HEMATOGENOUS SPREAD.

- Blood born metastasis involves mainly veins than arteries.
- Liver and lungs are frequently involved.
- Portal area drainage flows to LIVER and all caval blood flows to LUNG.
- RCC invades renal veins in snake like fashion into right side of heart through inferior vena cava.

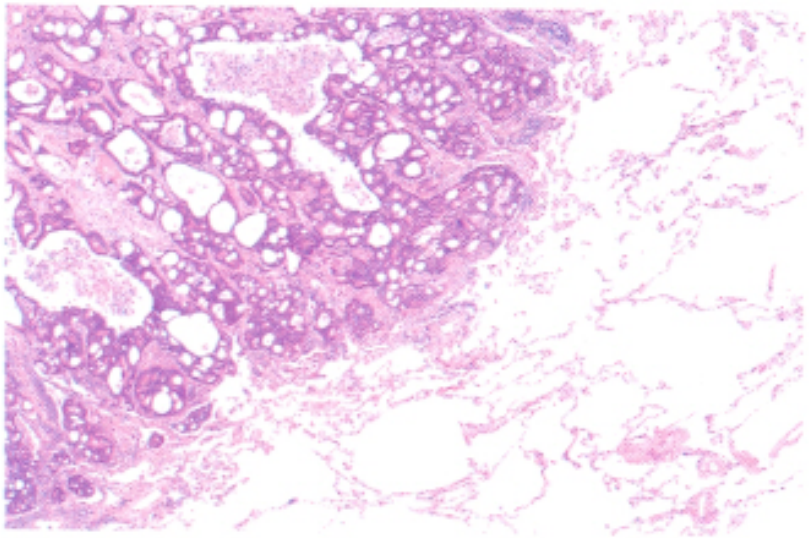
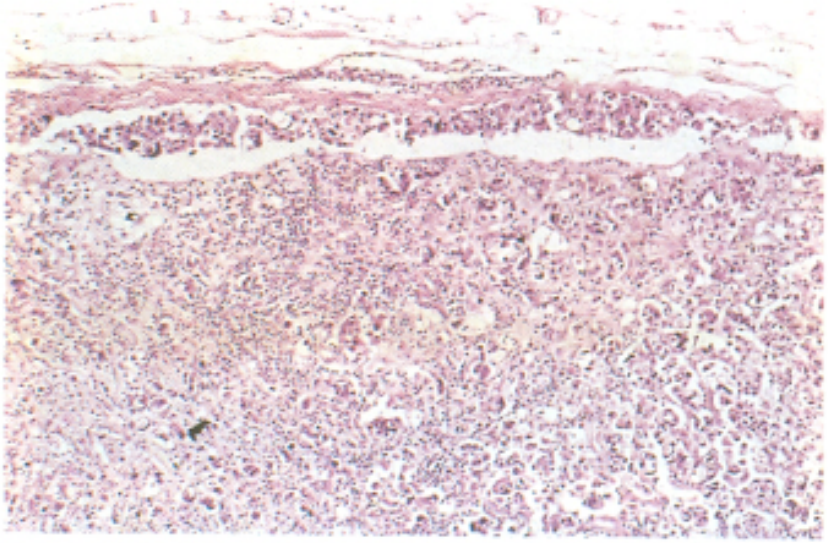


