



Medical Surgical Nursing

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Medical Surgical Nursing Systemic Disease

As per INC Syllabus

INC Syllabus

Volume **2**



JAYPEE

Volume **1**

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Foreword
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JAYPEE

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Diagnosis of Cancer



Important Chapter Outline

- Diagnostic Evaluation
- Seven Warning Signals of Cancers
- Cancer-Specific Diagnostic Examination
- Physiological Response to Cancer
- Tumor Staging And Grading
- Management of Cancer Goals
- Nursing Diagnosis
- Nursing Supervision
- Learning Skill in Nursing

DIAGNOSTIC EVALUATION

- History collection
- Physical examination
- Biopsy of tumors site
- Laboratory test
- Chest X-ray
- Nuclear medicine scan
- CT, MRI.

Staging is done to determine the extent of disease local versus metastatic to be able to best proceed in proper management.

No standard evaluation exists for all cancers. Work-up depends on the client, tumor type, symptoms, and medical knowledge of the natural history of that cancer.

It includes

- Extent of primary cancer size
- Invasion of surrounding tissues
- Involvement of nerves
- Blood vessels, or lymphatic system
- Sites of metastases
- Over all performances status of the client.

There is no standard long-term follow-up.

Surgery, ionizing radiation, drugs, hormones, immunotherapy or a combination of these may treat cancer.

The method of treatment depends on the type of malignancy, the specific histology cell type, stage, presence of metastasis, and condition of the client.

Cancer is treated by surgery, chemotherapy, radiation, immunotherapy, or a combination of these modalities.

SEVEN WARNING SIGNALS OF CANCERS

- Change in bowel habits or bladder habits.
- A sore does not heal.
- Unusual bleeding or discharge.
- Thickening or lump in breast or elsewhere.
- Indigestion or difficulty in swallowing.
- Obvious change in wart or mole.
- Nagging cough or hoarseness.

CANCER-SPECIFIC DIAGNOSTIC EXAMINATION

History and Physical Assessment

- The first step in diagnostic process is obtaining a complete history and physical examination of the client. In early stage, malignant tumor is symptom less, clinical manifestations start appearing once the tumor has grown large enough.
- Physical examination for people who have age 40+ both male and female, for them an yearly test and physical examination done including.
- Exam of skin, lymph nodes, mouth, thyroid, breast, testes, rectum and prostate assessment.
- *Pelvic examination* from 20 years onwards, every 3 years, and yearly after 40 years, in female.
- *Endometrial tissue sample* in females, at menopause especially in high-risk women.
- *Oral examination* from 20 years on, male and female annually done.

Blood Studies

Blood and plasma evaluations are important in diagnosis and assessment of malignant disease of the bone marrow and reticuloendothelial system.

CBC and differential count, tumors markers, biochemical tests, acid phosphates etc. These mainly used to check its progression.

Hematological and Serological Tests

Some serological tests are used for certain types of malignant neoplasia, e.g. the serum acid phosphatase level is used in investigation for carcinoma of the prostate. It is elevated when the disease is present.

Radiographic Studies

X-ray Examination

Radiology has become increasingly useful in the diagnosis and treatment of disease, but it is also potentially harmful if it is carefully controlled and certain precautions are observed.

Internal parts of the body may be examined for density by X-ray. A radiopaque substance may have to be administered before the examination to provide a contrast medium when soft tissues are to be viewed. *Chest X-ray and sputum cytology* for smokers done to rule out cancer of the lungs. X-ray studies are helpful in diagnosing obstructive tumors, e.g. the client may receive barium by mouth if the esophagus, stomach or intestine is to be viewed, for kidney and ureteric X-ray a radio plaque dye is given intravenously. Radiological examination is a very valuable procedure in diagnosing disorders of the digestive system, particularly, those of the alimentary canal.

Radioisotope studies/scans: Thyroid, bone, brain, liver, lung, and spleen are more frequently scanned for diagnostic purposes.

Computerized Axial Tomography (CAT) Scans

CAT produces sharper images than ordinary X-rays and can detect very slight variations in tissue density. It is most useful in confirming a diagnosis of cancer and providing precise estimations of the size, shape and location of the neoplasm. This non-invasive examination useful to locate neoplasm abscesses and cysts by providing more specific information about changes in tissues density than is available with the standard X-ray procedures. Computed tomography/ CAT scan: CT scans help differentiate malignant and non-malignant masses and to identify accurately the sign and location.

