

Common Solid Tumors

429 Medicine Team

Sources: Lecture (power point presentation), 427 Clinical Medicine Notes, Step-Up to Medicine 7E

Questions: <http://ask.fm/TeamNotes429>

COMMON SOLID TUMORS

INTRODUCTION

Cancers are classified based on the type of cell that the tumor originated from.

Basic types:

- **Carcinoma:** Cancers derived from epithelial cells. This is the most common cancers, breast, prostate, lung, pancreas, and colon
- **Sarcoma:** Cancers arising from connective tissue (i.e. bone, cartilage, fat, nerve), each of which develop from cells originating in mesenchymal cells outside the bone marrow
- **Germ cell tumor:** Cancers derived from pluripotent cells, in the testicle or the ovary (seminoma and dysgerminoma, respectively)

Other types:

- **Blastoma:** Cancers derived from immature "precursor" cells or embryonic tissue.
 - Most common in children.
 - *Blastoma* as a suffix, with the Latin or Greek word for the organ or tissue of origin as the root. E.g. hepatoblastoma
- Some types of cancer are named for the size and shape of the cells under a microscope, such as giant cell carcinoma, spindle cell carcinoma, and small cell carcinoma.

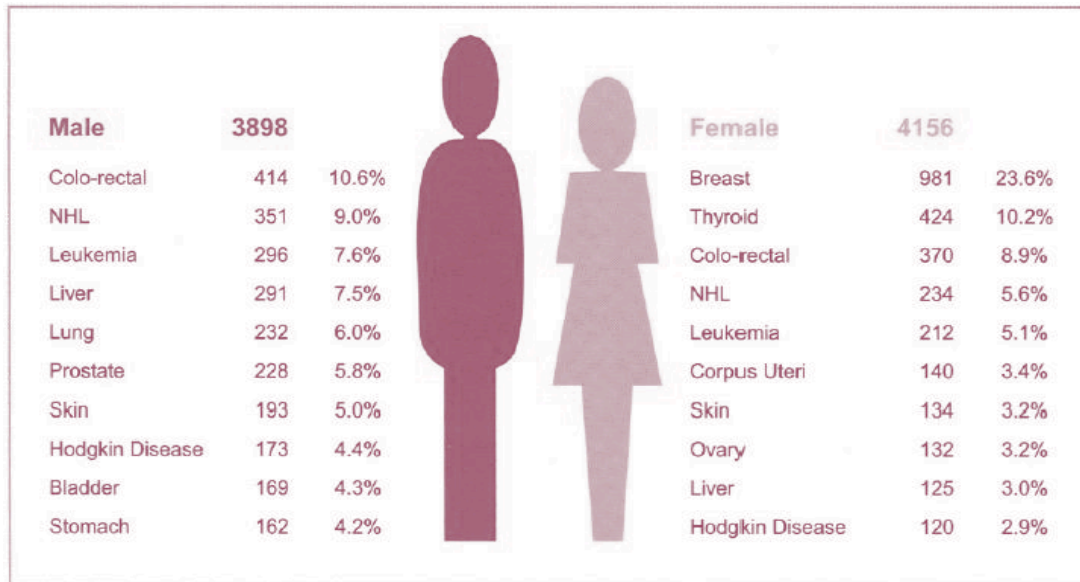
General staging of solid malignancies:

1. Early: Surgery
2. Locally advanced: Surgery & adjuvant chemotherapy
3. Metastatic: Chemotherapy & surgery

COMMON TUMORS

In the US		In Saudi Arabia	
Men	Women	Men	Women
1. Prostate	1. Breast	1. Colorectal	1. Breast
2. Lung	2. Colorectal	2. Lymphoma	2. Thyroid
3. Colorectal	3. Lung	3. Leukemia	3. Colorectal

- Most common cancer in females
- Wide age range 20 – 70+
- Breast cancer can occur during pregnancy and lactation
- Breast cancer can occur in pre, peri and post menopausal females

In KSA:**BREAST CANCER****BREAST CANCER IS THE COMMONEST MALIGNANCY IN SAUDI ARABIA**

- **1st** most common cancer in females
- **2nd** leading cause of death
- 10% of women will have breast cancer sometime in their life
- **Screening** cuts down the rate of death, and improves prognosis, without affecting incidence

RISK FACTORS:

- **History of breast cancer**
- **Family history of breast cancer, especially in first-degree relatives**
- **Benign breast diseases / atypical hyperplasia**
- **Early menarche, late menopause**
- **Late first pregnancy/no pregnancy**
- **Exogenous estrogens e.g. hormone replacement therapy, OCP**
- **Radiation (High dose)**
- **Age**
- Vitamin deficiency (controversial)
- Breastfeeding may reduce the risk of breast cancer and early 1st pregnancy (<25 yrs)
- Hyperlipidemia & obesity
- **Familial causes don't exceed 10% of breast cancer** (usually associated with BRCA 1 & BRCA 2 markers)

