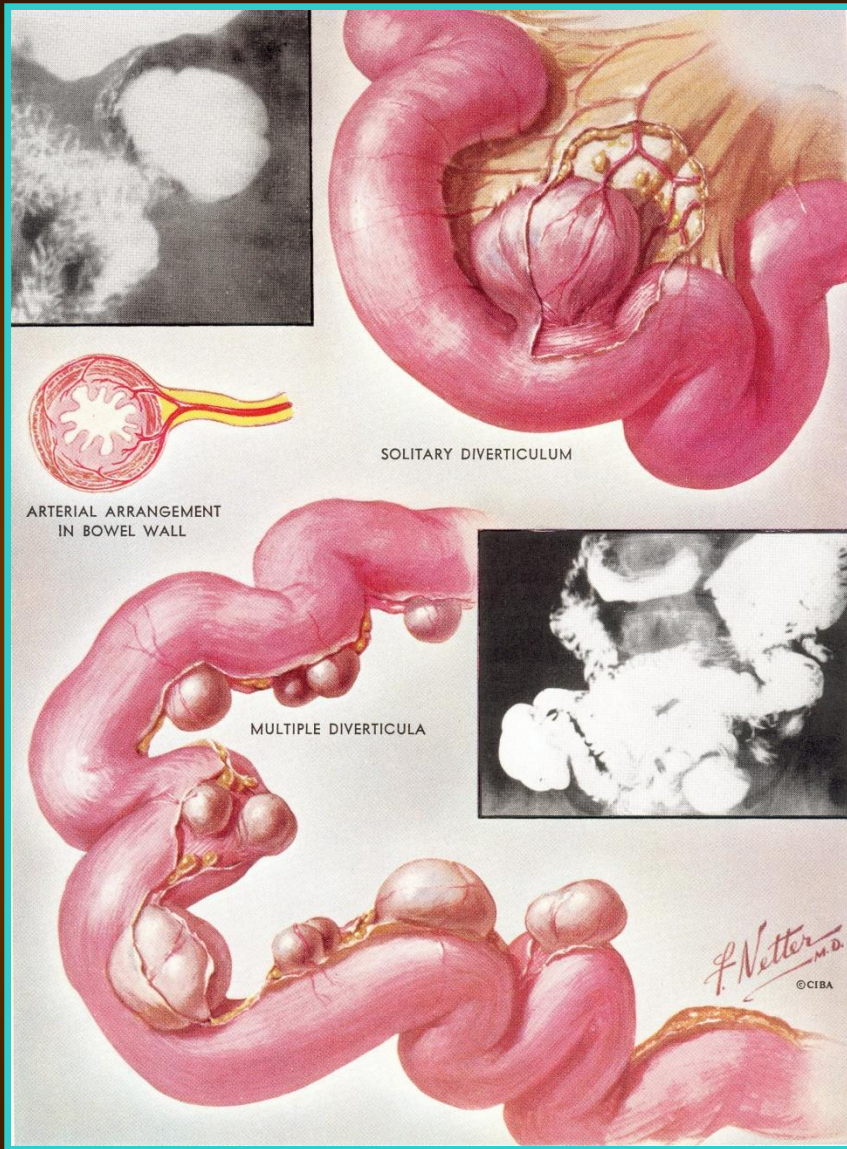


# LECTURE 15





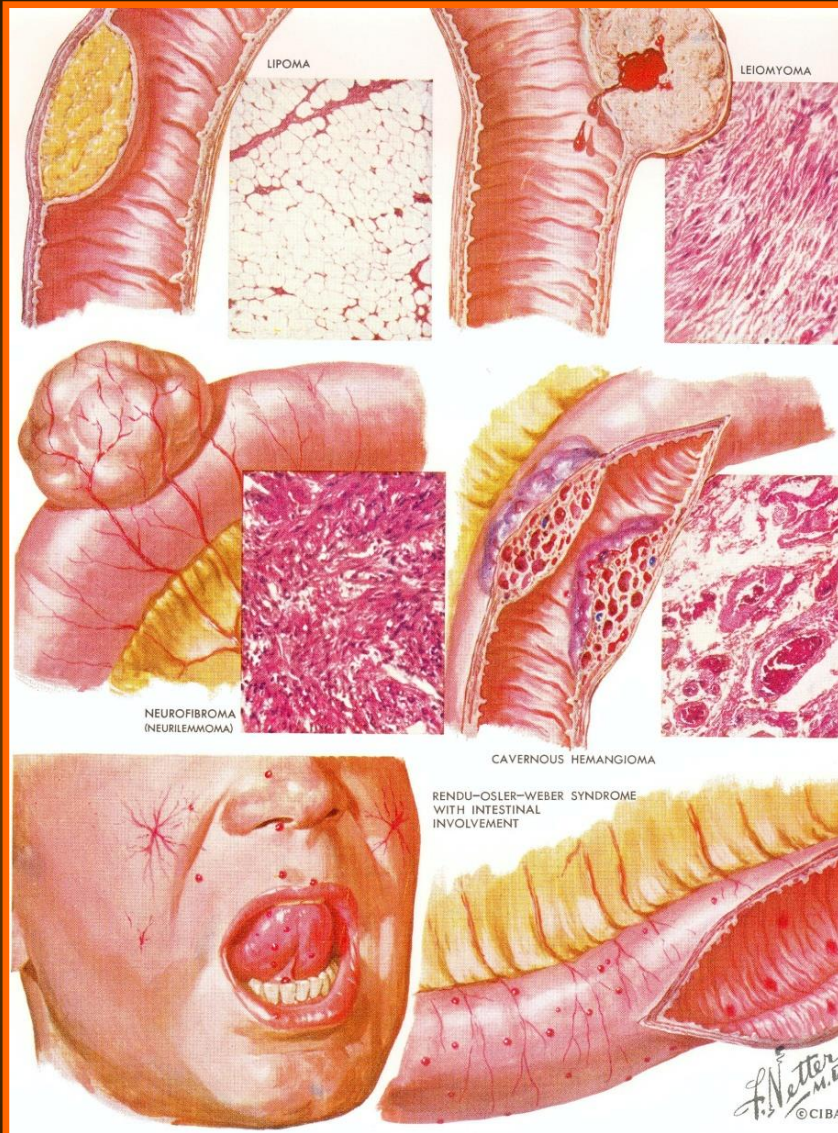
# DIVERTICULOSIS



**DIVERTICULUM OF THE SMALL INTESTINE IS RARE; COMMON IN THE LARGE INTESTINE**



# TUMORS OF INTESTINES



LEIOMYOMA OF STOMACH



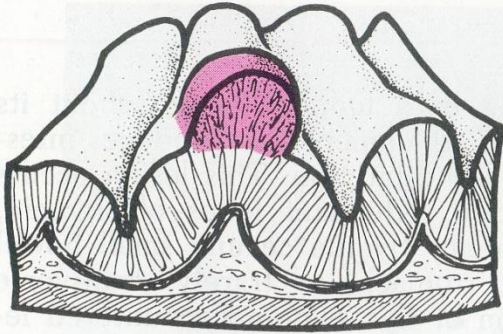
COLON LEIOMYOSARCOMA

**GIST – GASTROINTESTINAL STROMAL TUMORS – TUMORS DERIVED FROM STRUCTURES OF THE ALIMENTARY TRACT WALL (INTERSTITIAL CELLS OF CAJAL WHICH CONTROL PERISTALSIS).**

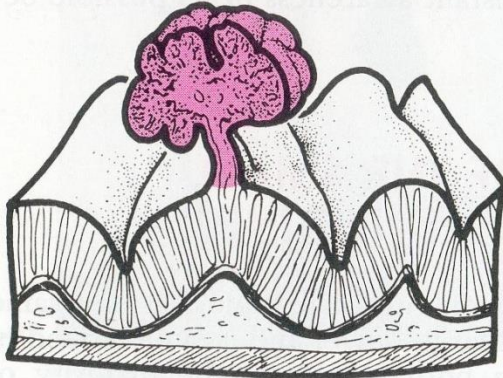


# EPITHELIAL TUMORS OF INTESTINES

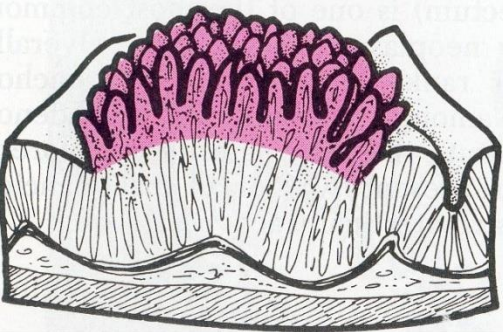
NAME „POLYP” DESCRIBES ONLY OUTER SHAPE OF LESION IN THE LUMEN OF ANY DUCT/CANAL AS WELL AS IN INTESTINES, BUT IT DOES NOT DESCRIBE THE HISTOLOGY OF THIS CHANGE.