FIGURE 7–18 Colon carcinoma invading pericolonic adipose

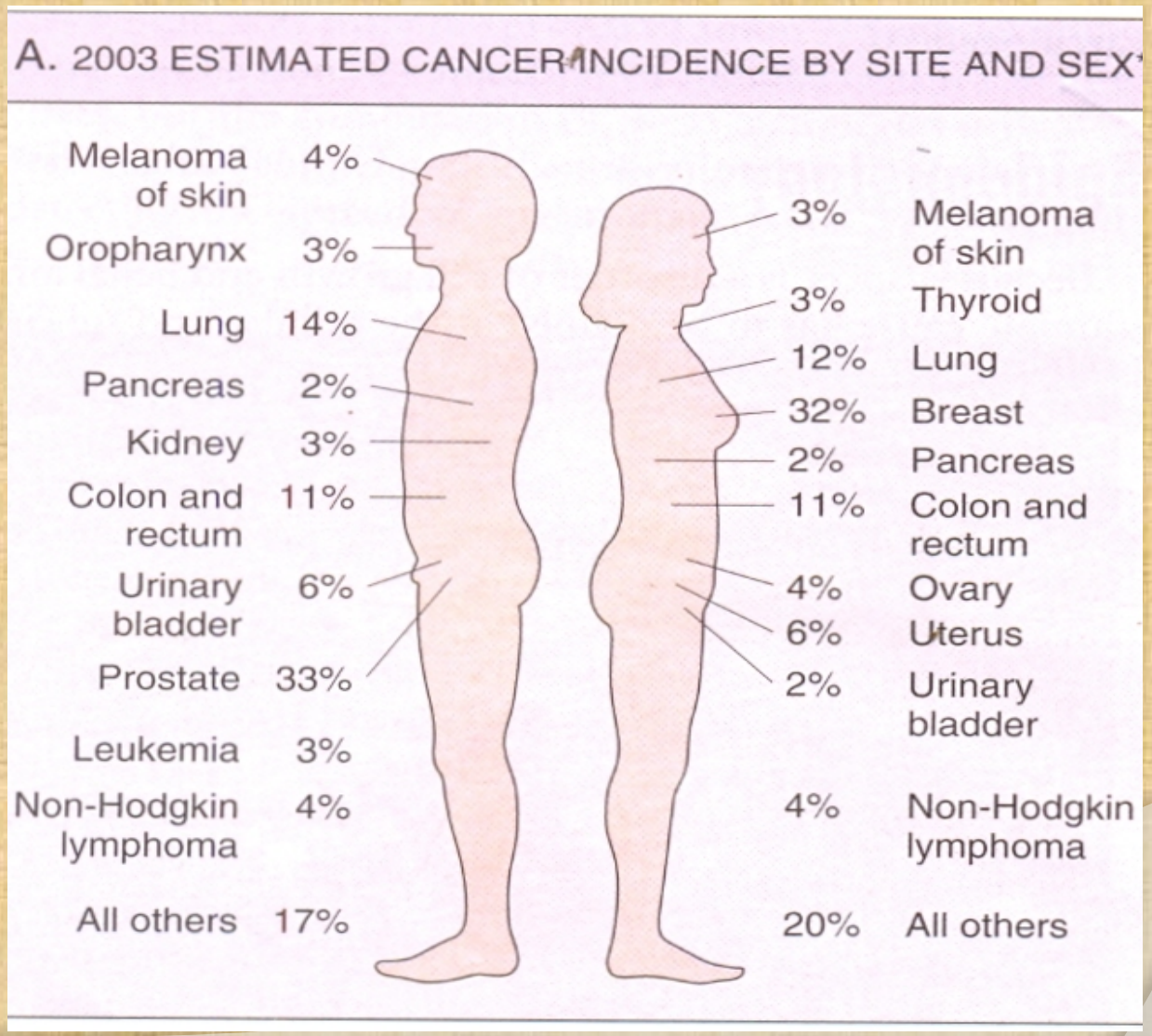


EPIDEMIOLOGY OF NEOPLASMS

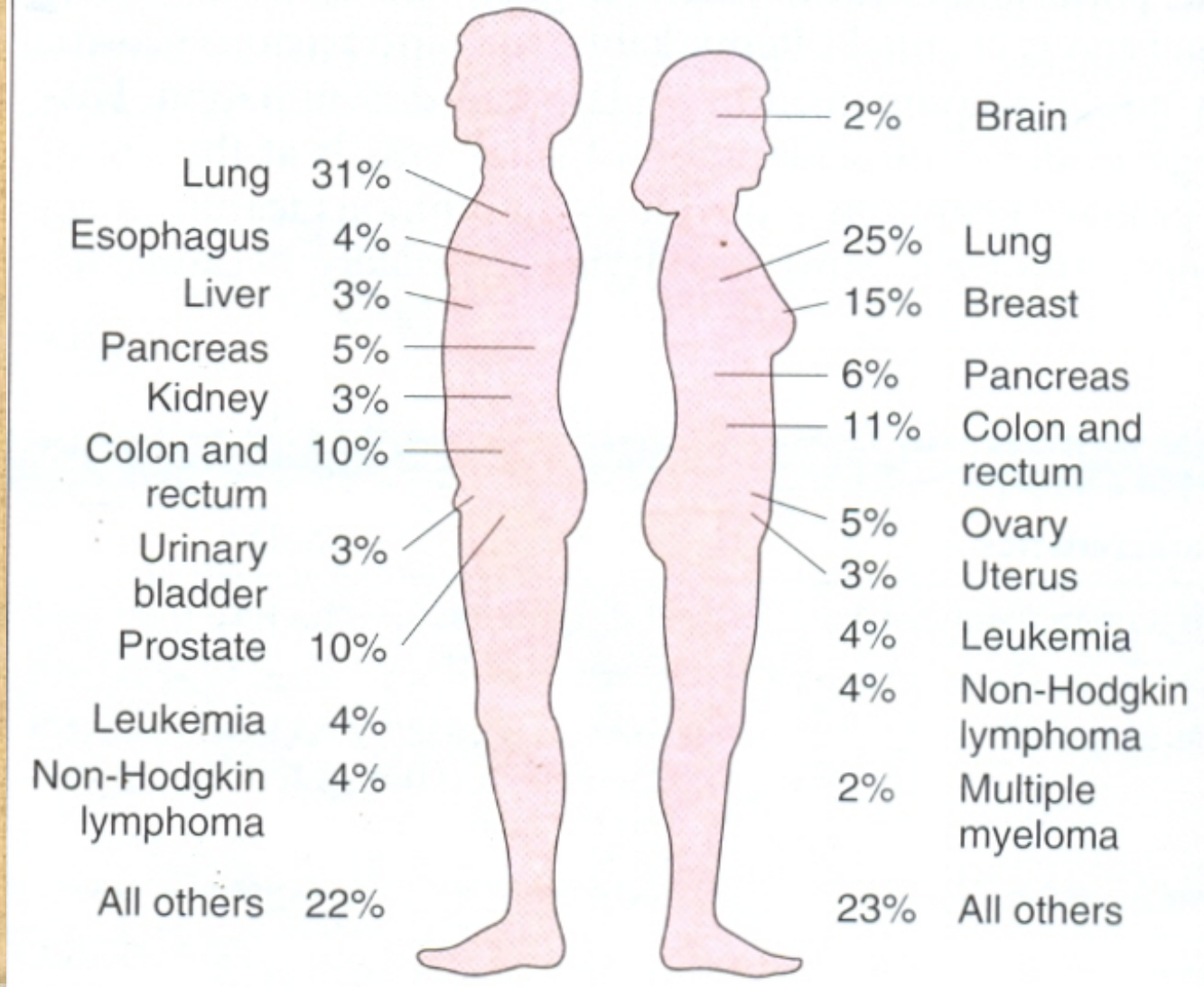
- Study of relationship of various factors determining the incidence & distribution of disease