MCQ

PRESENTATION:

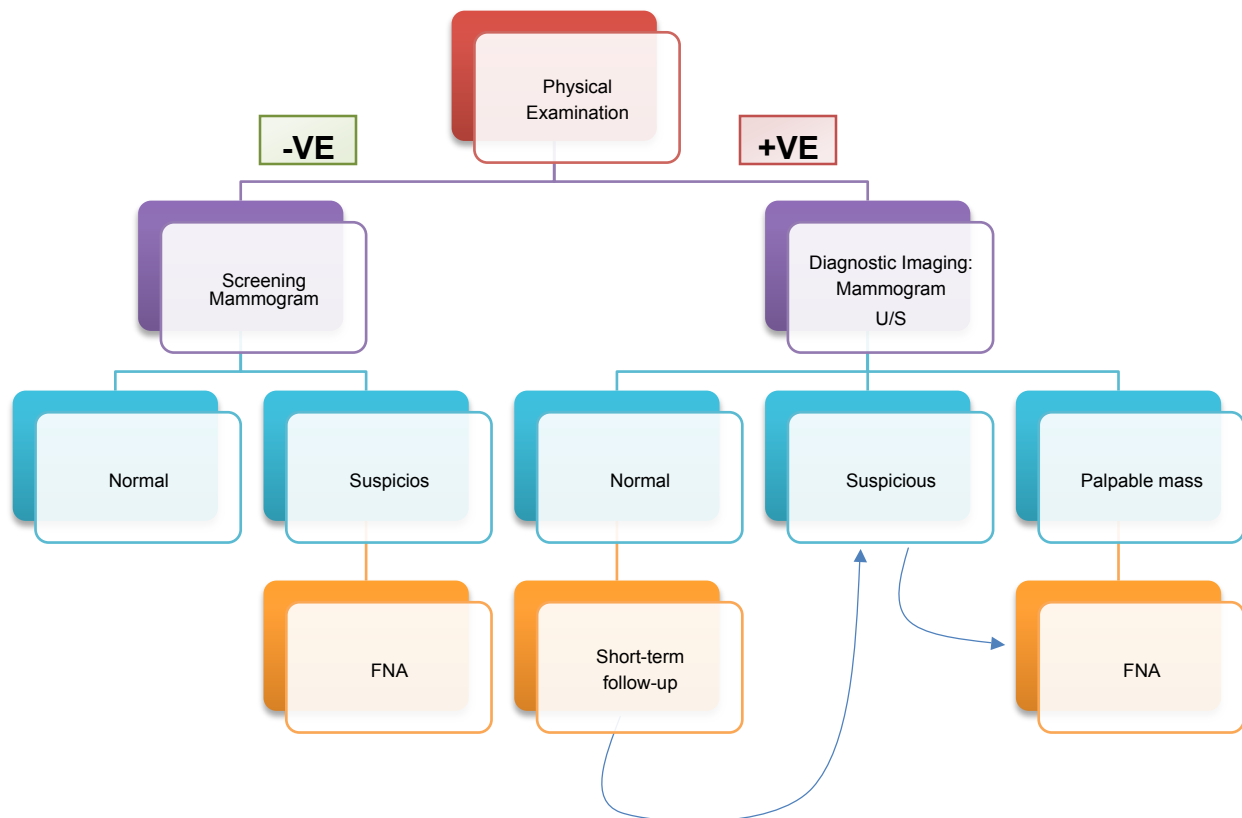
- **90% Painless** lump in the breast, 10% painful lump
- Nipple discharge: Bloody nipple discharge
 - Mucinous, yellow, is mostly benign due to ductal ectasia
- 70% of women at 30 yrs have lumps
 - Most are due to **fibrocystic disease** (fibroadenoma)
- Ask females to examine themselves during shower (once a month after their period is finished due to premenstrual tension)
- Women in KSA usually present late (with locally advanced disease; stage III & IV). Why? Lack of screening centers and education

EXAMINATION:

- Hard
- Ill-defined nodule
- Not movable
- With/without nipple discharge
- If the disease is advanced, involving the skin:
 - Peau d'orange (skin of an orange)

Warning signs and symptoms:

- Painless lump or thickening (can be painful)
- Thickening or swelling that persistent
- Nipple pain or retraction
- Nipple discharge



STAGES:

- T1 \leq 1cm
- T2 $<$ 5 cm
- T3 \geq 5 cm
- T4 = metastasis

APPROACH FOR LUMP:If you suspect breast cancer:

- Do not reassure the patient
- Do not give hormonal therapy
- Do not give antibiotics

What to do:

- Careful Hx & physical
- Bilateral mammogram + U/S
+/- FNA

MAMMOGRAM:

- Look for micro-calcifications (absence of micro-calcifications doesn't exclude malignancy)
- Used **with ultrasound** for **diagnosis**: differentiates cystic from solid lumps
- Used **alone** for **screening**
 - Except in young/pregnant/post-partum/lactating. Why? Dense breast tissue. Use **ultrasound**.
- Nowadays, MRI indicated in certain cases as a tool for investigation of breast cancer, especially multi-centric

BIOPSY:

- FNA (not used a lot these days. Why? It can only differentiate between benign and malignant & it has a high false negative rate).
- True cut biopsy is **better** to study the receptors and tissue
- Most results: **DUCTAL ADENOCARCINOMA**
- Receptors status:
 - Hormonal receptors (estrogen & progesterone)
 - Herceptin receptors

TREATMENT:

- 1980: Mastectomy
- 1987: Proper medical oncology
- **2010**
 - Very early breast cancer (T2): remove the tumor and the area around it, **WLE (wide local excision)**
 - Practice guidelines
 - CT of lung, abdomen, liver
 - Bone scan
 - Locally advanced disease (T3, T4): Neo-adjuvant chemotherapy (chemo- or radiotherapy **BEFORE** surgery)
 - Anti estrogen, anti progesterone, and anti herceptin
 - If **>60 y/o**, consider hormonal treatment before chemotherapy
 - If pre-menopausal, chemotherapy +/- hormonal therapy

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- If the patient is menstruating during chemotherapy:
 - Luteinizing hormone (LH)
 - Radiotherapy
 - Ovarian surgical removal (not used anymore)

PROGNOSIS:

- T1, ER +ve, PR +ve, herceptin –ve (BEST prognosis)
- T3, ER +ve, PR +ve, herceptin –ve (better prognosis than the next)
- ER -ve, PR -ve, herceptin –ve (triple negative has the WORST prognosis)
- Note: the **MOST AGGRESSIVE** type is **invasive ductal carcinoma**

COLORECTAL CANCER

COLORECTAL CANCER IS THE 2ND LEADING CAUSE OF CANCER DEATHS

RISK FACTORS:

- **Old age:** ~90% of people diagnosed with colon cancer are >50 y/o.
- **A personal history of colorectal cancer or polyps**
- **Fatty food** is the major risk factor (**Low-fiber, high-fat diet**)
- **Diabetes.** Insulin resistance may have an increased risk of colon cancer.
- **Obesity**
- **Smoking**
- **Alcohol**
- **Radiation therapy for cancer**
- **Inflammatory intestinal conditions e.g.** ulcerative colitis and Crohn's disease
- **Inherited syndromes that increase colon cancer risk e.g.** familial adenomatous polyposis and hereditary non-polyposis colorectal cancer “Lynch syndrome”
 - The higher number of polyps the higher the incidence of cancer
 - **Familial polyposis** is a risk factor if in 1st degree relatives
- **Family history of colon cancer and colon polyps.** a parent, sibling or child with the disease.
- **A sedentary lifestyle.**
- Non-familial polyposis occurs in young patients with 2nd & 3rd degree relatives
- The rectum is more vascular so it is more aggressive than colon cancer

Fibers don't decrease the incidence of colorectal cancer, but it decreases the incidence of polyps

PATHOGENESIS

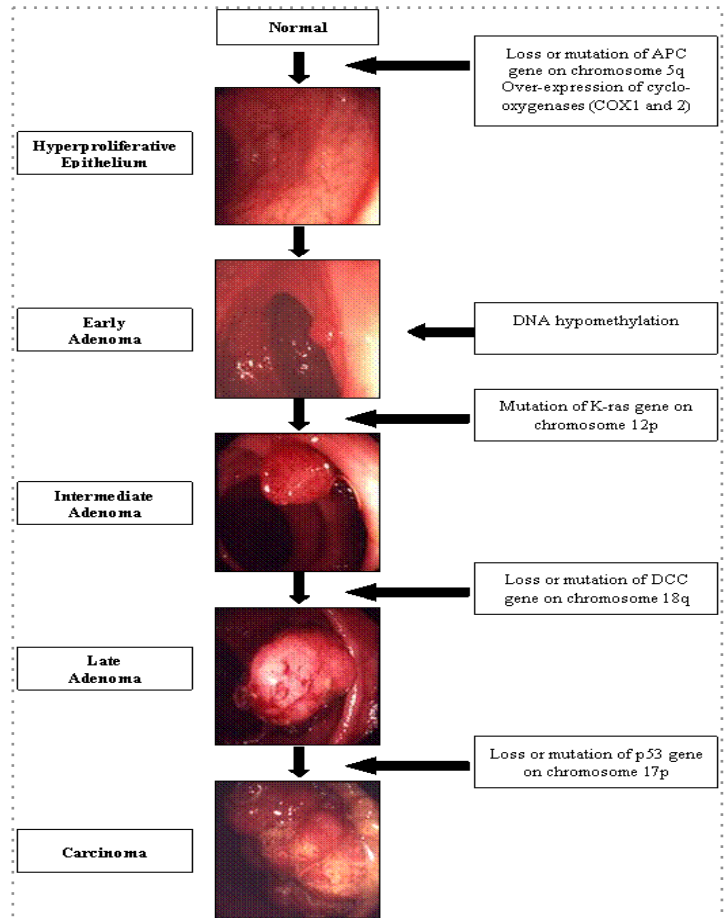
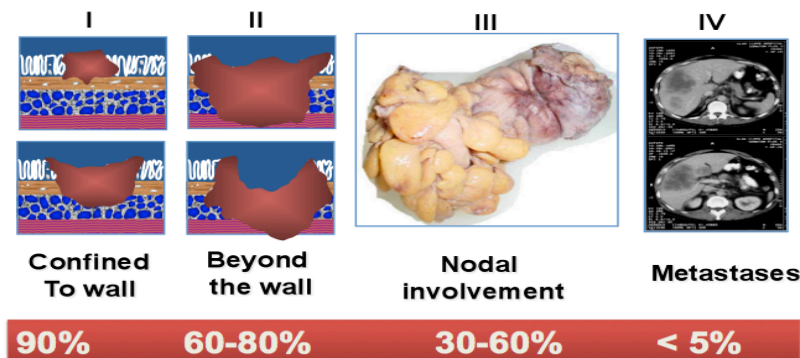
- It starts with a simple cell that mutates and grows into a polyp
- If a polyp is allowed to remain in the colon it can grow into a cancerous tumor that can invade other organs.
- Colon cancer is the second leading cause of cancer deaths

CLINICAL PRESENTATION:

- Change in bowel habits
 - Diarrhea
 - Constipation
- Blood in Stool
 - Bright red
 - Very dark red
 - Black/Tarry Stool
- Feeling of incomplete evacuation
- Abdominal pain
- Abdominal discomfort i.e. bloating
- Weight loss
- Fatigue
- Unexplained iron-deficiency anemia
- Obstruction
- No signs in clinical examination

DIAGNOSIS & MANAGEMENT:

- Occult bleeding detection in stool
- Colonoscopy used in investigation (never do sigmoidoscopy)
- The most imp tumor marker is **CEA**
- Colon cancer → **SURGERY** is the treatment of choice, then give chemo after surgery to increase the survival rate
- Rectal cancer → Best treatment is **CHEMO + RADIOTHERAPY** for 1 month, then rest for 42 days & then surgery.

**PROGNOSIS****5-year survival rate**

CANCER PREVENTION

It is not an easy task. Why?

- Social change is difficult and takes a long time
- Not good enough in high risk people

Passive prevention	Active prevention
Identify etiological factors & avoid them	Discover pre-malignant lesions & treat them e.g. colonic polyps & ductal carcinoma in situ
<ul style="list-style-type: none"> • Healthy diet 	<ul style="list-style-type: none"> • Chemoprevention
<ul style="list-style-type: none"> • Smoking cessation 	
<ul style="list-style-type: none"> • Decreased alcohol consumption 	<ul style="list-style-type: none"> • Surgery
<ul style="list-style-type: none"> • Maintaining optimal body weight 	
<ul style="list-style-type: none"> • Avoiding estrogen & progesterone 	

EXTRA NOTES

Right-sided colonic tumors	Left-sided colonic tumors
Occult blood	Obstruction (Smaller luminal diameter)
Iron deficiency anemia	Change in bowel habits more common—alternating constipation/diarrhea; narrowing of stools ("pencil stools")
Melena	Hematochezia more common
Triad of anemia, weakness, RLQ mass (occasionally)	Rectal cancer (20% to 30% of all CRCs)
Obstruction is unusual because of the larger luminal diameter, allowing for large tumor growth to go undetected	Hematochezia—most common symptom
	Tenesmus
Change in bowel habits is uncommon	Rectal mass; feeling of incomplete evacuation of stool (due to mass)

Duke's Staging for Colorectal Cancer

Staging is performed via CT scan of the abdomen and CXR.

- **Stage A** (5-year survival is 90%) leads to stage I (T1–2, N0, M0); limited to muscularis mucosa
- **Stage B** (5-year survival is 70%) leads to stage II (T3–4, N0, M0)
- Think past muscularis mucosa without node involvement
 - B1: into submucosa/muscularis propria
 - B2: through the entire bowel wall
 - B3: through bowel wall and into adjacent structures
- **Stage C** (5-year survival is 40%) leads to stage III (any T, N1–N3, M0)—positive regional lymph nodes
- **Stage D** (5-year survival is 5%) leads to stage IV (any T, any N, M1)—distant metastases

Thank you