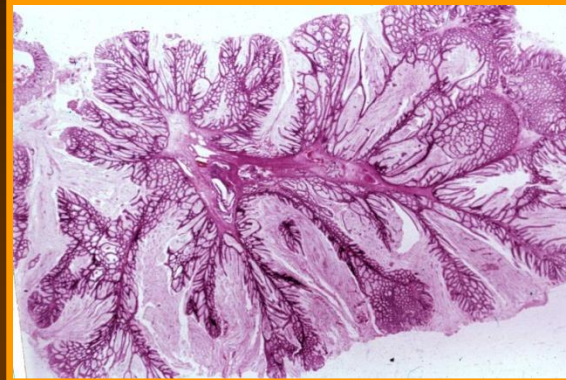
Hyperplastic polyp



Tubular adenoma



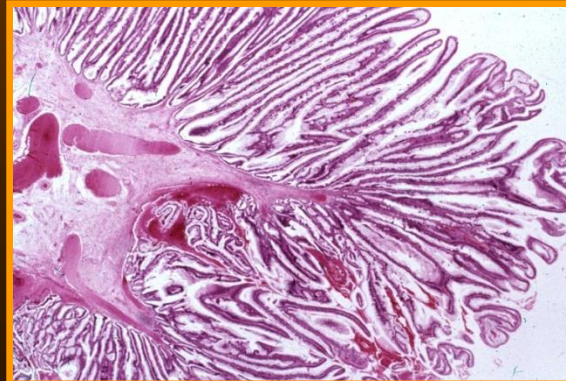
Villous adenoma



**HYPERPLASTIC POLYP**



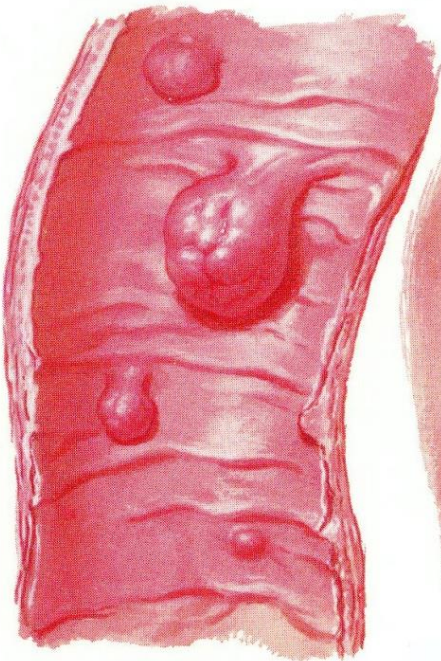
**TUBULAR ADENOMA**



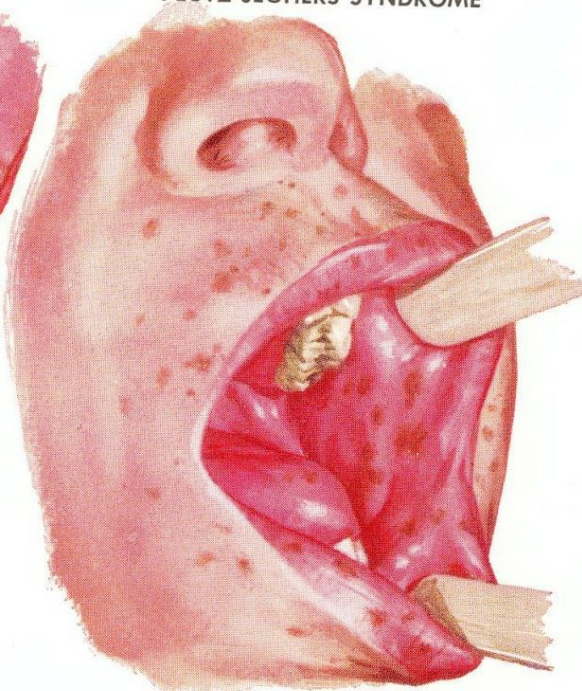
**VILLOUS ADENOMA**



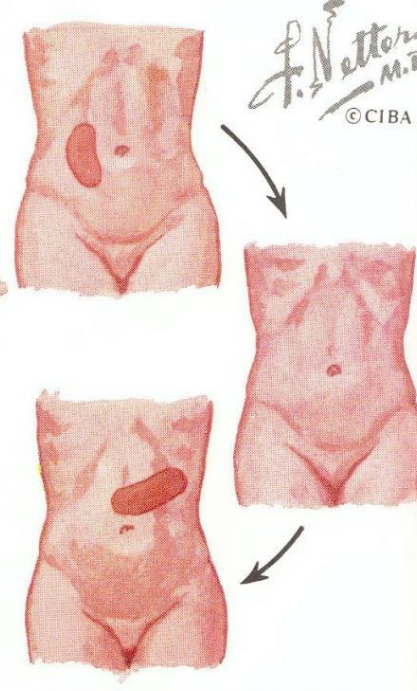
# PEUTZ-JEGHERS SYNDROME



POLYPOSIS OF SMALL INTESTINE



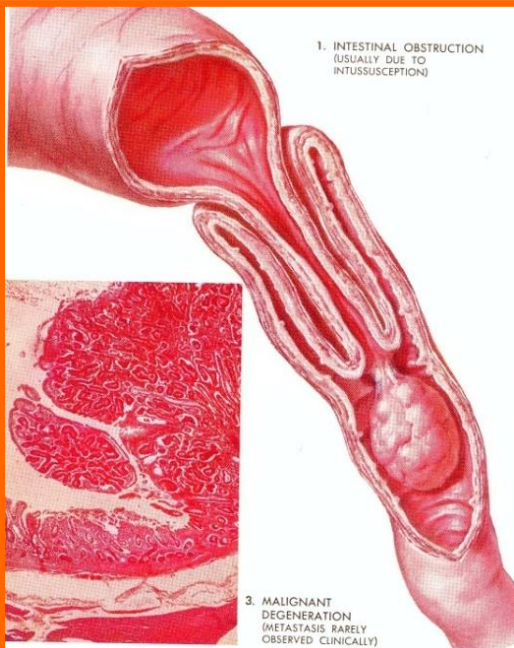
MUCOCUTANEOUS PIGMENTATION



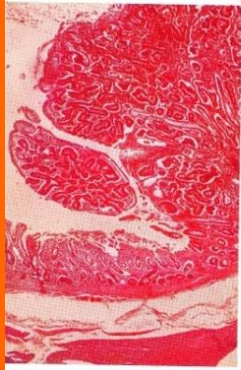
INTERMITTENT, MIGRATING MASS  
(DUE TO SELF-REDUCING INTUSSUSCEPTION)

*F. Netter M.D.*  
© CIBA

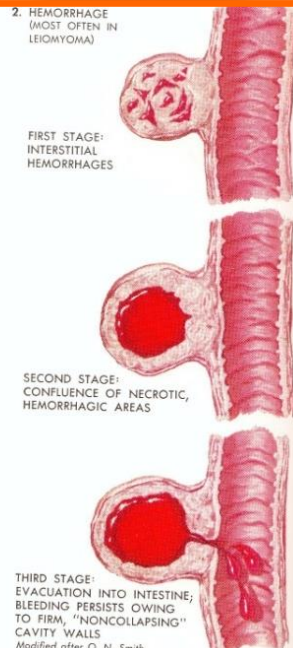
## PEUTZ – JEGHERS SYNDROME



1. INTESTINAL OBSTRUCTION  
(USUALLY DUE TO INTUSSUSCEPTION)



3. MALIGNANT DEGENERATION  
(METASTASIS RARELY OBSERVED CLINICALLY)



2. HEMORRHAGE  
(MOST OFTEN IN LEIOMYOMA)

FIRST STAGE:  
INTERSTITIAL  
HEMORRHAGES

SECOND STAGE:  
CONFLUENCE OF NECROTIC,  
HEMORRHAGIC AREAS

THIRD STAGE:  
EVACUATION INTO INTESTINE;  
BLEEDING PERSISTS OWING  
TO FIRM, "NONCOLLAPSING"  
CAVITY WALLS  
Modified after O. N. Smith

## COMPLICATIONS RELATED TO BENIGN TUMORS



SINGLE POLYP IN LARGE  
INTESTINE



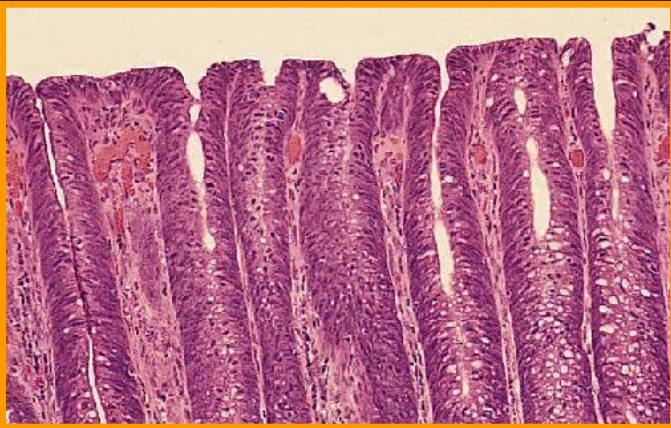
## POLYPS IN LARGE INTESTINE – MALIGNANT TRANSFORMATION



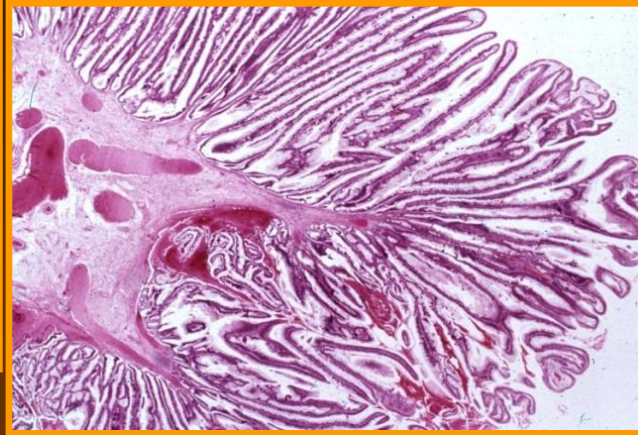
## NUMEROUS POLYPS IN THE LARGE INTESTINE



# ADENOMA OF INTESTINES – HISTOLOGICAL PICTURE



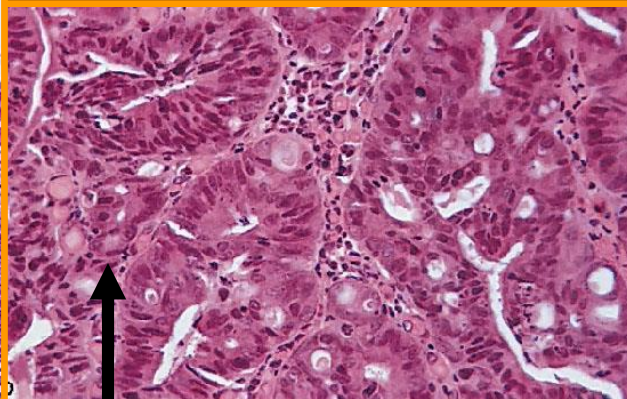
VILLOUS ADENOMA



VILLOUS ADENOMA



TUBULAR ADENOMA

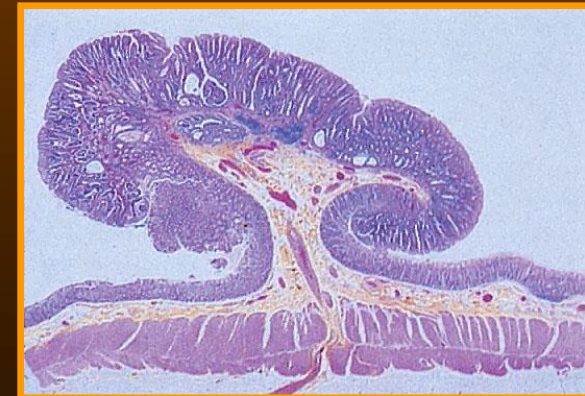


HIGH GRADE (CANCER?)  
DYSPLASIA IN  
ADENOMA

ADENOMA TUBULOVILLOSUM



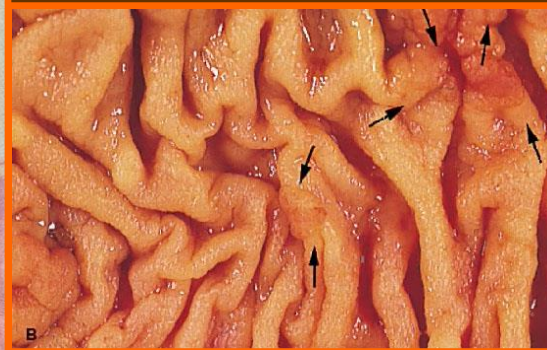
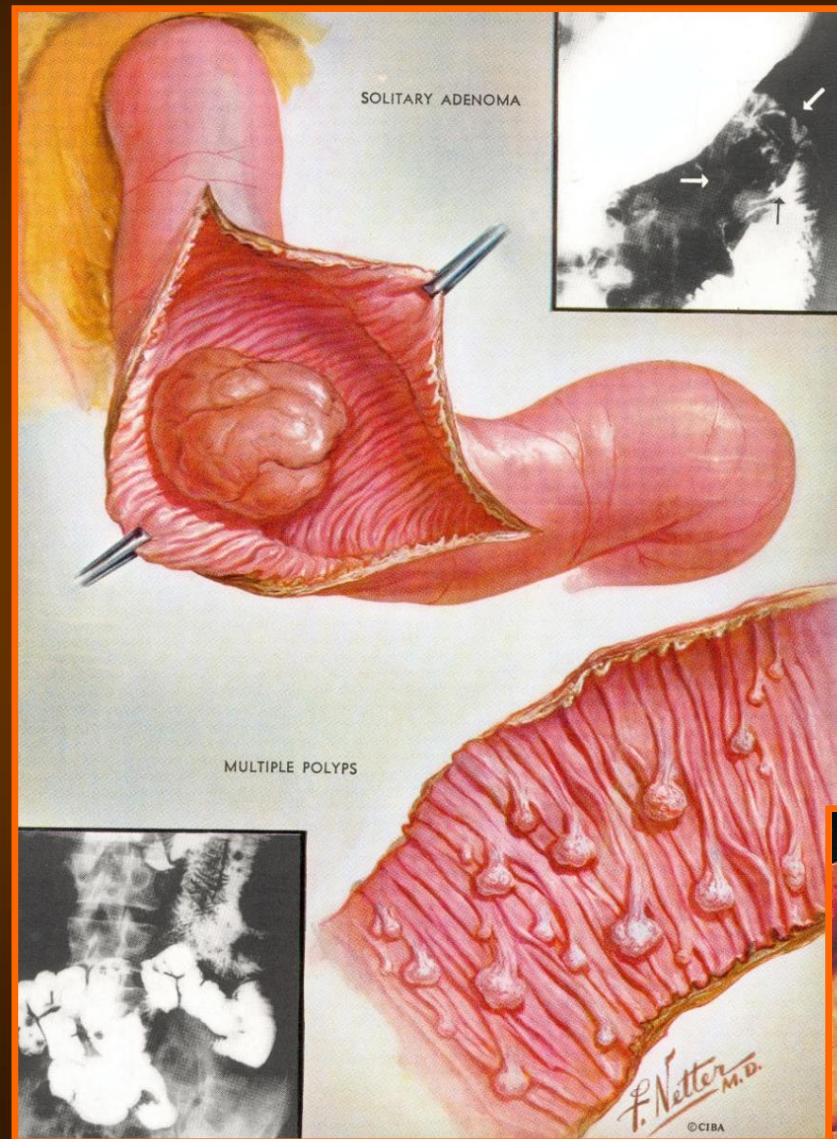
TUBULOVILLOUS ADENOMA