EPIDEMIOLOGY

Cancer incidence.



B. 2003 ESTIMATED CANCER DEATHS BY SITE AND SEX*



GEOGRAPHIC AND ENVIRONMENTAL FACTORS

I. Age:

- More common after 55.
- Cancer is main cause of death in females from 40 to 79 and among male 60 to 79.
- Age < 15 is not spared and 10% of all death fall in this group e.g., common neoplasm of infancy are
  - Neuroblastoma
  - Wilms Tumor,
  - Retinoblastoma,
  - Acute leukemias,
  - Rhabdomyosarcomas.

OCCUPATIONAL CANCERS

- Arsenic & related comp-------CA lung,Skin
- Asbestose ----------Mesothelioma GIT,Lung
- Benzene ----------Leukemia, HL
- Beryllium----------Lung
- Cadmium----------Prostate
- Ghromium----------Lung
- Nickle comp----------Nose, Lung
- Radiation----------Lung
- Vinyl Chloride----------Angiosarcoma, Liver

II GENETIC PREDISPOSITION

- RB ---------- Retinoblastoma
- P53 ---------- Li-Fraumeni syndrome
- P16/INK4A ---------- Melanoma
- APC ---------- Familial ad. polyposis coli
- NF1, NF2 ---------- Neurofibromatosis 1 & 2
- BRCA1,BRCA2 ------- Breast & ovarian tumors

III. NONHEREDITARY PREDISPOSING CONDITIONS

1. Ch. Inflammation

- In the setting of unresolved ch inf. Immune response may become maladoptive, promoting tumorigenesis
- Ch inf may increase pool of tissue stem cells which becomes subject to effect of mutagens

2. Precancerous conditions

Ch atrophic gastritis, U.C, leukoplakia

- A 32 yrs old woman has experienced dull pelvic pain for the past 2 months. Physical exam. Shows a Rt. adenexal mass. An abd. USG shows a 7.5 cm cystic ovarian mass. Mass is excised. Surface of mass is smooth & it is non adherent to surrounding pelvic structures. On gross exam. Mass is cystic & filled with hair. Microscopically, sq. epith, tall columnar glandular epith, cartilage & fibrous C.T are present. Which of the following is most likely diagnosis?

- (a) Adenocarcinoma
- (b) Fibroadenoma
- (c) Glioma
- (d) Hamartoma
- (e) Mesothelioma
- (f) Teratoma

- A 60 yrs old man comes to his physician b/c he has noted a mass in his neck that has increased rapidly in size over past 2 months. On physical exam, a firm, non tender, 10 cm mass in Lt. lateral posterior neck that appears to be fused to cervical L.N is palpated. Biopsy performed & on microscopic exam, it shows abnormal lymphoid cells with many mitotic figures & many apoptotic nuclei. Pt treated with cell-cycle acting chemotherapeutic agents. Masses shrink over next month. Based on history & treatment, tumor cells have which of the following features:

- (a) Limited capacity to metastasize
- (b) Polyclonality
- (c) Poor vascularity
- (d) High growth fraction
- (e) Strong expression of tumor-antigens

- A 58 yr old woman has experienced feeling of fullness in neck for the past 3 months & she has noted a 3 Kg wt. loss. On physical exam, there is a firm, fixed mass in a 3×3 cm area. C.T scan shows solid mass in Rt. Lobe of thyroid gland. Biopsy performed & microscopic appearance is shown in figure. Which of the following terms best describes this neoplasms: