

Introduction To Cancer Diagnosis & Treatment

By
Prof A Abd El-Warith

Feb 2012

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

scienceblog.cancerresearchuk.org

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)

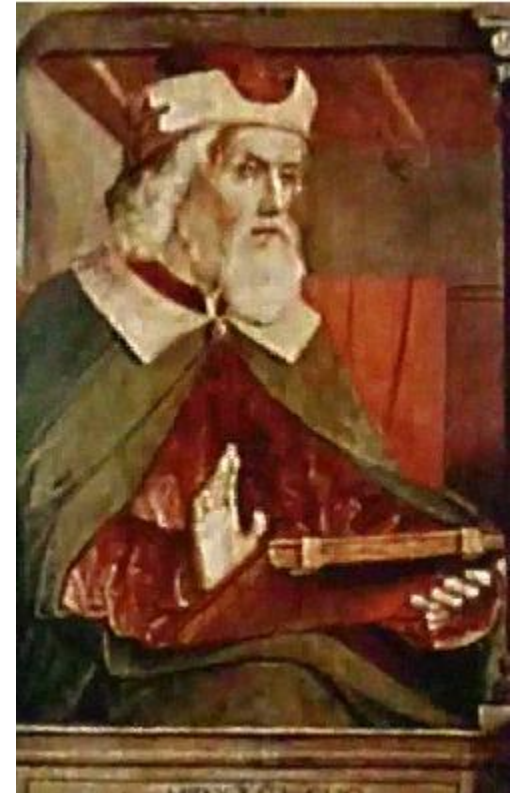
Cancer appears in medical history as early as 1600 BC in the Edwin Smith papyrus, where the oldest description of the illness exists.



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)

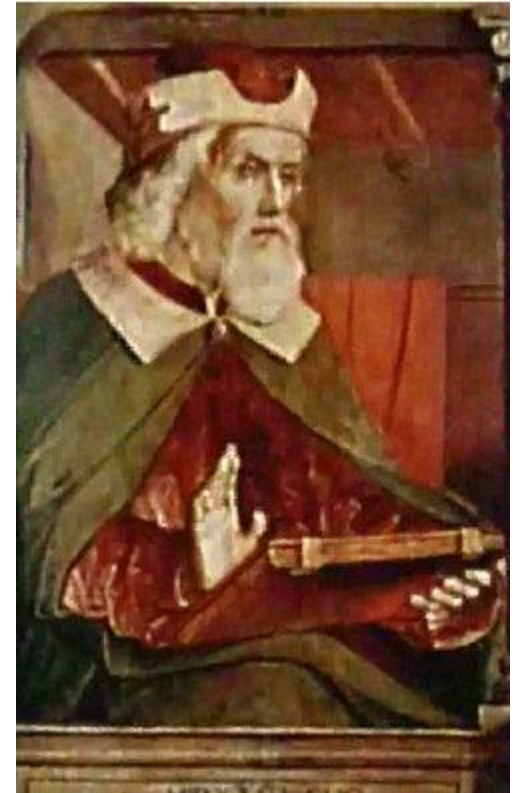
The origin of the word “cancer” is credited to the Hippocratic physicians, who used the terms *karkinos* and *karkinoma*



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

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

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



What causes cancer?

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** •

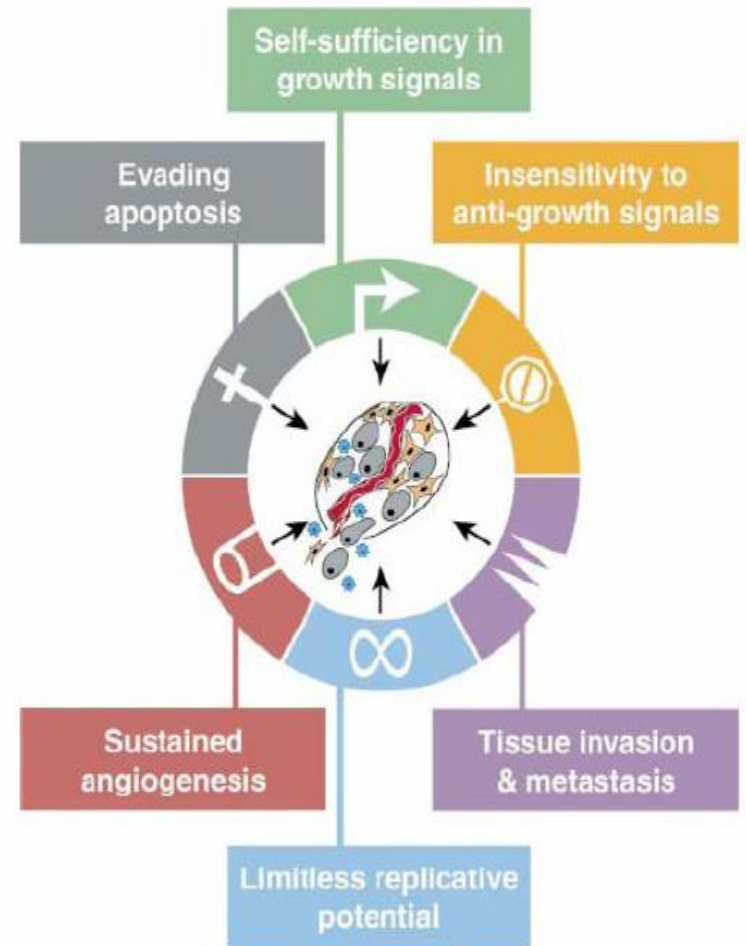
- *H. pylori* – stomach cancer •

- 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

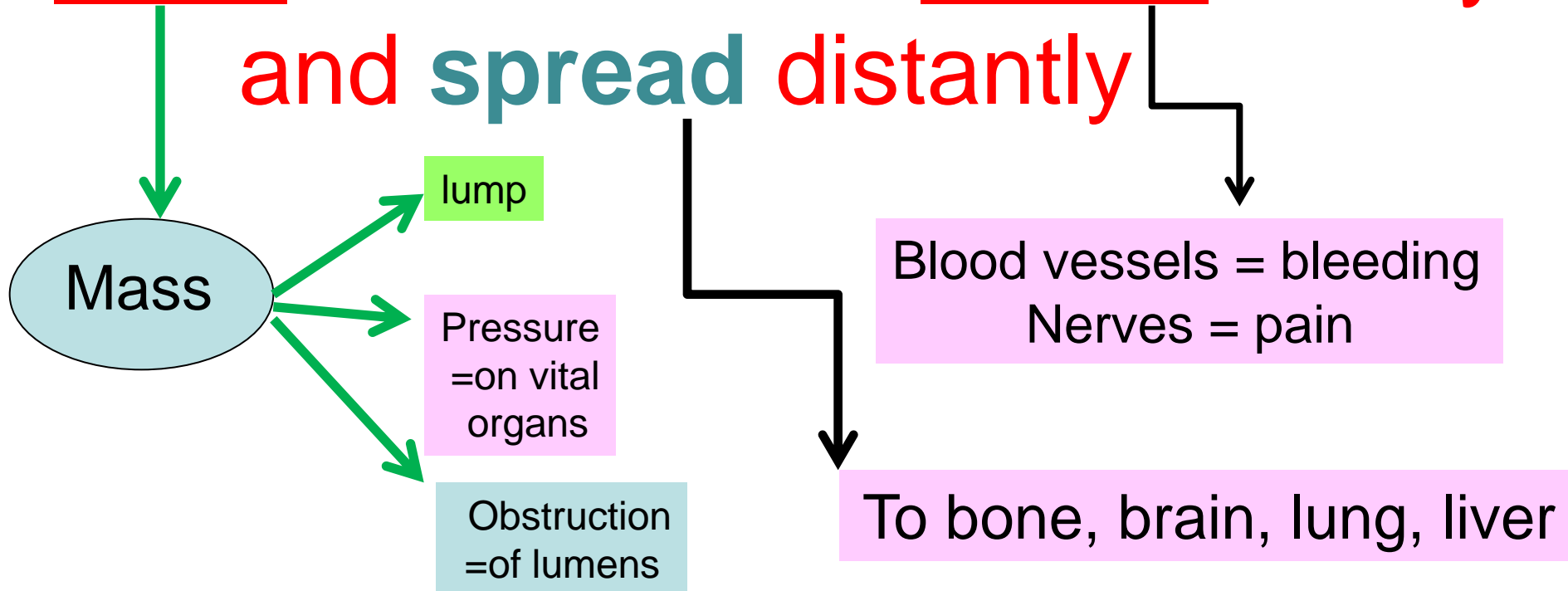
What are the clues???????

- 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

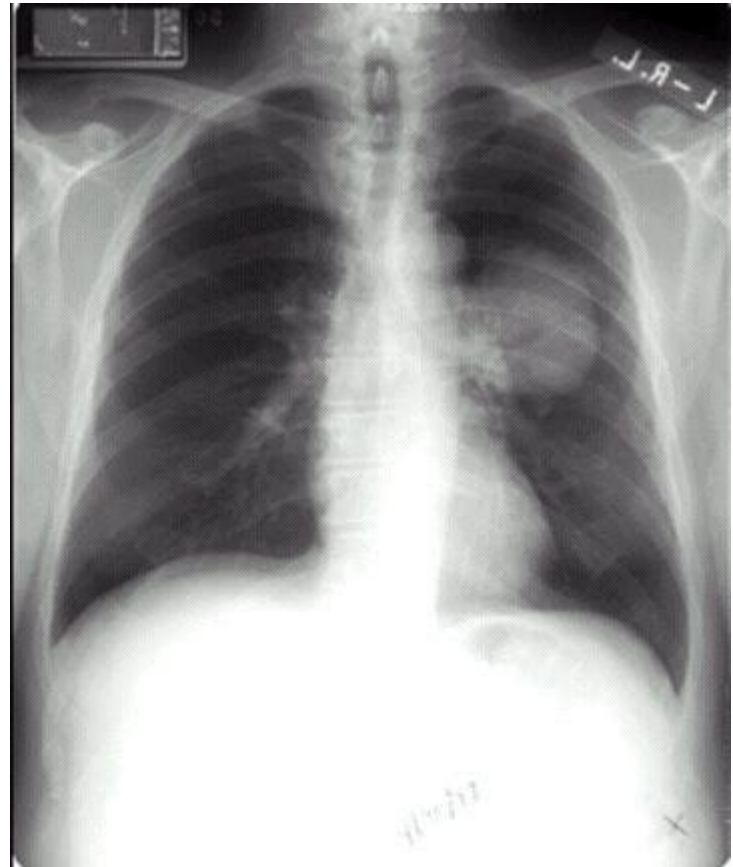


Cancer Signs and Symptoms

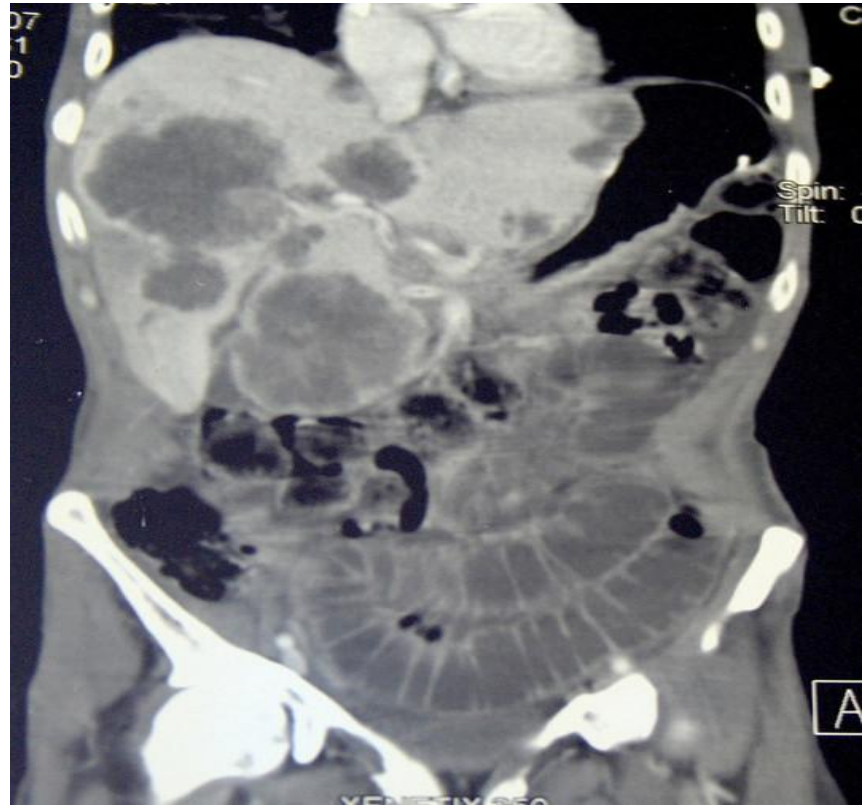
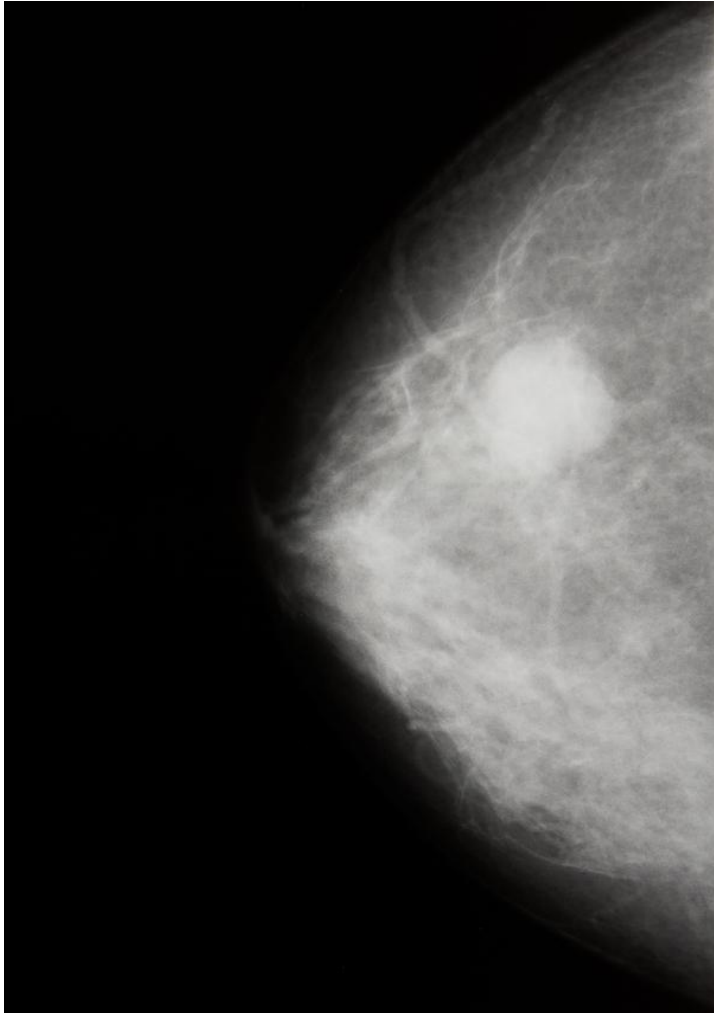
Do not forget the constitutional symptoms:

- Fatigue
- Fever
- Sweating
- Wt loss

2- How to diagnose cancer?



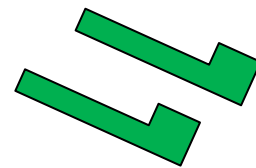
2- How to diagnose cancer?



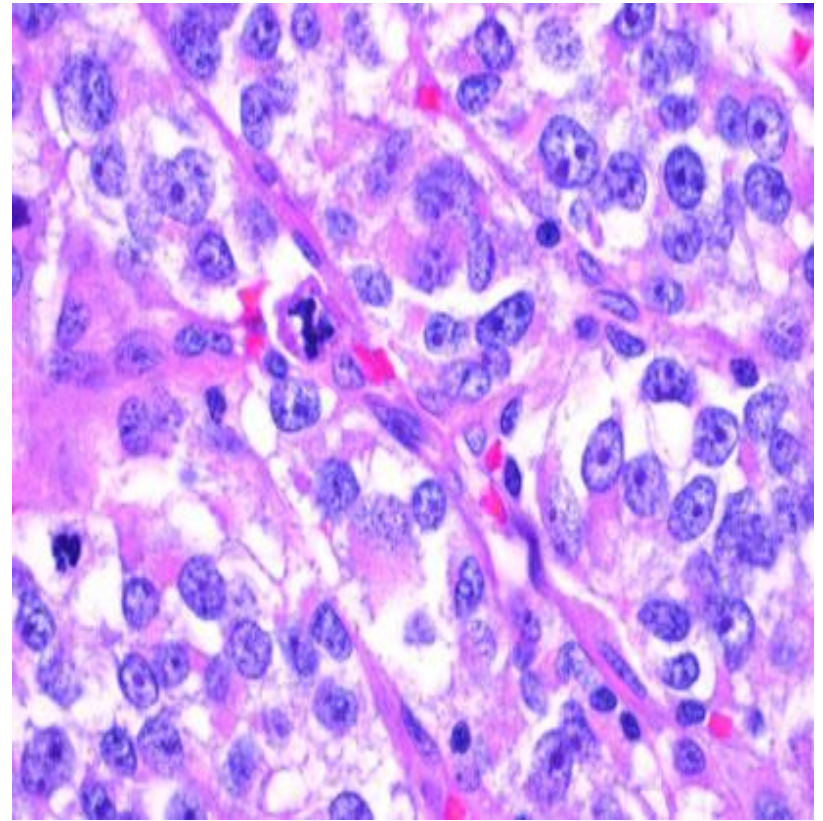
2- How to diagnose cancer?

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

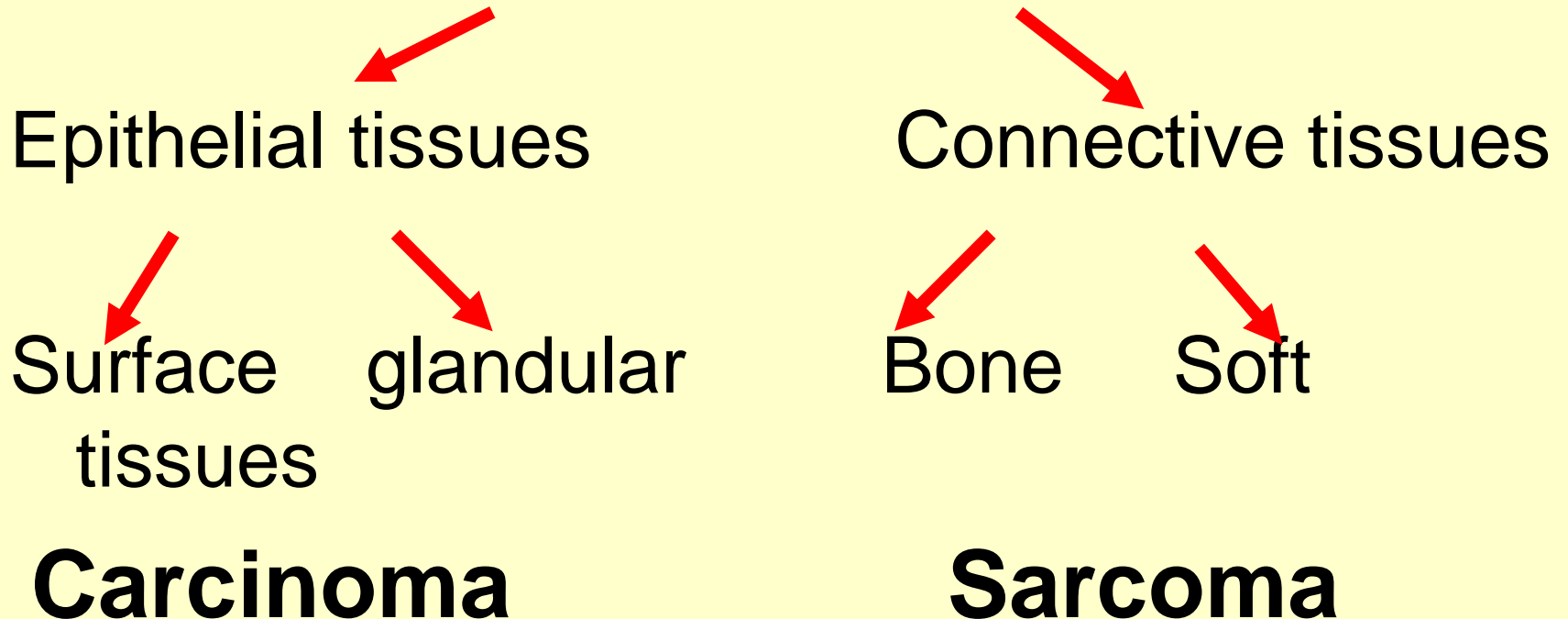


Categories of malignant disorders

- 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

```
graph TD; A[Types of oncology problems] --> B[Patient with Suspected Cancer diagnosis]; A --> C[Patient with Established Cancer diagnosis]; B --> C; C --> D["-Define the type<br/>-Define the stage"]; C --> E[Management];
```

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

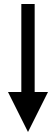


CURATIVE



THERAPY:

Aggressive, Expensive, recent,
updated, complex,



TOXICITY:

LONG TERM , IRREVERSIBLE

TREATMENT MODALITIES

```
graph TD; A[TREATMENT MODALITIES] --> B(PALLIATIVE); B --> C[Treatment :Simplest , Avoid hospitalization , Availability<br/>Least toxic]; B --> D[TOXICITY:<br/>SHORT TERM , ACUTE, QUALITY OF LIFE];
```

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