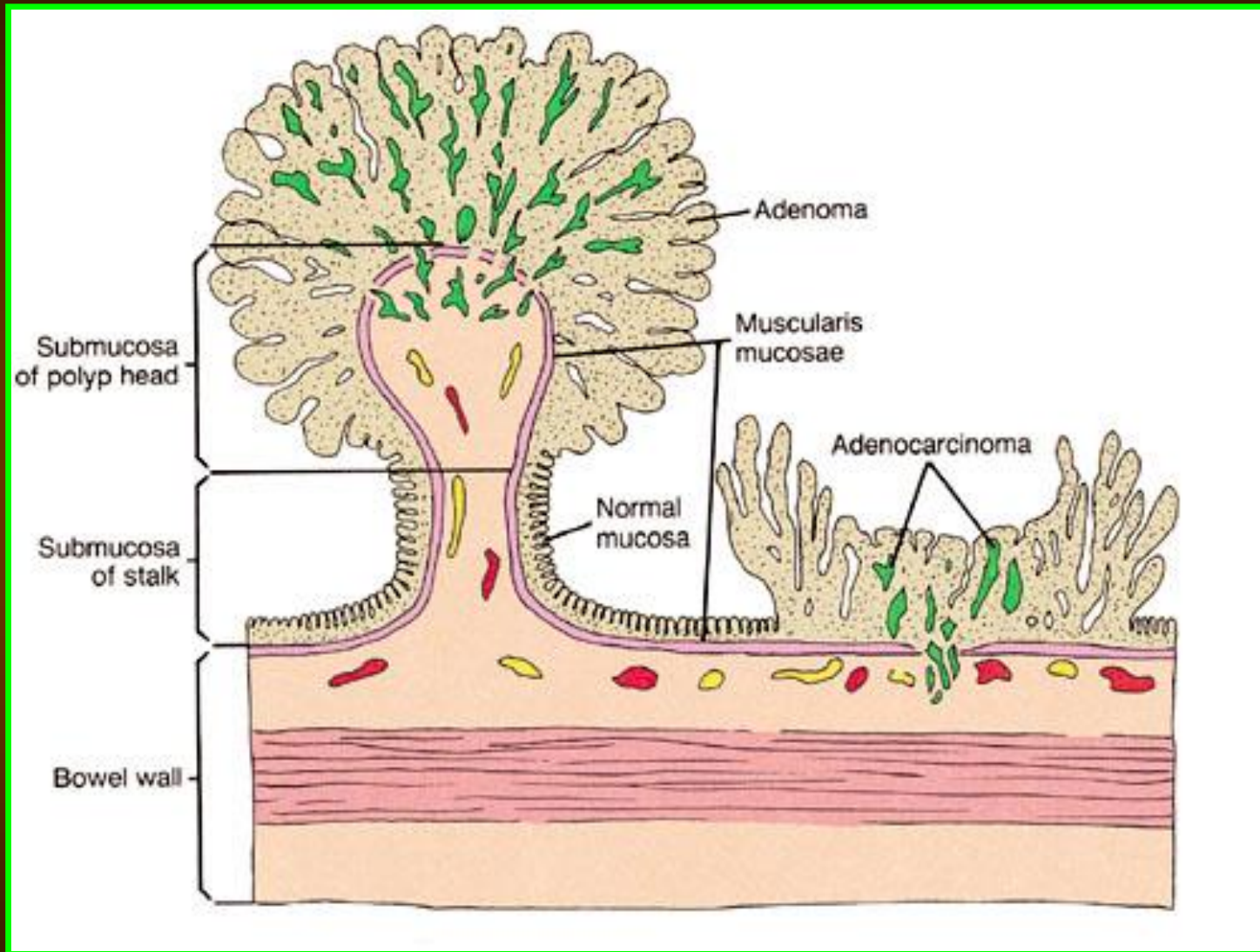
# ADENOMA OF INTESTINES

## DIFFERENT MACROSCOPIC FORMS





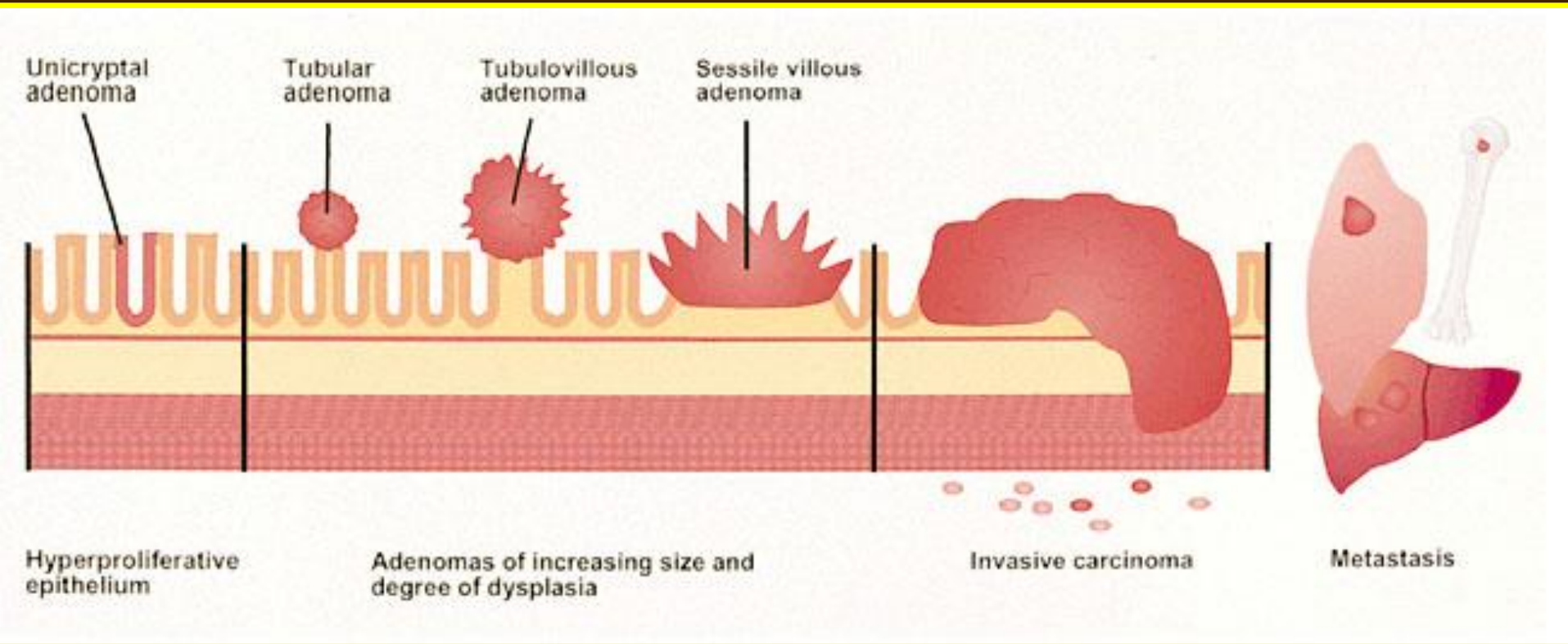
## SCHEME OF STRUCTURE OF ADENOMA THAT LOOKS LIKE A POLYP AND WHEN THE ADENOMA BECOMES MALIGNANT TUMOR



**REMEMBER!!! ADENOMA OF A DIAMETER GREATER THAN 2 CM, USUALLY BECOMES MALIGNANT.**



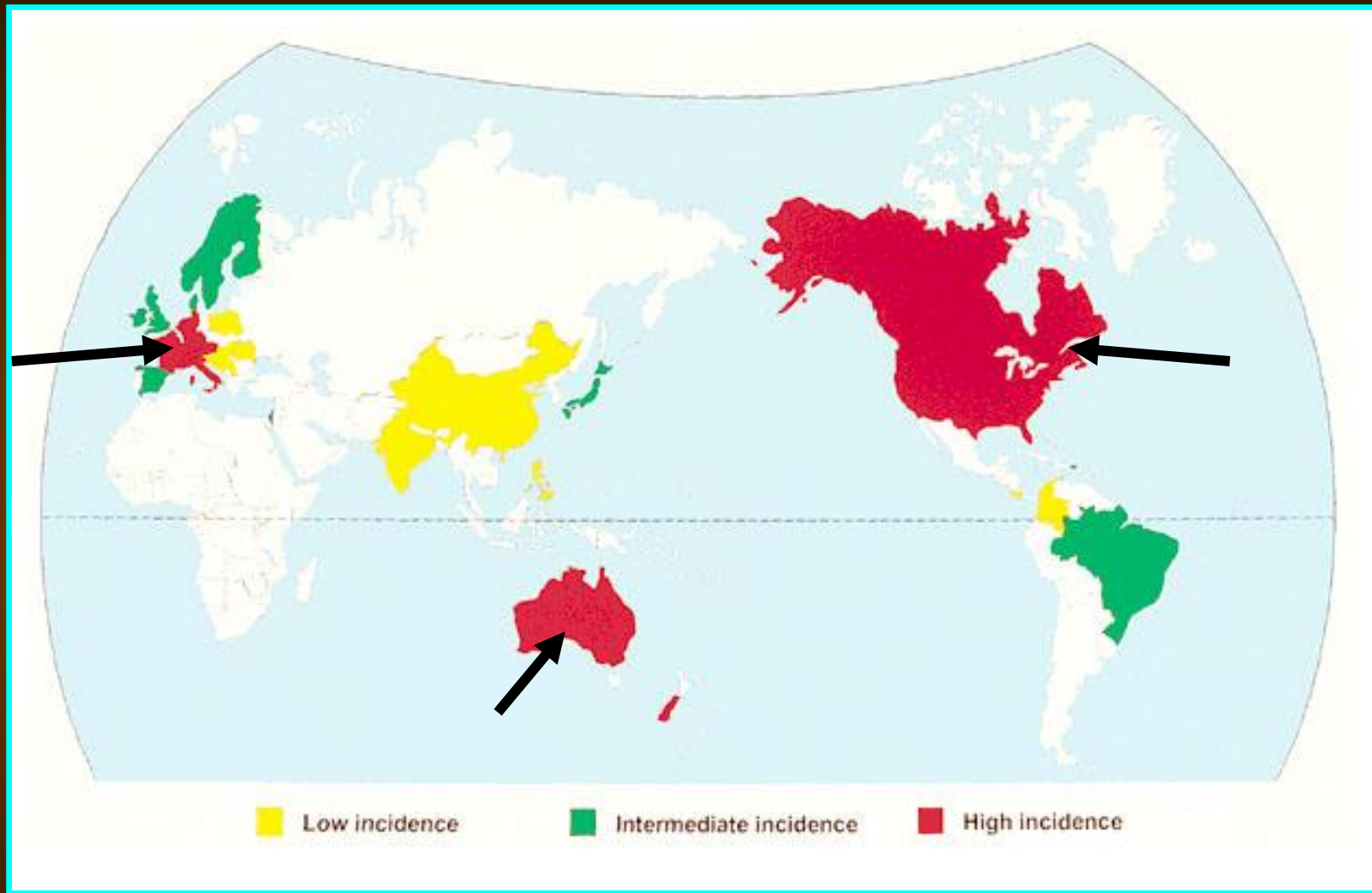
# CANCER OF LARGE INTESTINE



**EVOLUTION OF CHANGES FROM BENIGN TUMOR TO A CANCER OF LARGE INTESTINE**



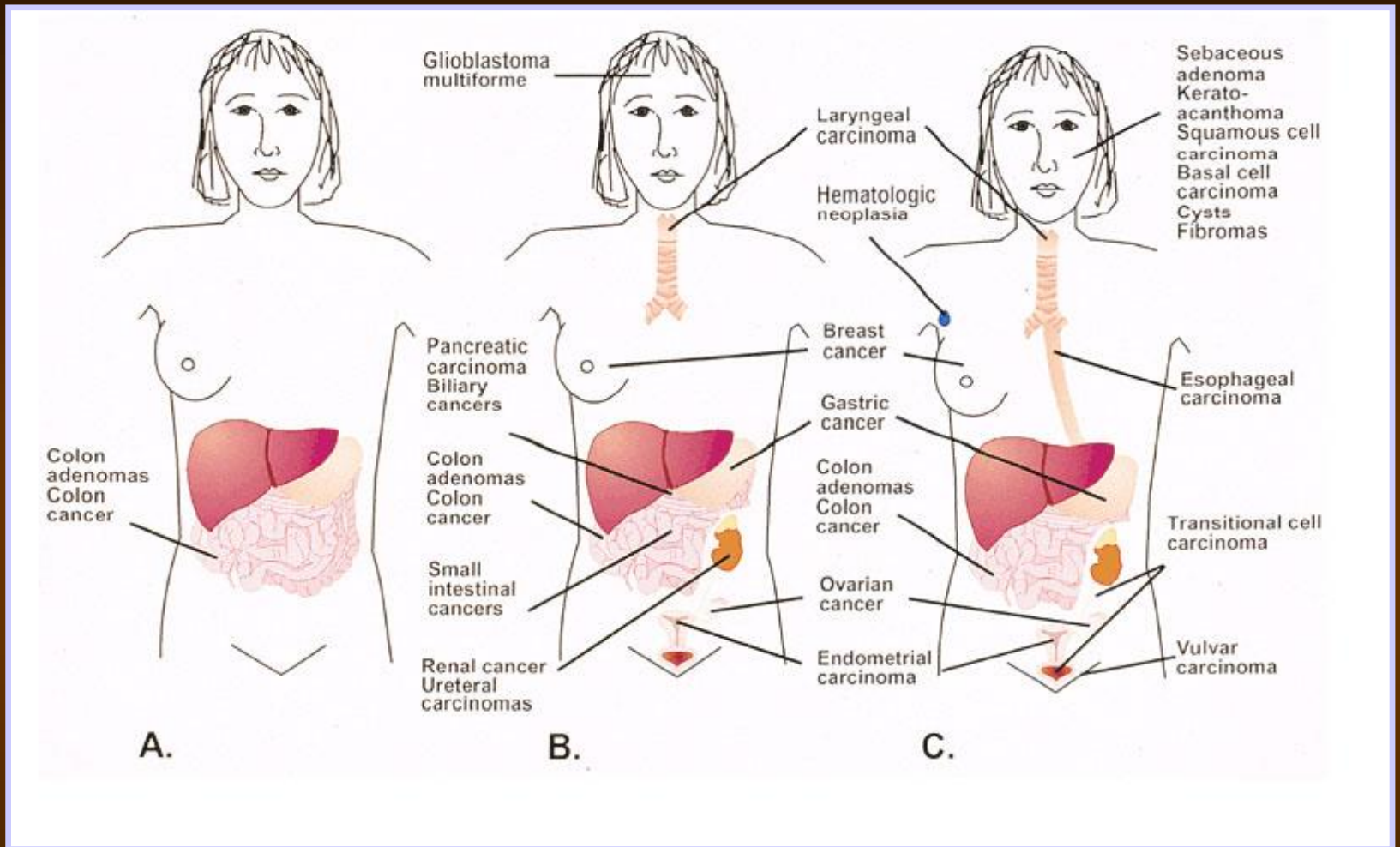
# CANCER OF LARGE INTESTINE



## EPIDEMIOLOGY OF CANCER OF LARGE INTESTINE



# CANCER OF LARGE INTESTINE



**GENETIC FACTORS – EXAMPLES OF OCCURRENCE OF A TUMOR,  
AUTOSOMALLY DOMINANT. A. LYNCH SYNDROME 1.**

**B. LYNCH SYNDROME 2.**

**C. MUIR-TORRE SYNDROME  
FAMILIAL POLYPOSIS SYNDROMES**



- **LYNCH SYNDROME (HNPCC or HEREDITARY NONPOLYPOSIS COLORECTAL CANCER)**
- **IS AN AUTOSOMAL DOMINANT GENETIC CONDITION WHICH HAS A HIGH RISK OF COLON CANCER AS WELL AS OTHER CANCERS INCLUDING ENDOMETRIUM, OVARY, STOMACH, SMALL INTESTINE, HEPATOBILIARY TRACT, UPPER URINARY TRACT, BRAIN AND SKIN. THE INCREASED RISK FOR THESE CANCERS IS DUE TO INHERITED MUTATIONS THAT IMPAIR DNA MISMATCH REPAIR**



- **LYNCH SYNDROME I** – COLON CANCER ONLY (+benign colon adenoma)
- **LYNCH SYNDROME II** – COLON CANCER AND MALIGNANT TUMORS OF ENDOMETRIUM, OVARY, STOMACH, SKIN OR KIDNEY
- LYNCH SYNDROME AND TUMORS OF SEBACEOUS GLANDS (+SCC, BCC) = **MUIR-TORRE SYNDROME**;
- LYNCH SYNDROME AND BRAIN TUMORS = **TURCOT SYNDROME**



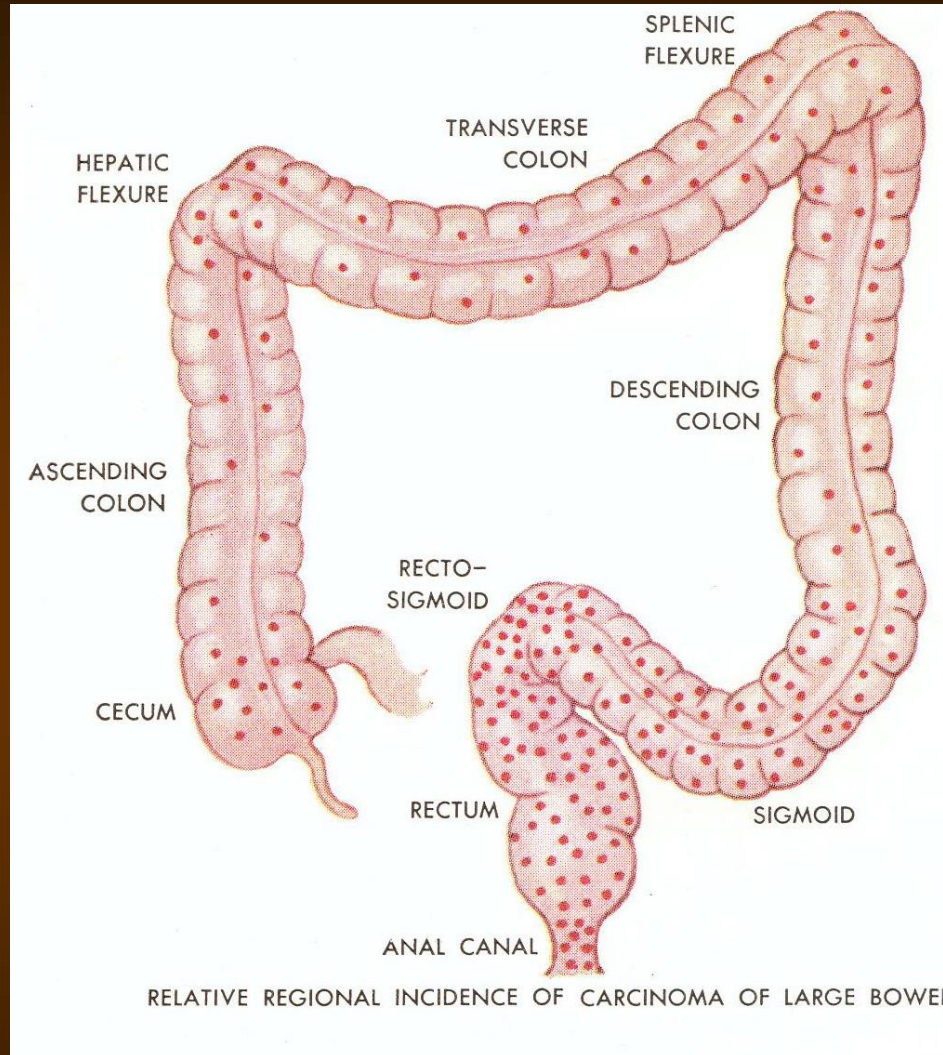
- FAMILIAL ADENOMATOUS POLYPOSIS (FAP) IS AN INHERITED CONDITION IN WHICH NUMEROUS POLYPS FORM MAINLY IN EPITHELIUM OF THE LARGE INTESTINE. WHILE THESE POLYPS START OUT BENIGN, MALIGNANT TRANSFORMATION INTO COLON CANCER OCCURS WHEN NOT TREATED



- **GENETIC DETERMINANT IN FAP MAY ALSO PREDISPOSE CARRIERS TO OTHER MALIGNANCIES, E.G. OF DUODENUM AND STOMACH. OTHER SIGNS THAT MAY POINT TO FAP ARE PIGMENTED LESIONS OF THE RETINA ("CHRPE – CONGENITAL HYPERTROPHY OF RETINAL PIGMENT EPITHELIUM"), JAW CYSTS, SEBACEOUS CYSTS AND OSTEOMAS (BENIGN BONE TUMORS).**
- **THE COMBINATION OF POLYPOSIS, OSTEOMAS, FIBROMAS AND SEBACEOUS CYSTS IS TERMED GARDNER SYNDROME**



# CANCER OF LARGE INTESTINE

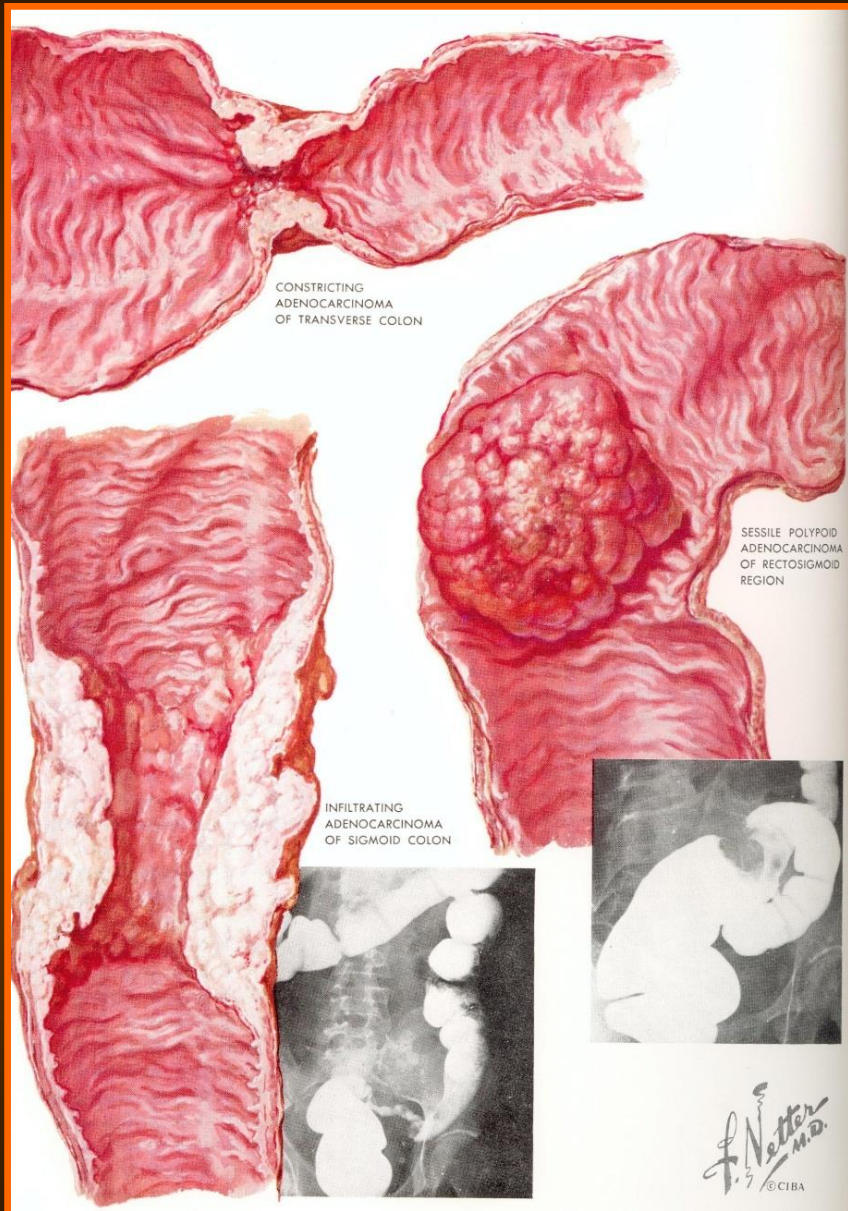


**APPROXIMATELY 70% OF CANCERS IN LARGE INTESTINE ARE LOCATED IN THE RECTUM AND SIGMOID. THE OTHER LOCATIONS ARE: CECUM, HEPATIC FLEXURE, AND SPLENIC FLEXURE. RARELY IN THE STRAIGHT PARTS OF THE LARGE INTESTINE.**

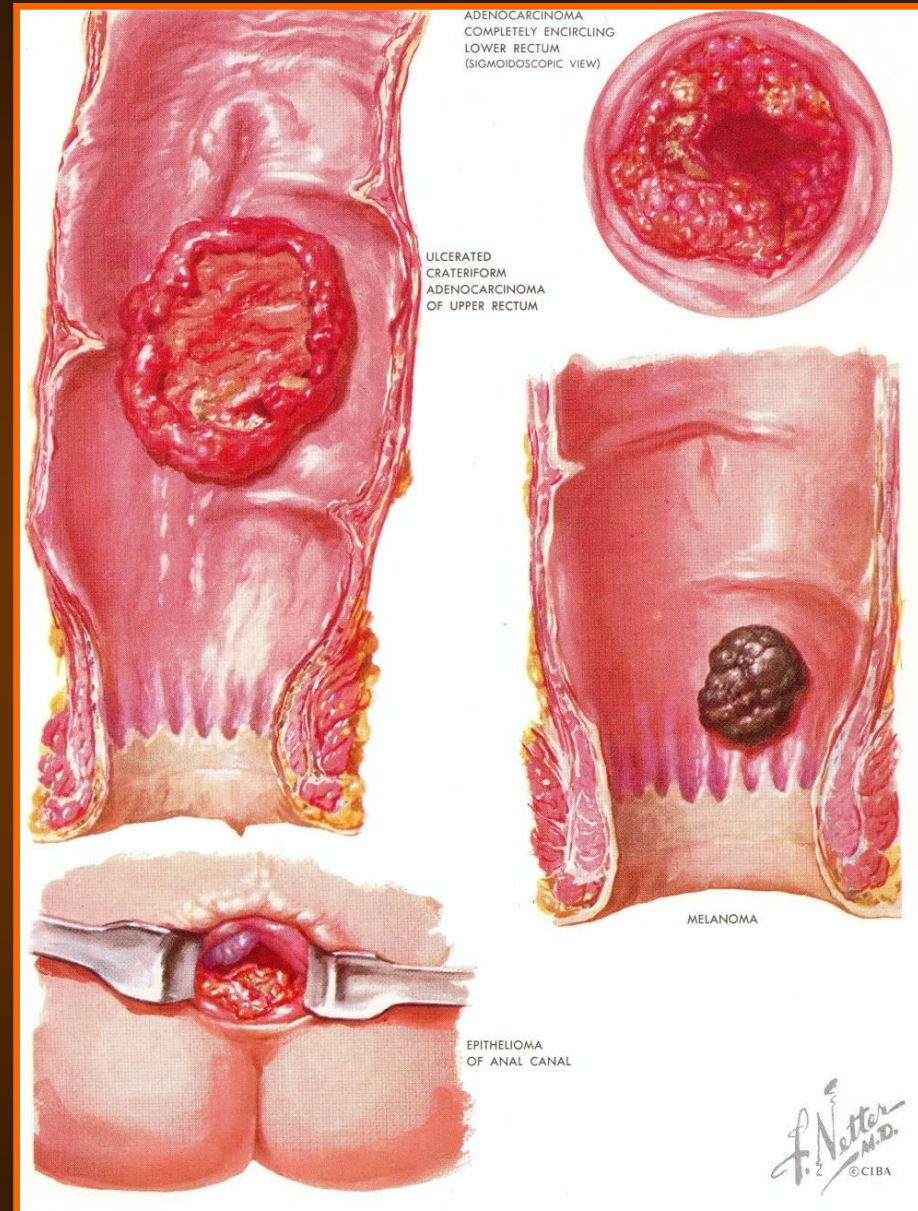




# TUMORS OF THE LARGE INTESTINE – MACROSCOPIC FORMS



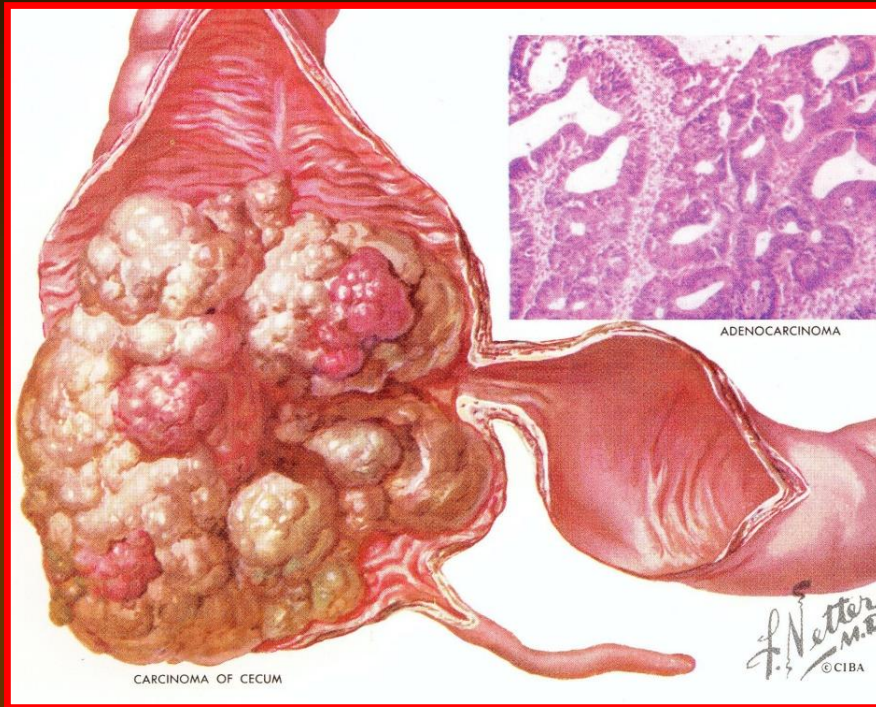
**ADENOCARCINOMA**



**CANCER AND MELANOMA**



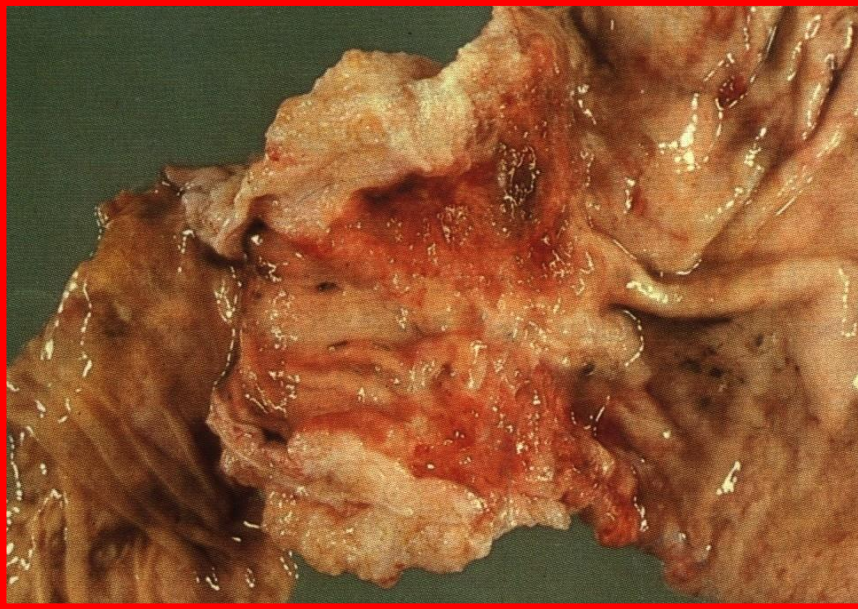
# CECAL CARCINOMA



**CECAL CARCINOMA HAS MANY MACROSCOPIC FORMS; IT MAY BE CONGENITAL. VERY COMMON COMPLICATION IS A PERFORATION OF THE WALL OF INTESTINE. RARELY OBSTRUCTION SYMPTOMS. DOMINATING CLINICAL SYMPTOMS INCLUDE: CONSTIPATION WITH DIARRHEA. EARLY METASTASES TO LIVER.**



# CARCINOMA OF THE RECTUM AND SIGMOID



**CANCER OF THE SIGMOID NARROWING THE LUMEN OF INTESTINE**

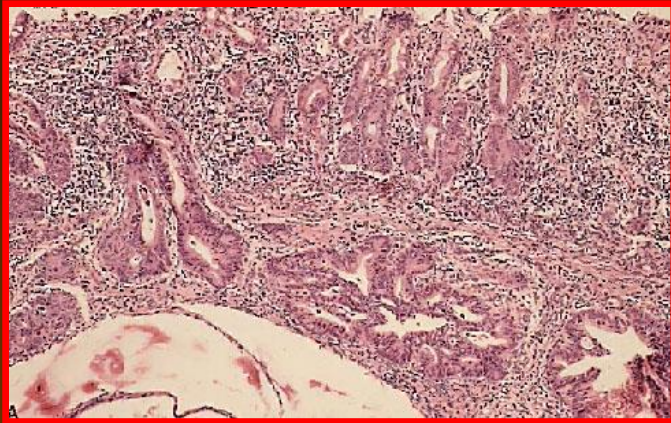


**ANAL CANCER**

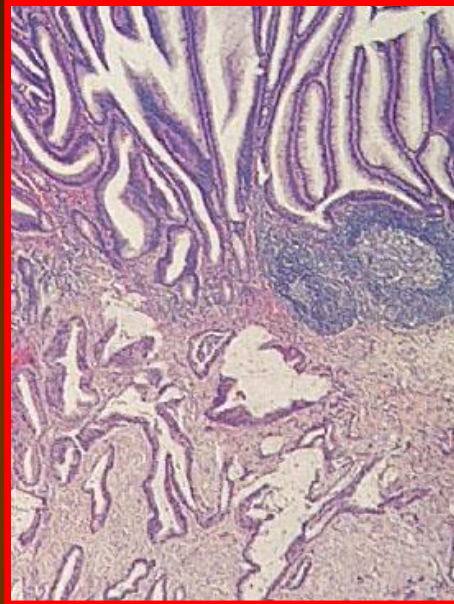
**CANCER OF RECTUM AND SIGMOID USUALLY CONCENTRICALLY NARROWS THE LUMEN. IT IS OFTEN AN ULCERATED CANCER. CLINICALLY: THIN STOOLS, ALSO FRESH BLOOD IN STOOL.**



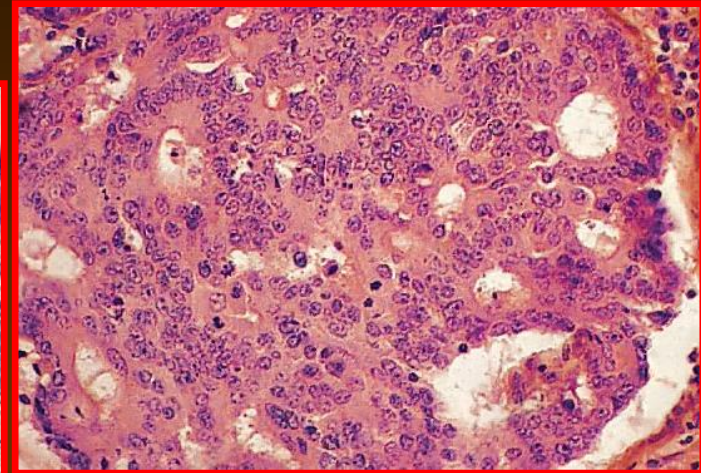
# TUMORS OF LARGE INTESTINE - HISTOLOGICALLY



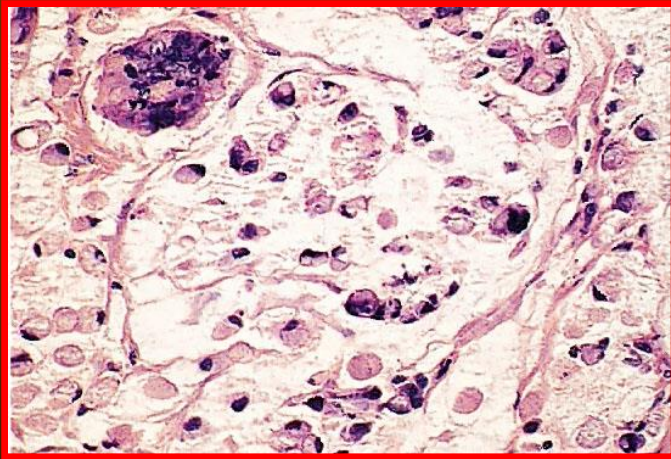
EARLY FORM IN ADENOMA



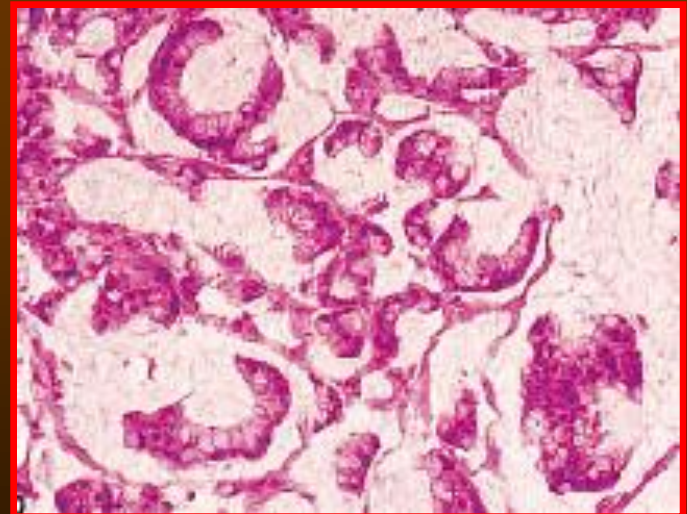
CANCER IN A POLYP



ADENOMA OF MODERATE DIFFERENTIATION



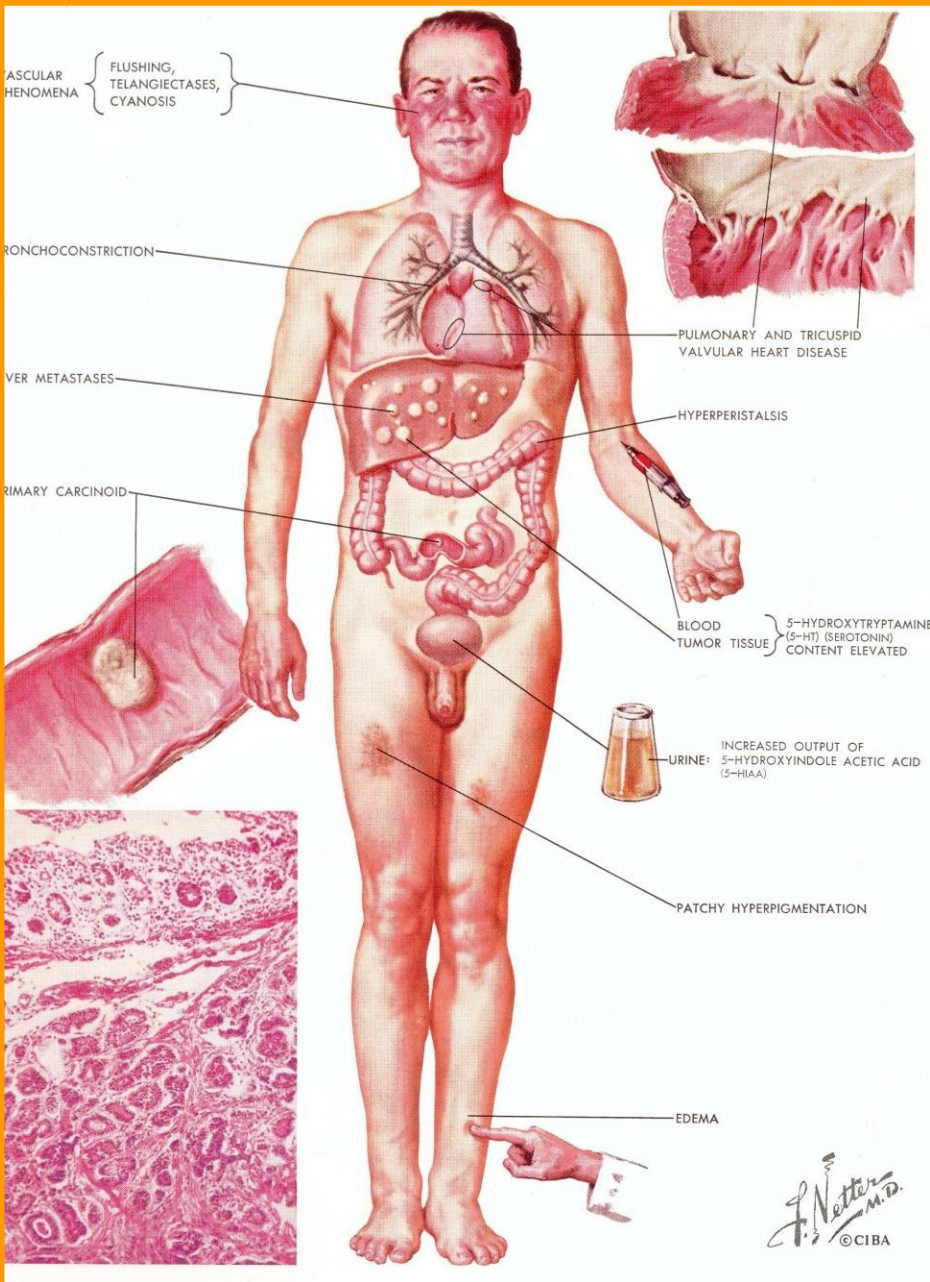
SIGNET-RING CELLS IN CANCER



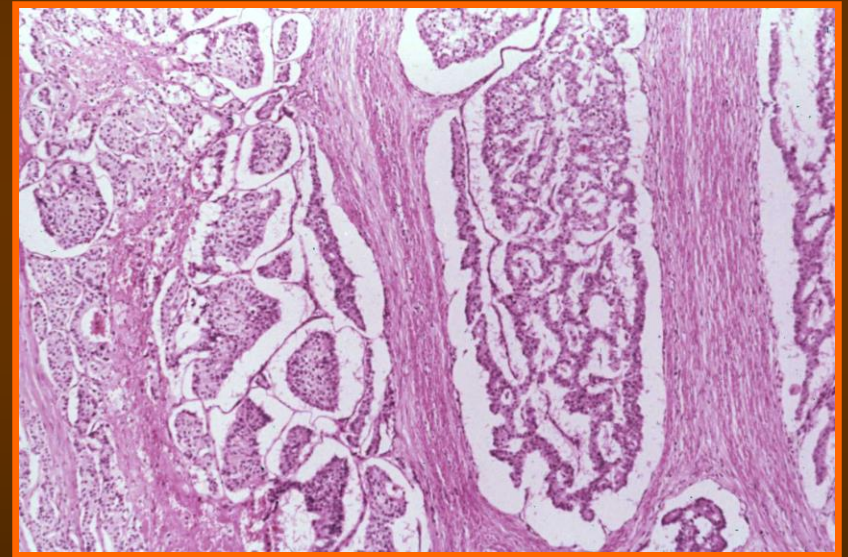
SIGNET-RING CELL CARCINOMA



# TUMORS OF INTESTINES

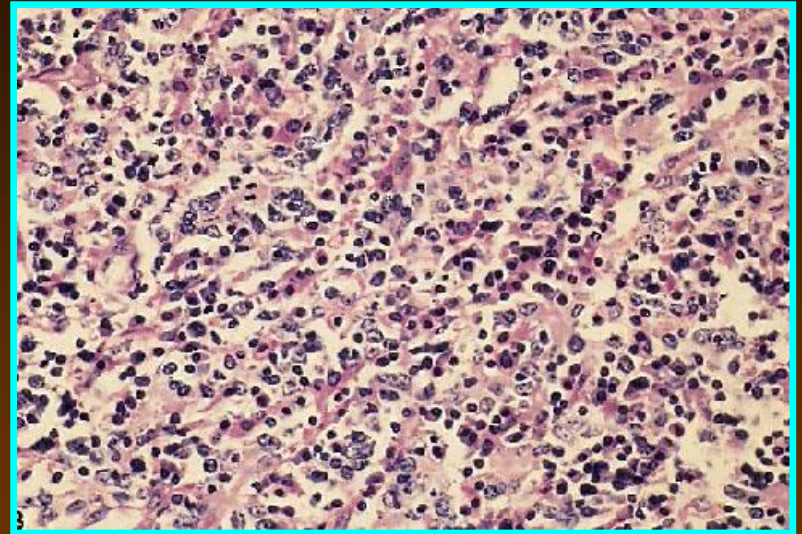


**CARCINOID (ARGENTAFFINOMA): A QUITE COMMON TUMOR OF DIFFERENT LEVELS OF DIFFERENTIATION, VARIED HISTOLOGICAL FORMS, COMMONLY FOUND IN THE APPENDIX. A TUMOR WHOSE PRECURSOR ARE NEUROENDOCRINE CELLS: PRODUCES SEROTONIN**

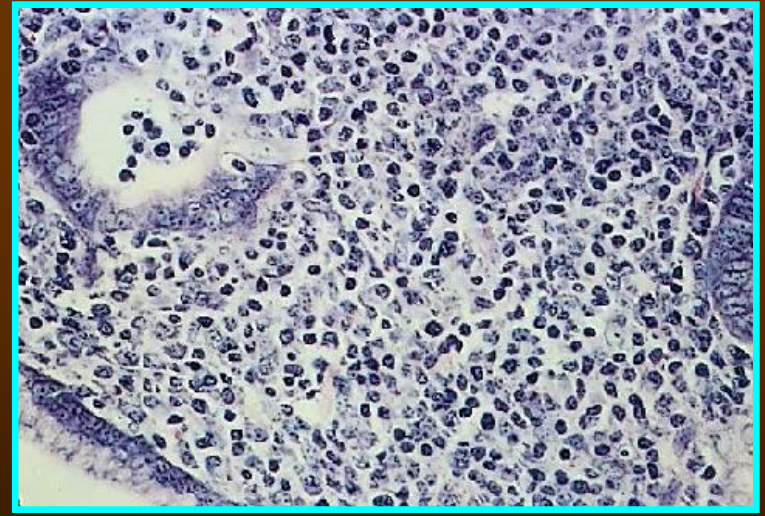


**CARCINOID SYNDROME – SYNDROME CAUSED BY THE PRODUCTION OF SEROTONIN: VASOMOTORIC DISTURBANCES, CRAMPING OF INTESTINES, CHANGES IN HEART, METASTASIS TO LIVER.**





**LEUKEMIC INFILTRATIONS IN SMALL INTESTINE**



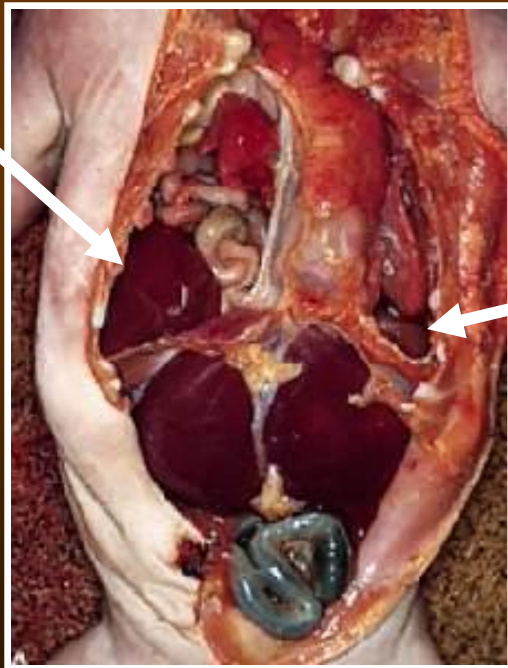
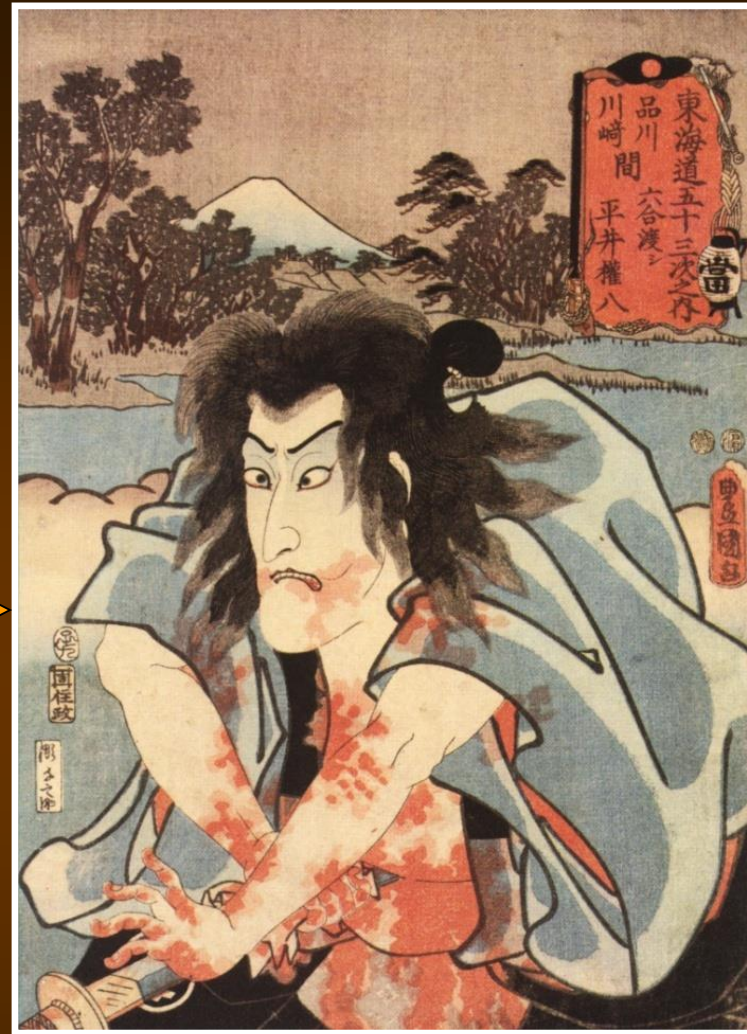
**MALT LYMPHOMA IN STOMACH**



# VISCERAL DISPLACEMENT

**EVENTRATION – DISPLACEMENT OF VISCERA  
BEYOND THE ABDOMINAL CAVITY**

**SEPPUKU**



**FALLING OUT OF VISCERA - *PROLAPSUS  
INTESTINORUM* – DISPLACEMENT OF VISCERA  
BEYOND THE ABDOMEN - NOT COVERED BY  
PERITONEUM.**

***DIAPHRAGMATIC SPURIOUS HERNIA***





# HERNIA – DISPLACEMENT OF VISCERA COVERED BY A PERITONEAL SAC

## CLASSIFICATION OF HERNIAS

REDUCIBLE HERNIA  
(*REPONIBILIS, LIBERA*)

IRREDUCIBLE HERNIA  
(*IRREPONIBILIS, NON-  
LIBERA*)



ACCRETED HERNIA

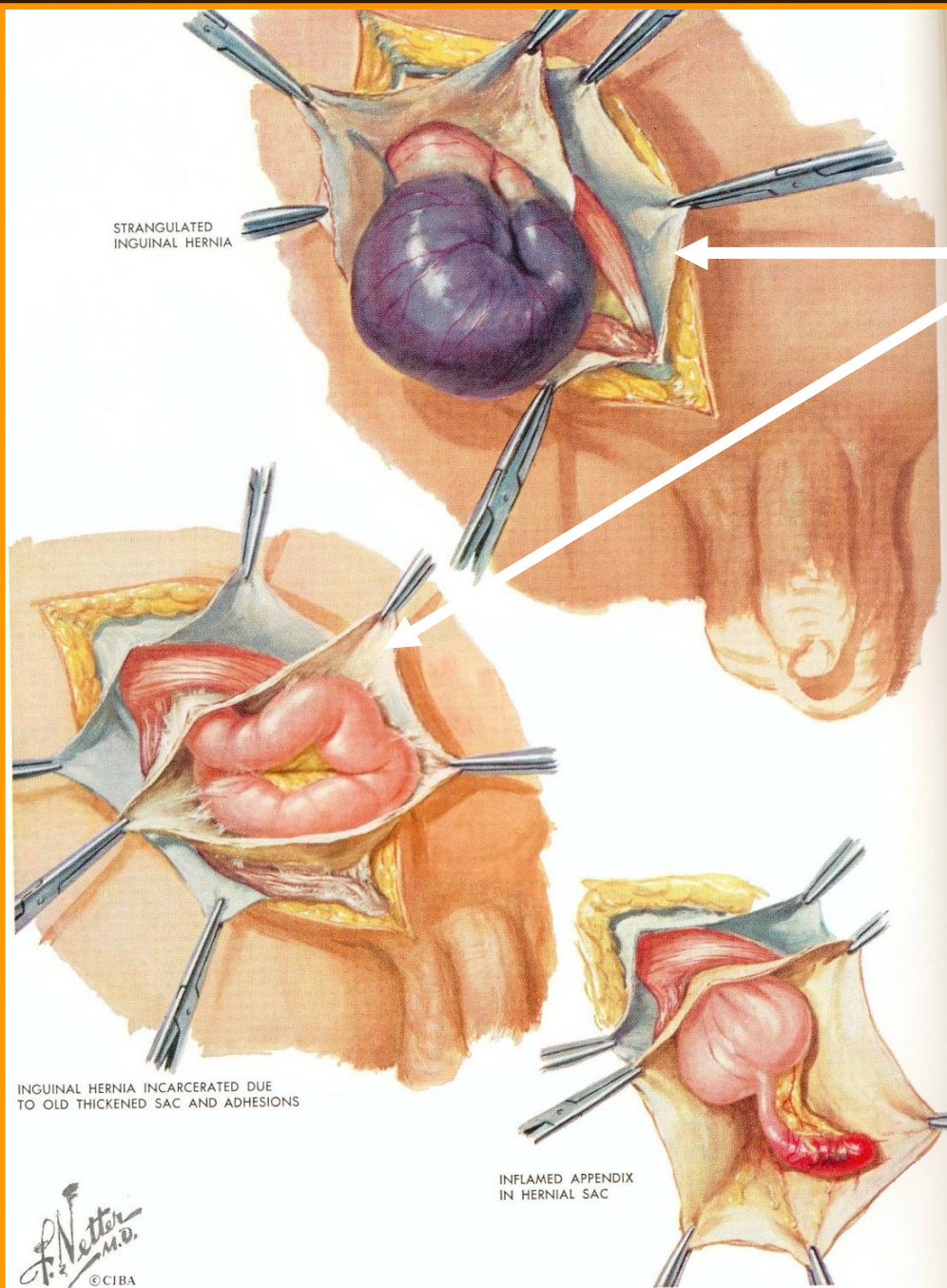


INCARCERATED  
HERNIA

EXTERNAL HERNIAS – HERNIAL SAC OUTSIDE THE BODY

INTERNAL HERNIAS – INSIDE THE BODY

HERNIA ELEMENTS: HERNIAL SAC, HERNIAL CONTENT AND  
HERNIAL RING (PORTA)



STRANGULATED  
INGUINAL HERNIA

INGUINAL HERNIA INCARCERATED DUE  
TO OLD THICKENED SAC AND ADHESIONS

INFLAMED APPENDIX  
IN HERNIAL SAC

**1. INCARCERATED HERNIA –  
E.G. STRANGULATED**

**2. ACCRETED HERNIA**

**3. HERNIA IN INFLAMMATION**



# ILEUS

## CLASSIFICATION OF OBSTRUCTION

### CONGENITAL OBSTRUCTION

LARGE INTEST.  
OBSTRUCTION:  
DEHYDRATION AND  
ELECTROLYTE BALANCE  
DISTURBANCES DOMINATE

### ACQUIRED OBSTRUCTION

SMALL INTEST.  
OBSTRUCTION  
TOXEMIA DOMINATES

### PARALYTIC ILEUS

### MECHANICAL ILEUS

OBTURATION

STRANGULATION

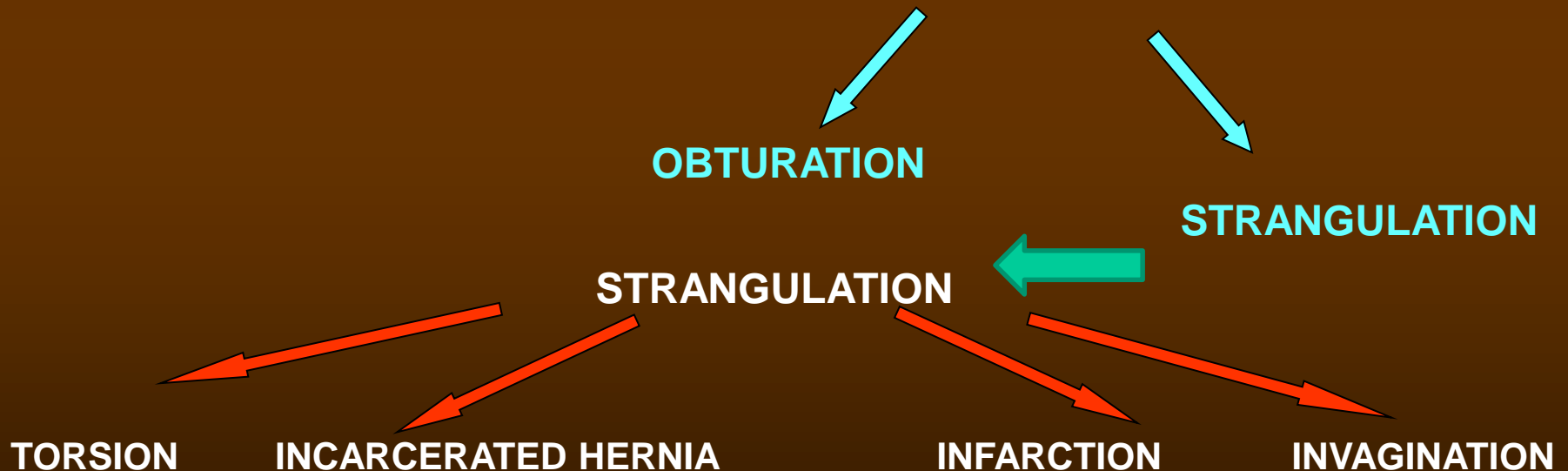
STRANGULATION

TORSION

INCARCERATED HERNIA

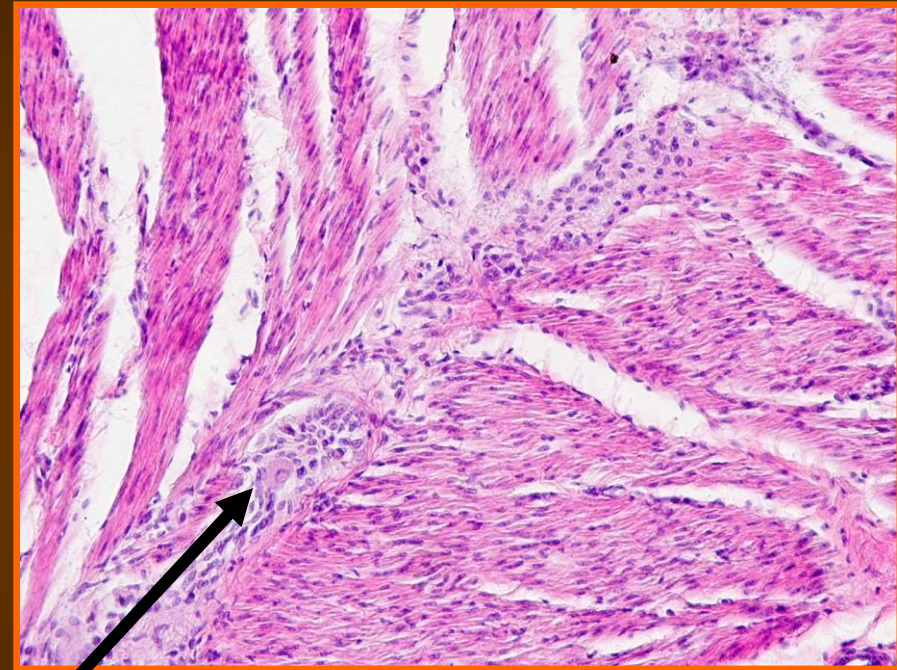
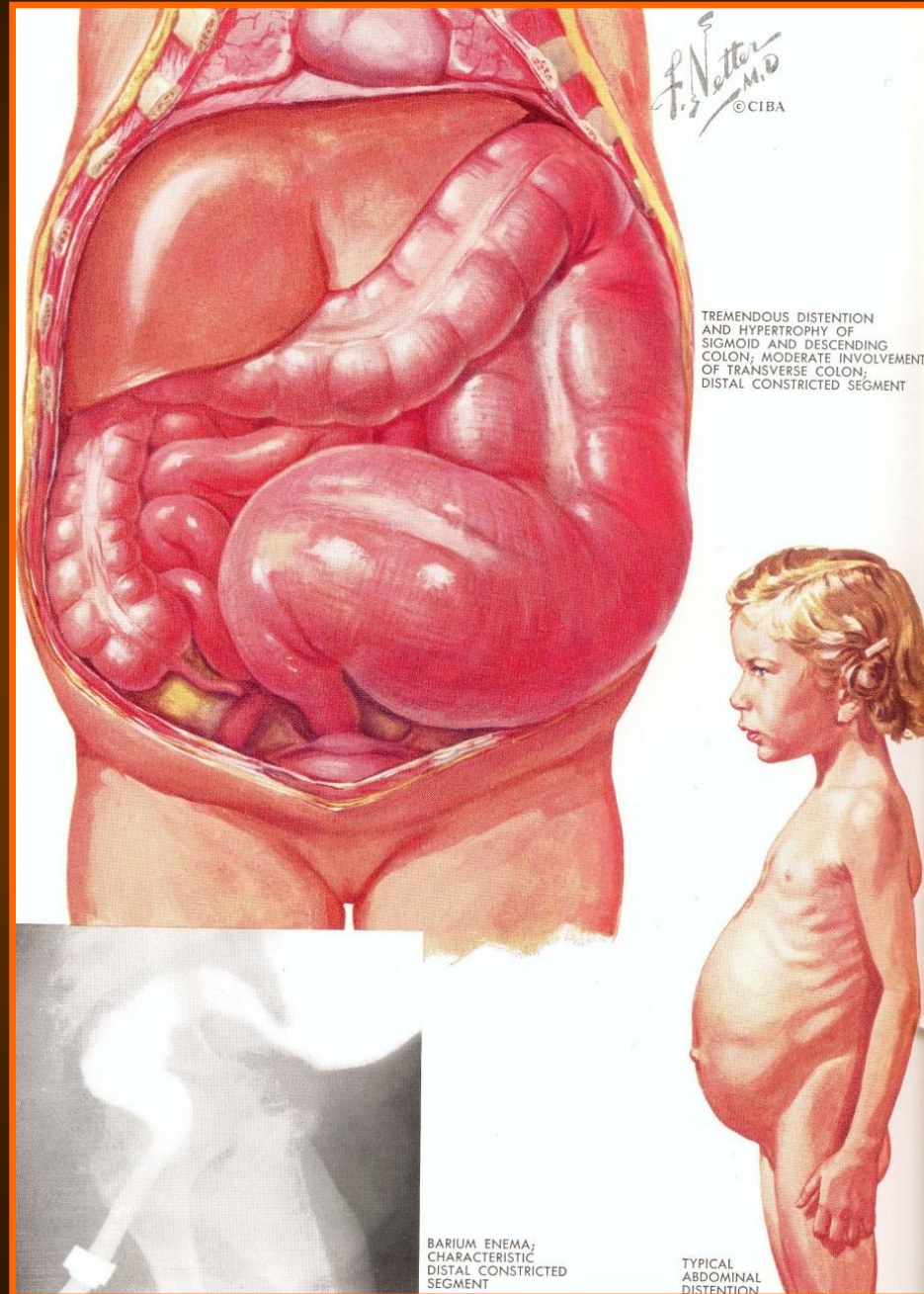
INFARCTION

