

# Introduction To Cancer Diagnosis & Treatment

By

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# Definitions

# Defining Cancer

**Cancer** is a term used for diseases in which abnormal cells divide and escape the body control.

These cells are able to:

- 1-Invade surrounding tissues
- 2-Send distant metastases.
- 3- Lost their functions

# Defining Cancer

- **Primary Tumors** •

Represent de novo tumors in their initial site

- **Metastatic Tumors** •

Originate from the distant growth of the primary tumors

# History

Posted on [October 14, 2010](#) by [Kat Arney](#)

**Claims that cancer is only a  
'modern, man-made disease' are  
false and  
misleading**

**This is not only scientifically  
incorrect, but misleading to the  
public and cancer patients**

**Cancer has always been with us,  
from ancient civilizations to  
today.**



# Ancient Greek and Greco–Roman Methods in Modern Surgical Treatment of Cancer

By Niki Papavramidou, Theodossis Papavramidis, and Thespis Demetriou  
*Annals of Surgical Oncology*, Vol.17 (2010)

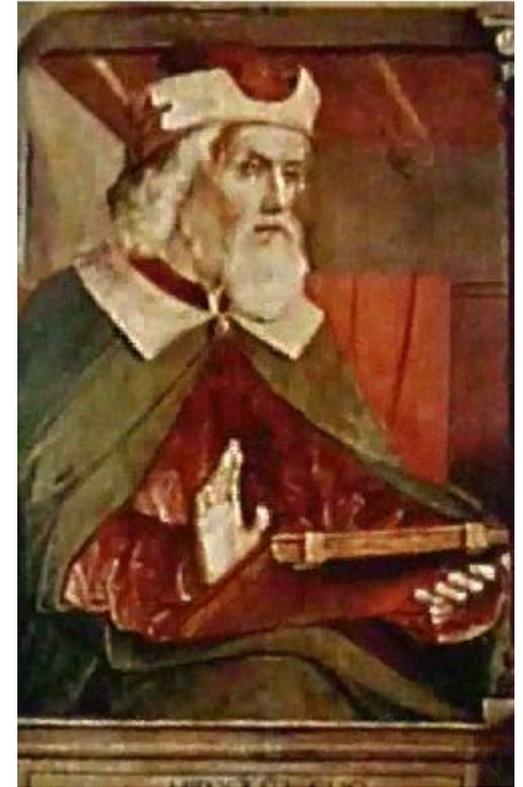
Cancer appears in medical history as early as 1600 BC in the Edwin Smith papyrus, where the oldest description of the illness exists.



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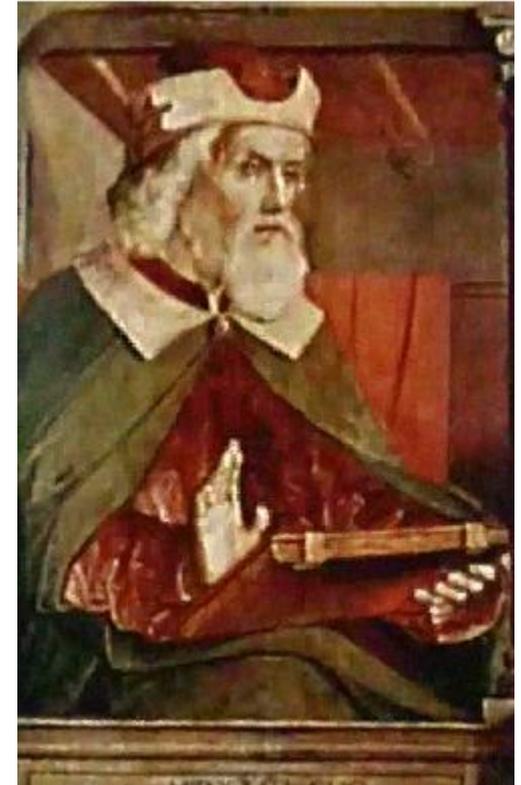
The origin of the word “cancer” is credited to the Hippocratic physicians, who used the terms *karkinos* and *karkinoma*



# Ancient Greek and Greco–Roman Methods in Modern Surgical Treatment of Cancer

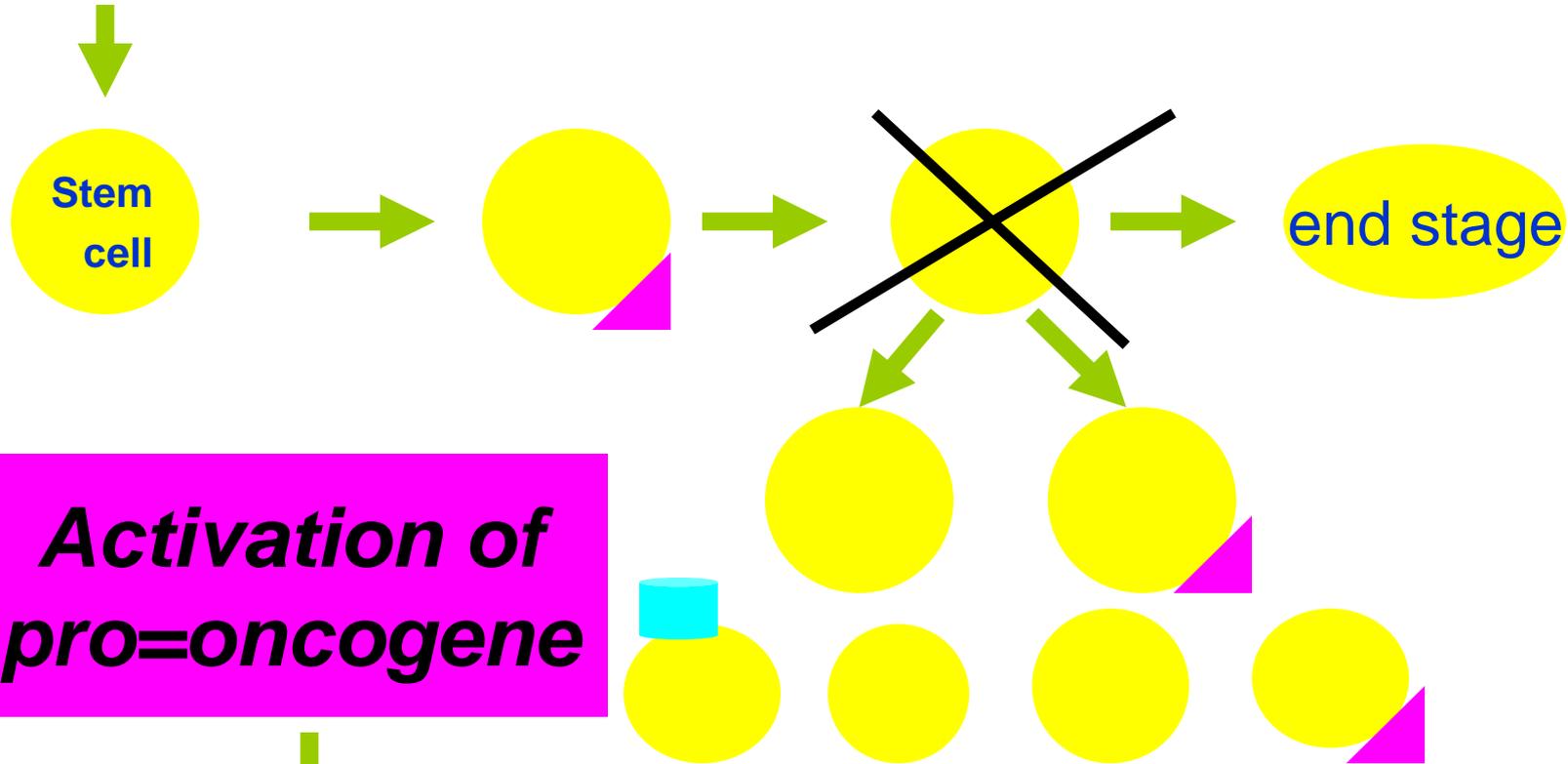
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**Karkinos** was used for any non-healing swelling or ulcerous formation, even hemorrhoids, ***karkinoma*** was reserved for non-healing “cancer.”



**What causes cancer?**

# Development of Malignant Disease



***Activation of  
pro=oncogene***

***Genetic mutation***

***Cell Arrest & clonal  
expansion***

# What causes cancer?

Cancer arises from the **mutation** of a normal gene.

Mutated genes that cause cancer are called **oncogenes**.

# Causes of Cancer

- **DNA Mutations** •
  - Radiation – and other environmental factors •  
(Tobacco, Alcohol, Radon, Asbestos, etc)
  - Random somatic mutations •
  - Inherited germ line mutations •

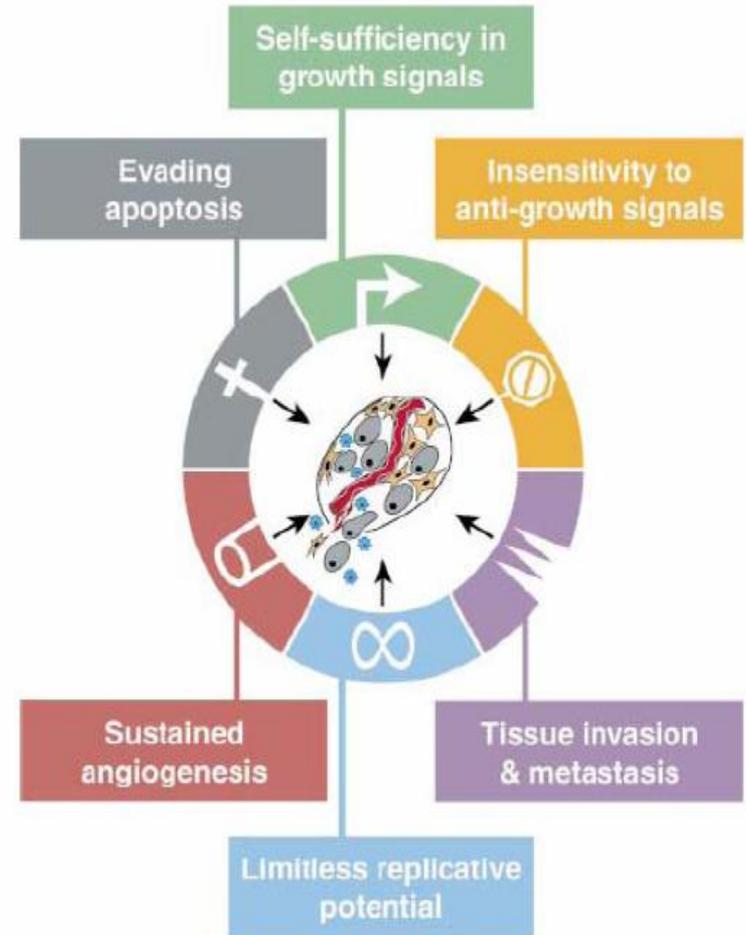
# Causes of Cancer

- **Genetic predisposition-** •
  - Rb, p53, APC, CDKN2A, BRCA1, BRCA2 •
- **Infectious agents** •
  - **Viral** •
    - HPV – cervical cancer •
    - Hepatitis – liver cancer •
  - **Bacterial** •
    - *H. pylori* – stomach cancer •
    - EBV* - Lymphoma •

## Hallmarks of Cancer

- Summarized by Hanahan and Weinberg (2000)
- Six changes for cancer – found in most, if not all

- 1– Self-sufficiency in growth signals •
  - 2– Insensitivity to growth-inhibitory signals •
  - 3– Absence of apoptosis •
  - 4– Limitless proliferative capacity •
  - 5– Sustained angiogenesis •
  - 6– Tissue invasion and metastasis •
- metastasis



# If you decided to be an oncologist What should you know?

- 1-When to suspect cancer?
- 2-How to diagnose cancer?
- 3-What the essential work up for staging?
- 4-How to treat cancer?
- 5-What is the prognosis of your patient?

# 1- When to suspect cancer?

## Cancer Signs and Symptoms

-Cancer gives most people no symptoms or signs that exclusively indicate the disease.

-Unfortunately, every complaint or symptom of cancer can be explained by a harmless condition as well.

# 1- When to suspect cancer?

## **Cancer Signs and Symptoms**

**What are the clues???????**

**-Persistent**

**-Progressive**

**-Disabling**

# Cancer Signs and Symptoms

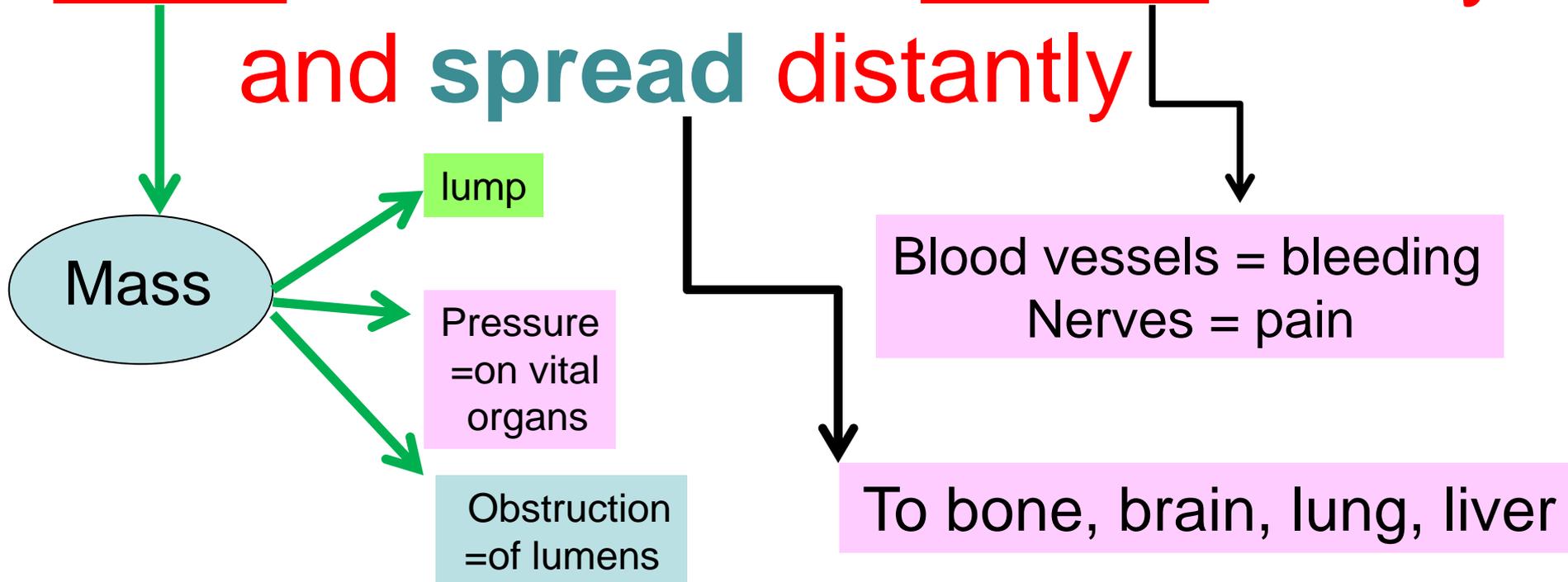
What are the clues???????

- Symptoms & Signs

changes according to the  
site of origin

# Cancer Signs and Symptoms

Think about the pathology and site:  
- Mass that is able to invade locally  
and spread distantly

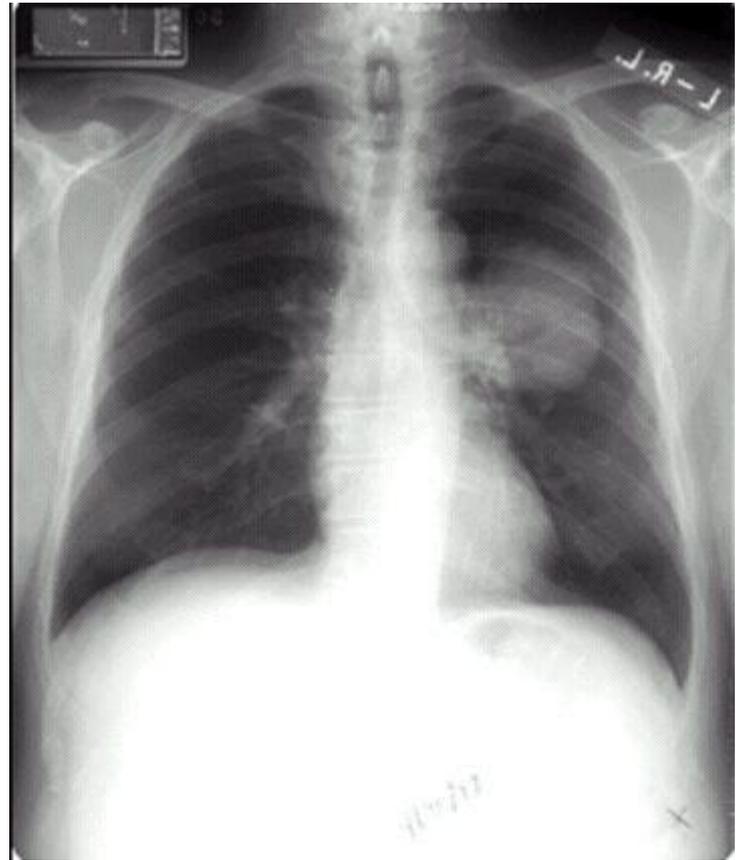


# Cancer Signs and Symptoms

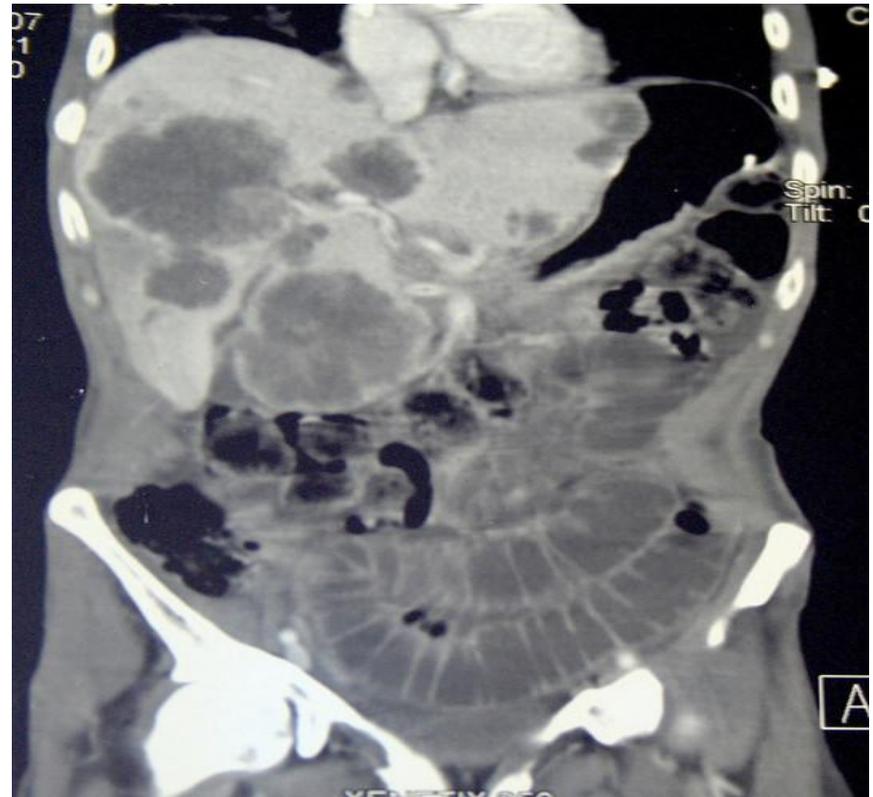
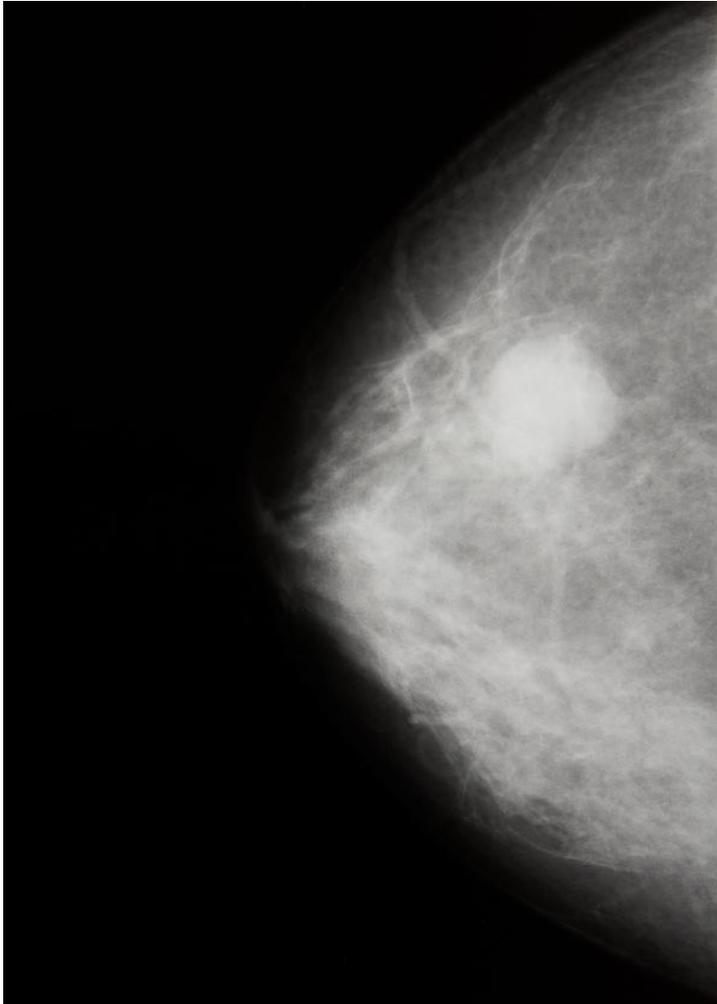
**Do not forge**t the constitutional symptoms:

- Fatigue
- Fever
- Sweating
- Wt loss

## 2- How to diagnose cancer?



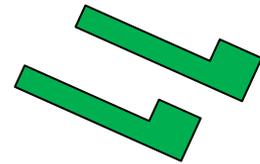
## 2- How to diagnose cancer?



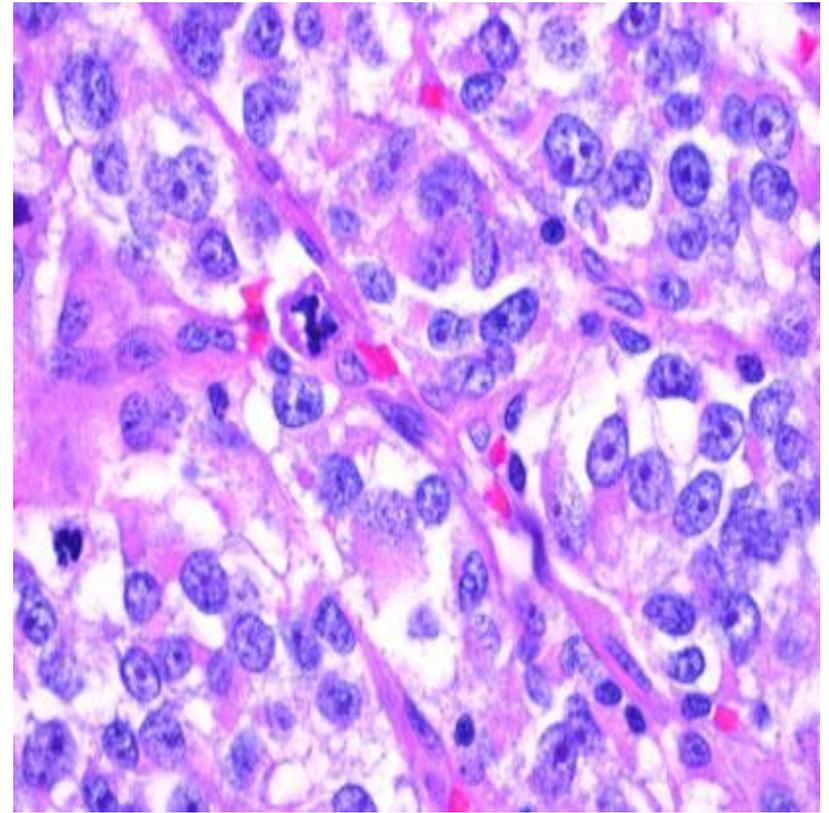
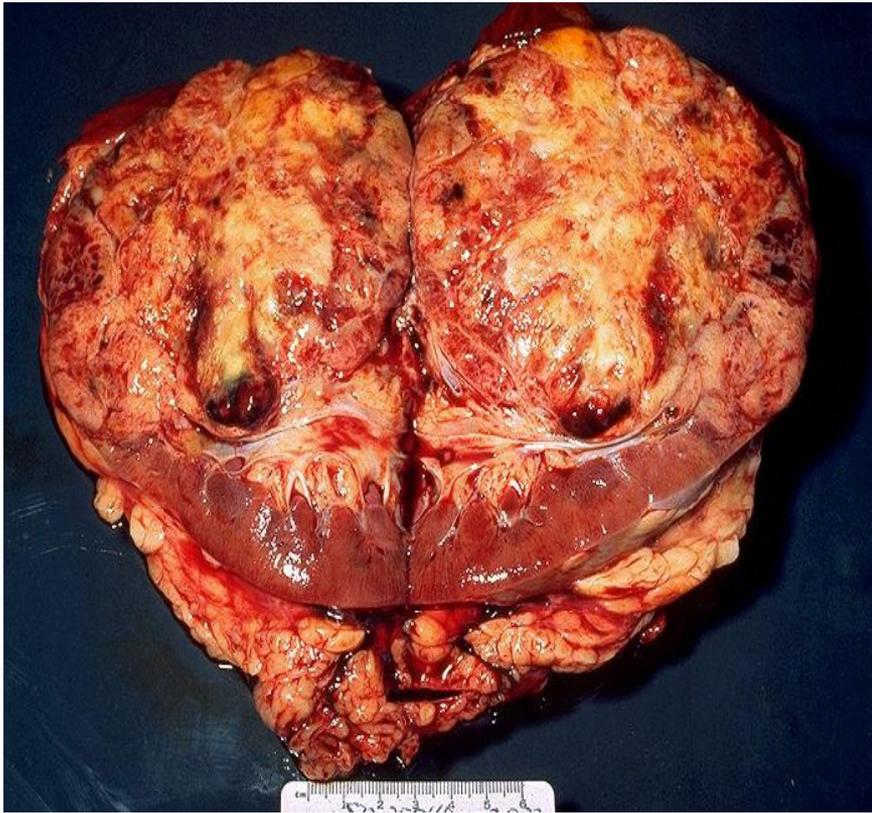
## 2- How to diagnose cancer?

### CANCER DIAGNOSIS

- IS **NOT** A CLINICAL DIAGNOSIS **X**
- IT IS **NOT** A RADIOLOGICAL DIAGNOSIS **X**
- IT IS **NOT** SEROLOGICAL DGNOSIS **X**
- IT IS A **PATHOLOGICAL** DIAGNOSIS
- IT IS A **TISSUE** DIAGNOSIS-



# GROSS AND MICROSCOPIC PICTURE OF RCC

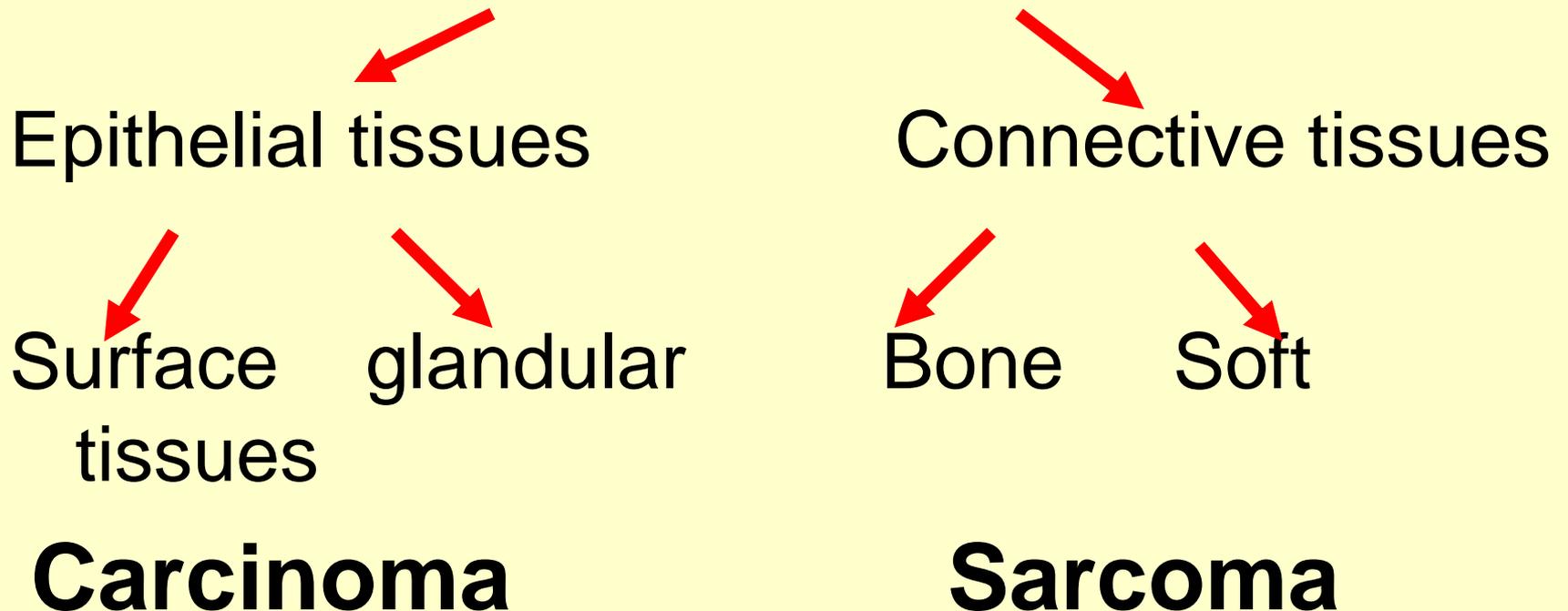


# Categories of malignant disorders

- Liquid malignancies
  - 1-Myeloproliferative disorders= leukemia
  - 2-lymphoproliferative disorders= leukemia
- Solid malignancies

# Categories of malignant disorders

## Solid malignancies



# 3- What the essential work up for staging?

**T**= tumor

**N**= Node

**M**= Metastases

**- RADIOLOGY:**

XRAY

MRI

CT

US

**SURGICAL STAGING**

**Clinical TNM**

**Radiological TNM**

**Pathological TNM**

## 4- How to treat cancer?

# Types of oncology problems

```
graph TD; A[Types of oncology problems] --> B[Patient with Suspected Cancer diagnosis]; A --> C[Patient with Established Cancer diagnosis];
```

Patient with  
Suspected  
Cancer diagnosis

Patient with  
Established  
Cancer diagnosis

**Patient with  
Established  
Cancer diagnosis**



**Answer the following questions:  
1-Does the patient have cancer?  
2-What type of cancer?  
3-What stage of cancer?**

# Management Multidisciplinary

**SURGERY**

**RADIATION**

**MEDICAL ONC**

- **Other Disciplines.**  
Radiology, Pathology, Lab
- **Combined clinics**
- **Tumor board**

# Types of oncology problems

Patient with Suspected Cancer diagnosis

Patient with Established Cancer diagnosis

- Define the type
- Define the stage

**Management**

**MANAGEMENT**

```
graph TD; A[MANAGEMENT] --> B[DETERMINE THE TREATMENT OBJECTIVE?]; B --> C[CURATIVE]; B --> D[PALLIATIVE];
```

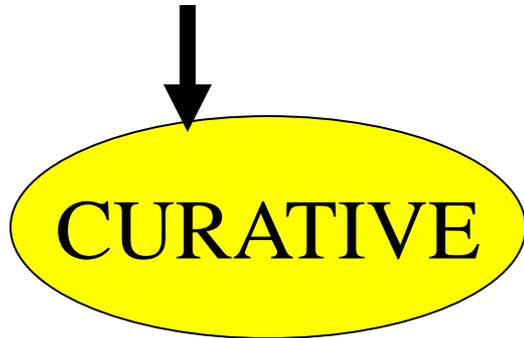


**DETERMINE THE TREATMENT OBJECTIVE?**

**CURATIVE**

**PALLIATIVE**

TREATMENT MODALITIES



THERAPY:  
Aggressive, Expensive, recent,  
updated, complex,

TOXICITY:  
LONG TERM , IRREVERSIBLE

TREATMENT MODALITIES

PALLIATIVE

Treatment :Simplest , Avoid  
hospitalization , Availability

Least toxic

TOXICITY:  
SHORT TERM , ACUTE, QUALITY OF LIFE

# Different Treatment Modalities

- Local therapy = Surgery & RTH
- Systemic therapy = Cth  
Hormones  
Biologicals

# Categories of malignant disorders

- Liquid malignancies
  - 1-Myeloproliferative disorders= leukemia
  - 2-lymphoproliferative disorders= lymphoma

## **Systemic therapy**

- Solid malignancies

## **According to stage**

# General Staging of solid malignancies

**Early**

**Locally  
Advanced**

**Metastatic**

**local  
+/- Systemic**

**■ local  
& Systemic**

**Systemic  
+/- Local**

## 5-What is the prognosis of your patient?

What can medicine offer the cancer patient?

- 1-The cancer type & extent ( stage)
- 2-The host factors (age , sex ,  
co morbidities)
- 3- The available tools

## 5-What is the prognosis of your patient?

### **1- Tumors that can be cured:**

lymphomas, leukemia, early solid tumors

### **2- Tumors that can have prolonged survival:**

Locally advanced and some of the metastatic tumors

### **3- Tumors that can be palliated:**

Metastatic solid tumors

**THANK YOU**

