails removal of the tumor, the surrounding tissues as a safety margin (so as not to miss scattered cells that might lead to tumor re-growing), as much as possible of the surrounding lymph nodes (being the first station of spread) and trying to reconstruct the tissue defect in order to preserve the cosmetic appearance as well as the function. One of the examples is radical surgery for breast cancer where the entire breast, underlying muscle and lymph nodes in the axilla are removed together followed by breast reconstruction.

3. **Conservative Surgery:** it entails only removal of the tumor and safety margins of surrounding tissues to be followed by other treatments as radiation and/or drug therapies to achieve the highest possible local control and eliminate the possibility of local recurrence of the tumor. Examples include Conservative Breast Therapy where only the tumor with 1-2 cm of the surrounding breast tissue as a safety margin will be removed in addition to few lymph nodes in the axilla to be followed by radiation and chemotherapy aiming at achieving the same cure rate offered by radical surgery while keeping the organ itself in place. This approach although widely adopted all over world; should be intended under strict selection criteria to identify patients not suitable for this approach.

4. **Plastic or Reconstructive Surgery:** It means reconstruction of the defect created by primary radical surgery to keep the cosmetic appearance in some patients (as in breast reconstruction) and restore the lost function in others (to maintain normal urination or defecation following radical surgeries for urinary bladder and rectal cancers).

5. **Palliative Surgery:** Not intended as a part of curative approach and only designed to relieve certain complaint or symptom as in inserting a tube in the chest to allow for drainage of fluids retained around the lung in the pleura (a cover forming an envelop around the lung) and many other examples are available.

6. **Emergency Surgery:** It could be cancer-related as for fixation of a broken bone due to cancer or relieving an obstruction as in cases of cancer stomach or colon. Also, it could be non cancer-related as in case of surgical intervention for acute inflammation of the appendix and gall bladder as well as heart operations.

The final take home message is that:

1. Surgery is an important and integral part of cancer management in many diseases especially when cure is the final goal.
2. Not all cancer surgeries are mutilating or associated with loss of function.
3. Thanks to the advent of modern technologies and equipments allowing for safe surgical procedures not threatening life as well as the ability to restore shape and function in many instances.
4. The decision of having surgery is not a ONE MAN SHOW; and should be considered and adopted only within the context of complete scenario defining all the steps of management as surgery, radiation therapy, chemotherapy and reconstructive surgery if needed.
5. We have to encourage a dialogue between the patient and his treating team to be aware of every detail concerning his illness.

N.B. If any question or verification is warranted don't hesitate to ask, it is your right to know and to be aware. Contact your physician immediately or send your question to:

E: info@oncologyclinic.org

We will respond in less than 24 hours, and remember you are not alone.