Mammogram

To visualize breast masses, it is an X-ray procedure used in examining soft tissue.

- *Cytological examination:* Pap smear was developed by George N. Papanicolaou in 1943. Its original purpose was to discover cancer of the cervix. However, today this test is used to detect early cancer of digestive, respiratory, renal tract and breast. The Pap smear is done to evaluate the effect of chemotherapy and radiation therapy and to disease recurrence of malignant disease postoperatively.
- *Pap test:* Married women and who have reached 18 years, yearly Pap smears done until 3 negative results come, then less frequently it can be done.
- *Materials examined by Pap smear are:*
 - Cervical scrapings
 - Bronchial secretions
 - Urine sediment
 - Sputum
 - Aspirated gastric secretion
 - Mammography gland discharge fluid.

Method

- First, the examiner gets the scrapes or fluid of cells.
- The examiner fixes the smear by immersing it in a chemical solution of equal parts of ether and 95 percent ethyl alcohol.
- The fixed slide is allowed to dry. It is stained and evaluated. Under microscope, the cells may have a normal or a plastic appearance.
- *Cells are graded on the following 5 points:*
 - Class I: Normal
 - Class II: Inflammation
 - Class III: Mild to moderate dysplasia
 - Class IV: Possibly malignant
 - Class V: Probably malignant
- If the Pap smear indicates class II, the test is repeated in 3 months.
- If the test indicates class III, the Pap smear is repeated in 6 weeks to 3 months.
- If it still class III, a biopsy is done.
- If the Pap smears in class IV and V, immediately a biopsy is done.

Magnetic Resonance Imaging (MRI)

Detect abnormalities, without use of radiation. It provides clear images of internal structures to create sectional image of various body structure in response to the magnetic field, created by radio waves. It is used to detect malignancy of CNS, spine, head, muscles, etc.

- *Preparation:* It is painless. All materials that are affected by magnet should be removed before the test. This test cannot be performed with patients with pacemakers, surgical plating.
- Explain the client, that he lie in a narrow tunnel of the machine, and the machine makes loud hammering sound during procedure. If contrast dye is injected, patient may have nausea, vomiting, and itching.

- **Fluoroscopy:** Use of X-ray the identity contrast in body tissue densities may involve the use of contrast agent.
- **Angiogram:** It outlines the blood supply of the tumor and surrounding tissues.
- **Lymph angiogram:** It shows the lymphatic system and primary site of metastasis.

Endoscope: Direct visualization of a body cavity or passage by insertion of an endoscope into a body cavity or opening it allows tissue biopsy. Excision of small tumors, biopsy also can be obtained by means of biting forceps passed through endoscope. This method of examination may be used in the larynx, bronchi, esophagus, stomach, colon, and rectum.

Nuclear medicine imaging: It uses intravenous injection or radioisotope substance followed by imaging tissue that have concentrated the radioisotope, e.g. bone, liver, brain, etc.

PET (Positron Emission Tomography) scan: In PET use of magnetic field radiofrequency signal to create sectional images of various body structures. It is computed, cross-section images of increased concentration of radioisotope in malignant cell provide information about biologic activity of malignant cell it helps distinguish between benign and malignant cell.

- **TMI**—analysis of substances found in blood or other body fluids that are made by the tumor or by the body in response to the tumor.
- Breast cancer, colon cancer, lung cancer, testicular, prostate cancer.

Ultrasound Examination

Ultrasound procedure is a non-invasive and without radiation exposure procedure. Use of high frequency sound waves, icing of body tissues are conveyed electrically into images use and to access tissue deep within the body abdominal and pelvic cancer. Sound waves are directed to deep body structures, the reflection or an echo of the waves depicts the condition of the organ or tissues under examination. The picture is examined for different densities of tissues and changes in structure and size.

Thermography

It measures and plots the temperature of skin areas. An elevation of temperature occurs with malignant lesions and inflammation.

Biopsy and Histological Examination

A biopsy is performed to obtain a specimen of tissue to determine whether the cells are cancerous, the types of cancer cells and the degree of differentiation of the cells.

Samples of tissue may be obtained by aspiration—a technique, which involves removing a small plug of tissue using a needle and syringe—or by open excision of a section of tissue under local or general anesthesia.

Histological examination of tumor tissue is done periodically to determine the effectiveness of treatment or to monitor progression of the client's disease.

Biopsy is surgical excision of a small piece of tissue for microscopic examination, to rule or confirm malignancy.

There are 2 types of biopsy procedures such as:

1. Incision biopsy and excision biopsy
2. Needle biopsy
 - **Incision biopsy:** If the tumor is large, only a small sample of tissue is removed surgically for examination called as subtotal biopsy. It is performed during endoscopic examination also.
 - **Excision biopsy:** If the tumor is small, the entire tumor is removed for examination. This is a treatment also when the tissue margins contain no tumor cells—in skin and breast cancer it is done.
 - **Needle biopsy:** Tumors are aspirated by needle aspiration needle biopsies is useful in getting samples in liver, lung, pancreas, etc.

PHYSIOLOGICAL RESPONSE TO CANCER

The physiological manifestation and effect of cancer depends upon the location of the neoplasm, its stage, and whether there are secondary conditions such as ulceration, hemorrhage, infection, and metastasis.

Frequently there is marked loss of weight and strength as the rapidly growing cells compete with normal cells for nutrients, and disturbances develop in the normal metabolic and physiological process throughout the body.

Disfigurement, infection, pain, general debility and malnutrition progressively become severe if the clients' diseases are not arrested and nutritional needs are inadequately met.

An important aspect of malignant disease is the emotional disturbances, psychological and physical stress, anxiety, discomfort and some clients in depression give up, some withdraw and avoid any discussion. Certain client anger, resent and few become completely disorganized.

Pressure on Surrounding Organs or Nerves

- Distortion of surrounding tissues
- Obstruction of lumen of tubes
- Interference with organ function
- Disturbance of body metabolism
- Parasitic use of body's nutritional supplies

The clinical manifestations that may arise secondary to cancer include:

- Weight loss
- Weakness
- Pain—bone cancer is painful especially due to pathologic fracture and muscle spasm
- CNS alteration
- Hematological and metabolic alteration
- Mechanical interference as mal-absorption, excessive secretion of hormones

- Difficulty with vision, speech, coordination or memory may be due to primary or metastasis CNS diseases.
- Increased intracranial pressure caused by growth leads to headache, nausea, vomiting, lethargy, etc.
- Unexplained anemia also indicates malignancy.
- Hematological changes like leucopenia, leukocytosis, bleeding disorder may be there.

TUMOR STAGING AND GRADING

When a cancer is diagnosed, the extend of cancer staging process involves in diagnostic process, which involves following:

- The characteristics of primary tumor
- Involvement of lymphatic node
- Evidence of metastasis.

TNM-system is Accepted for Staging

- T stands for tumor
- T1-T4 defines increasing tumor size
- N stands for regional lymph nodes
- N1-N3 denotes advancing nodal diseases
- M refers to metastasis
- M0 means no metastasis
- Mt means presence of metastasis.

Grading

- G1—Well-differentiated grade
- G2—Moderately well-differentiated grade
- G3, G4—Poorly to very poorly differentiated grade

MANAGEMENT OF CANCER GOALS

- Complete eradication of malignant diseases
- Prolonged survival and containment of cancer cell growth
- To relieve symptoms associated with the diseases.

Modalities

- Surgery
- Radiation
- Chemotherapy
- Biogenic Response Modifier (BRM)

Surgery

- Diagnostic
- Staging exploratory
- Preventive
- Reconstructive
- Curative
- Palliative

Surgery plays an important role in cancer management. Surgical biopsy may be performed for diagnostic and to evaluate the effectiveness of treatment.

Diagnostic surgery: This is established by microscopic identification of malignant cells from tumor tissue.

- *Cytology specimen:* Cytology specimen can be obtained from tumor surface.
- *Needle biopsy:* Simple method of tissue it means tumor cells are withdrawn from the help of needle and syringe. Needle biopsy are used by obtaining samples from subcutaneous tissue, muscle, breast, pancreas, liver, lung.
- *An incision biopsy* removes a small sample of tissue for an examination. It is performed during endoscope exam of the bronchus, stomach, bladder, and colon. Surgical techniques are used to prevent seeding of the tumor cells in the biopsy cells.
- *Excision biopsy* is removed all of the tumor mass and provide the pathologist which can entire sample tumor size 2 to 3 cm. This is useful skin cancer, breast cancer.

Staging exploratory surgery: It is based on all informed prior to first treated, e.g. ovarian cancer, radiation therapy; chemotherapy can be primary treatment modality along with surgery.

- *Curative surgery:*
 - *Surgery for primary lesion* about 55 percent patients who suffer with cancer undergo with this surgery 40 percent of patient are treated with surgery alone cancer that localized to the organ of the origin and the regional lymph node are potential curable by surgery after they are multimodal treatment there are chances that recurrence to occur. Radiation therapy (put as separate point down) may be combined with chemotherapy to improve client survival seen in tumor of colon and breast.
 - *Surgery for recurrent lesion:* Cancer that occurs locally can be resettled local recurrence of sarcomas colon; breast and skin cancers have been successfully excise resulting in cure.
 - *Surgery for metastatic lesion:* Excision of metastasis lesion is done if there is no evidence of disease and if the metastatic lesion has appear after a very long diseases the radiotherapy is stabilized.

- *Palliative:* surgery may be performed to decrease symptoms caused by the tumor mass, remove obstructions, and reduce the source of hormones or to insert equipment for chemotherapy into the body part or organ.

Use of surgery to reduce pain relieves airway obstruction in GI and urinary tract to relieve pressure on brain and spinal cord to prevent hemorrhage. To remove infected and ulcerated tumors to drain abscess.

Neurosurgical procedures such as nerve block and cordotomy may be carried out for management of persistent severe pain.

- *Reconstructive surgery:* It means reconstruction of form surgery to improve client's quality of life by restoring maximum function and appearance.
- *Preventive surgery:* Patient who is unusually high-risk of cancer may elect to have preventive surgery.

Factors predisposing cancer are:

- Impaired skin and mucous membrane integrity
- Malnutrition
- Medications
- Urinary catheter, intravenous catheter, invasive procedure like surgery, paracentesis, thoracentesis, drainage tubes, endoscopies, mechanical ventilators
- Contaminated equipment
- Age
- Chronic illness
- Prolonged hospitalization.

NURSING DIAGNOSIS

- Risk of infection related to neutropenia, thrombocytopenia, anemia, altered nutrition, stomatitis
- Preventing infection
- Monitor vitals, good personal hygiene
- Prevent bleeding
- Minimize fatigue
- Promoting nutrition
- Minimizing Stomatitis
- Strengthening coping with altered body image
- Limit visitors
- Practice hand washing
- Inspect intravenous sites daily
- Change dressing every alternate day
- Change all infusion and solution sets every 48 hours.

Impaired skin integrity erythematous and wet desquamation reactions to radiation therapy.

Goal

Maintains skin integrity.

Interventions

- If the patient has erythematous skin avoid use of soaps, perfumes, cosmetics, powders, lotions, ointments, deodorants.
- Use only lukewarm water to bath.
- Avoid rubbing or scratching the area.
- Avoid shaving the area with straight edged razors.
- Avoid applying hot water bottles, heating pads, adhesive tape to area.
- Avoid exposing the area to sunlight or cold weather.
- Avoid tight clothing in that area use cotton clothing.
- Apply vitamin A, vitamin D ointment to the area.

Wet Desquamation

- Don't disturb the blisters that have formed
- Avoid frequent washing of the area
- Report any further blistering
- Use prescribed screens and oilmen
- If blister breaks apply a thin layer of gauze dressing

Altered Oral Mucous Membrane, Stomatitis

Goal

Maintenance of intact oral mucous membrane.

Intervention

- Assess the oral cavity daily.
- Instruct patients to report oral burning, pain, areas of redness, open lesion on the lips, pain associated with swallowing or decreased tolerance to temperature extreme of food.
- Encourage and assist in oral hygiene.
- Avoid commercial mouthwashes, listerine.
- Brush with soft toothbrush.
- Give mouth care with plane normal saline.
- Instruct patient to rinse mouth with normal; saline with every two hours.
- Avoid spicy food and extreme temperature.
- Impaired tissue integrity related to alopecia.

Goal

Maintenance of tissue integrity, coping with hair loss.

Intervention

- Discuss potential hair loss and regrowth with patient and family.
- Prevent and minimize hair loss groove
 - Cut long hair before treatment.
 - Use mild shampoo and conditioner gently pad dry, avoid excessive shampooing.
 - Avoid electric curlers, curling iron and driers, clips, hair sprays, hair dyes.
 - Avoid excessive combing, brushing, use of wide toothed comb, lubricant scalp with vitamin A, vitamin D, ointment to decrease itching.
 - Use sunscreen or wear hat, scarf or turban when in sun.
 - Purchase wig or hairpiece, before hair loss.

Altered nutrition less than body requirement related to nausea and vomiting.

Fever episodes of nausea with vomiting are experienced by the patient before during and after chemotherapy.

Intervention

- Assess patient for nausea and vomiting.
- Adjust diet before and after drug administration according to patient's preference.
- Prevent unpleasant sides, odors, and sounds in the environment.
- Use diversional therapy like music, relaxation, yoga.
- Administer prescribed anti-emetics, sedatives before chemotherapy as needed.
- Ensure adequate fluid hydration before during and after the treatment.
- Maintain intake output chart.
- Encourage frequent oral hygiene.

Altered nutrition less than body requirement related to anorexia.

Goal

Maintenance of nutritional states and weight intervention:

- Avoid unpleasant sights, odors, and sound in the environment during mealtime.

- Ask patient's likes and dislike
 - Plan diet which in calories and protein
 - Encourage adequate fluid intake
 - Suggest for small frequent feeds
 - Give nutritional supplements as ordered
 - Give proper position during mealtime
 - Provide frequent oral hygiene.
- Fatigue and activity intolerance or activity intolerance related to fatigue.

Goal

Increase activity tolerance and decrease fatigue level.

Interventions

- Encourage several rest periods during the day especially before and after physical exertion.
- Increase total hours of night-time sleep.
- Encourage use of relaxation technique.
- Encourage plan exercise program.

Pain and Discomfort

Intervention

- Assess pain, location, quality frequency, duration
- Assure patient that pain will be reduced administer prescribed analgesics.
- Use diversional therapy like music, reading books.
- Anticipatory giving-related to loss altering, role function.

Goal

Appropriate progression, through giving process.

Interventions

- Encourage the patient to talk about his fears.
- Encourage active participation in care and treatment decisions.
- Encourage patient to ventilate his feelings allow patient periods of drying expression of sadness.
- Advice professional counseling as required for the patient.
- Involve clergy as decided by the patient.

Body image disturbances and self-esteem: Disturbances related to changes in appearance function and role.

Goal

Improve body image and self-esteem.

Interventions

- Assess patient feeling about body image and level of self-esteem.
- Encourage continue participation in activities decision making.
- Encourage patient to verbalize to concerns.
- Assist the patient in self-care.
- Assist patient in selecting and using cosmetic, scarf, hair-pieces and clothing that well increased his or her, self-esteem.

Potential Complications for Bleeding

Goal

Interventions

- Assess for potential for bleeding
- Monitor platelets count
- Assess for bleeding
- Assess for petechia
- Assist for decrease in hemorrhage
- Assess for prolonged bleeding from veni-puncture, minor cuts, scratches
- Assess for track or occult blood in anybody excretion,
- Assess for bleeding from any orifice
- Instruct patient and family to minimize bleeding by using soft toothbrush.
- Instruct to use electric razor for shaving
- Instruct patient to avoid food that is difficult to chew.

NURSING SUPERVISION

- Watching closely
- Checking records
- Guiding, helping
- Advising
- Reviewing progress
- Analyzing of progress
- Identifying areas
- Which requires monitoring
- And modification intervention. It is helping process and not hindering process.
- It requires concern and consideration to bring desirable change in students and staffs. Monitoring measures actual performance to improve service delivery.

LEARNING SKILL IN NURSING

- No skill is achieved by birth.
- Humans begin to learn from the time of conception until grave learning is part of the growth process of adapting to life.
- It is inbuilt in every living being.
- Learning is enhanced and advanced by means of education.
- Educator moulds and smoothes the edges in every human being, all have distinctive style, interest, motivation and ability to grow.
- The firmer your leg the foundation the better the outcome.
- Rationalize every task, as learning is an unending process which varying from individual to individual.
- Learning never ends even after attaining professional education.
- It is an ongoing profession.
- Are we achieving the quality needed?
- Are we able to integrate the art and science of nursing in our daily work, nursing higher degree is a hard climb?

- Today's nurses must be aware of nursing standards, legal issues.
- Nursing is not only a professions and career, it is service to humanity.
- A generous heart, kind speech and a life of service and compassion are the things, which renew humanity.
- It is the human element that makes a hug difference in the recovery of the client.
- The platform of service is as big as the world.
- It is never overcrowded together for humanity.
- A hospital may be soundly organized, beautifully situated and well equipped, but if nursing care is not of high quality, the hospital will fail in its responsibility.
- A client coming to the hospital gives us an opportunity to serve.
- You should do no harm to the sick.
- There has been revolution in health care in latest 50 years due to advanced technologies and treatment options.
- Today's nurses must be aware of nursing standards, legal issues, right to information act is force, it is imperative for health care and medical personnel to have reasonable knowledge of legalities involved in care of patients.
- How do you feel about nursing education?
- Be aware of the fire within
- One should work hard and strive for excellence
- Develop an interest in what you do
- Push your ability to the maximum, update your knowledge at all times, have a network and expand your horizon if you are to succeed in life, you must adopt the principle of running waters.
- Follow their line of action
- The river keeps moving over coming all obstacles, ever progressing. It never stops until it reaches the ocean.
- Skilled nurses dealing with enormous challenges while equipped with limited resources.
- It is important to use ones brain, hands and other senses to make a diagnosis besides just prescribing test.
- In the villages where people living with difficult circumstances, first hand intervention can change peoples lives.

Medical Surgical Nursing Nursing Specialty

Salient Features

- This book covers the nursing curriculum as outlined and taught in the classroom
- Complete syllabus of Revised General Nursing and Midwifery (RGNM) is under one umbrella
- Both the volumes of the book have 110 (45 + 65) chapters in total
- The content and the chapter outline itself will show the subject matter covered
- The book is well illustrated and easy to grasp the subject matter
- It focuses on high-tech and medical advances, and innovation in nursing field
- It will help a nurse equip well in the modern professional skill in nursing
- Chapters with revised figures of anatomy and physiology are given
- The book is focused on making teaching and learning simpler without any ambiguity or complexities
- It is easy to handle, read, study and search for topics
- This book is multidimensional for all professional staffs, medical students as well as teachers
- A nurse can learn about history of modern medicines, perform health assessment and physical examinations. She can also learn to describe various diseases, its pathology to distinguish normal from abnormal
- A nurse can also learn to prepare various nursing care plans, topic presentations, to give nursing care to the client, learn about drugs and its legal implications of administration, to manage fluid and electrolyte balance, to learn skill in assessing pain and nursing interventions, and about her role in preparing the client for surgery
- A nurse can also learn how to care during and after surgery
- It is always an asset and can become valuable as every book is unique and gives something new to all every time
- The advanced innovation and discoveries are breath-taking and heart-throbbing. Students will find it very interesting
- The book is unique and distinct with its outlay.

Cecy Correia was working as a nursing tutor and health coordinator in Cardinal Gracias Memorial Hospital, Vasai, Maharashtra, India. She has worked in the nursing profession from 1985 to this day. She has authored twelve other books on nursing. Therefore, her vast knowledge in the field of nursing at different levels has flown into this book. May this book bring blessings and help the nurses elevate the pain of the suffering humanity. She is member of Trained Nurses' Association of India (TNAI), Catholic Nurses Guild of India (CNGI), Catholic Health Association of India (CHAI), Gujarat Voluntary Health Association (GVHA), and also a member of All India Institute of Homeopathic Association.



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