INVAGINATION



# CONGENITAL MEGACOLON

**CONGENITAL LACK OF SUBMUCOSAL AND INTRAMUSCULAR GANGLIA IN THE COLON. THIS PART IS NARROW AND IMMOBILE**



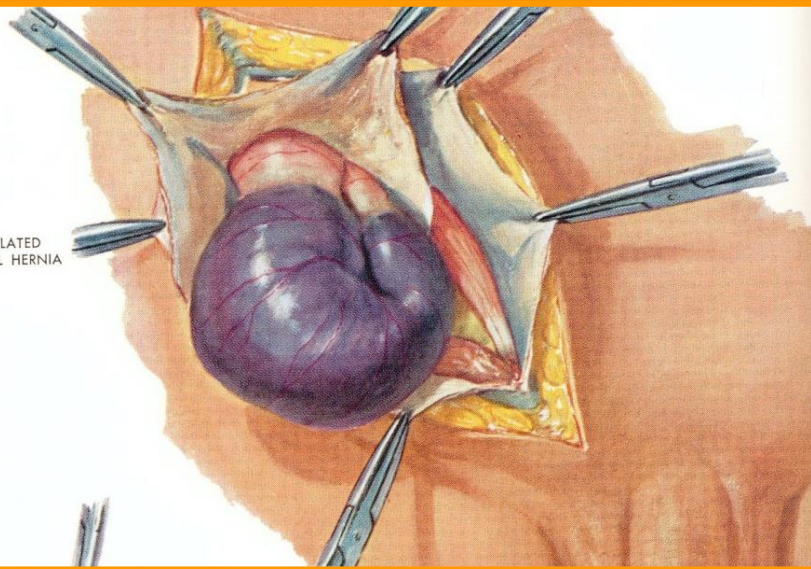
**MEISSNER INTRAMUSCULAR GANGLIA IN LARGE INTESTINE**

**ACQUIRED MEGACOLON IS USUALLY CAUSED BY INFLAMMATION OR TUMORS**

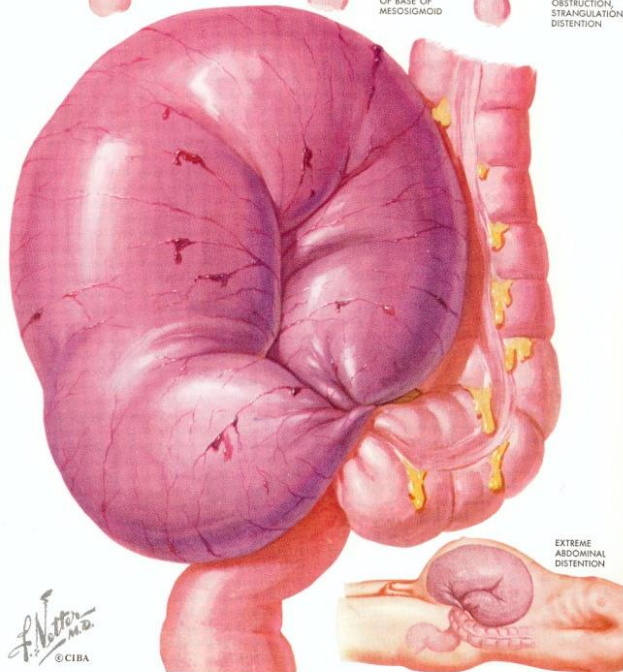
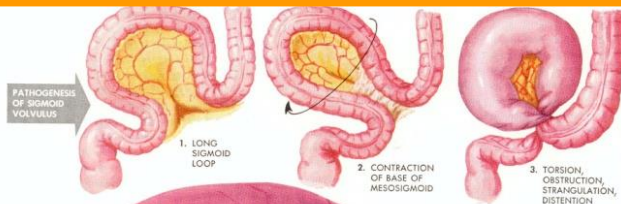


# MOST COMMON CAUSES OF ACUTE MECHANICAL OBSTRUCTION

STRANGULATED  
INGUINAL HERNIA



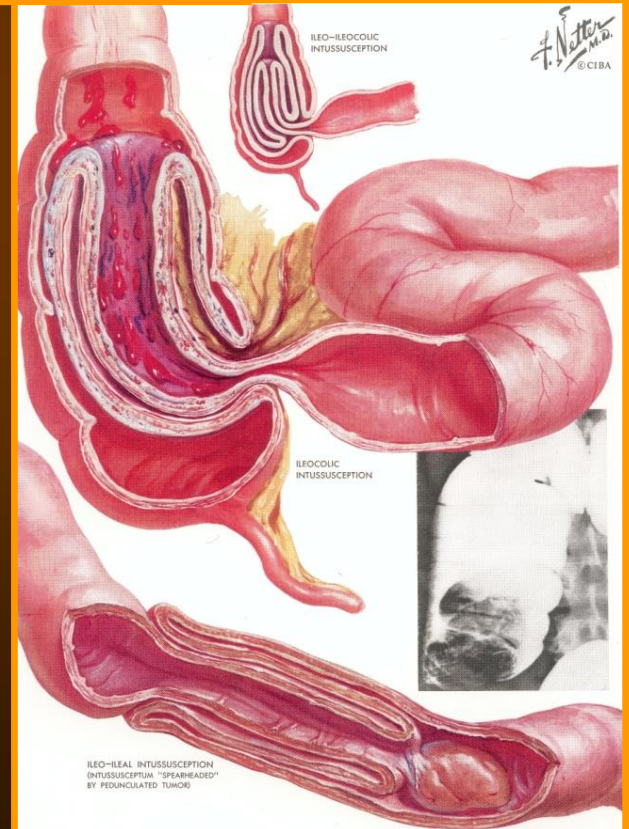
## INCARCERATED HERNIA



## TORSION – VOLVULUS



## INVAGINATION

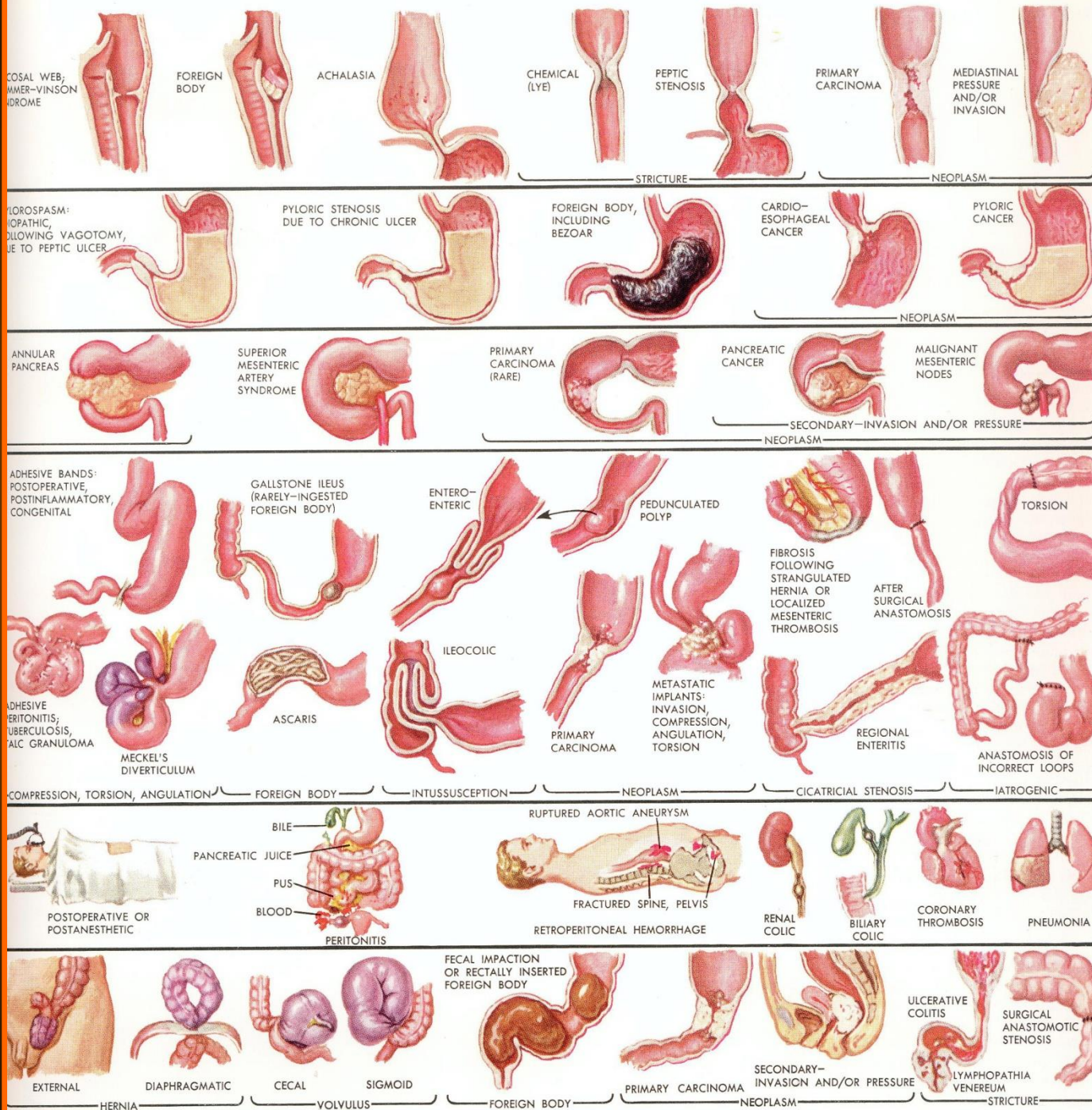


ILEO-ILEOCOLIC  
INTUSSUSCEPTION

ILEOCOLIC  
INTUSSUSCEPTION

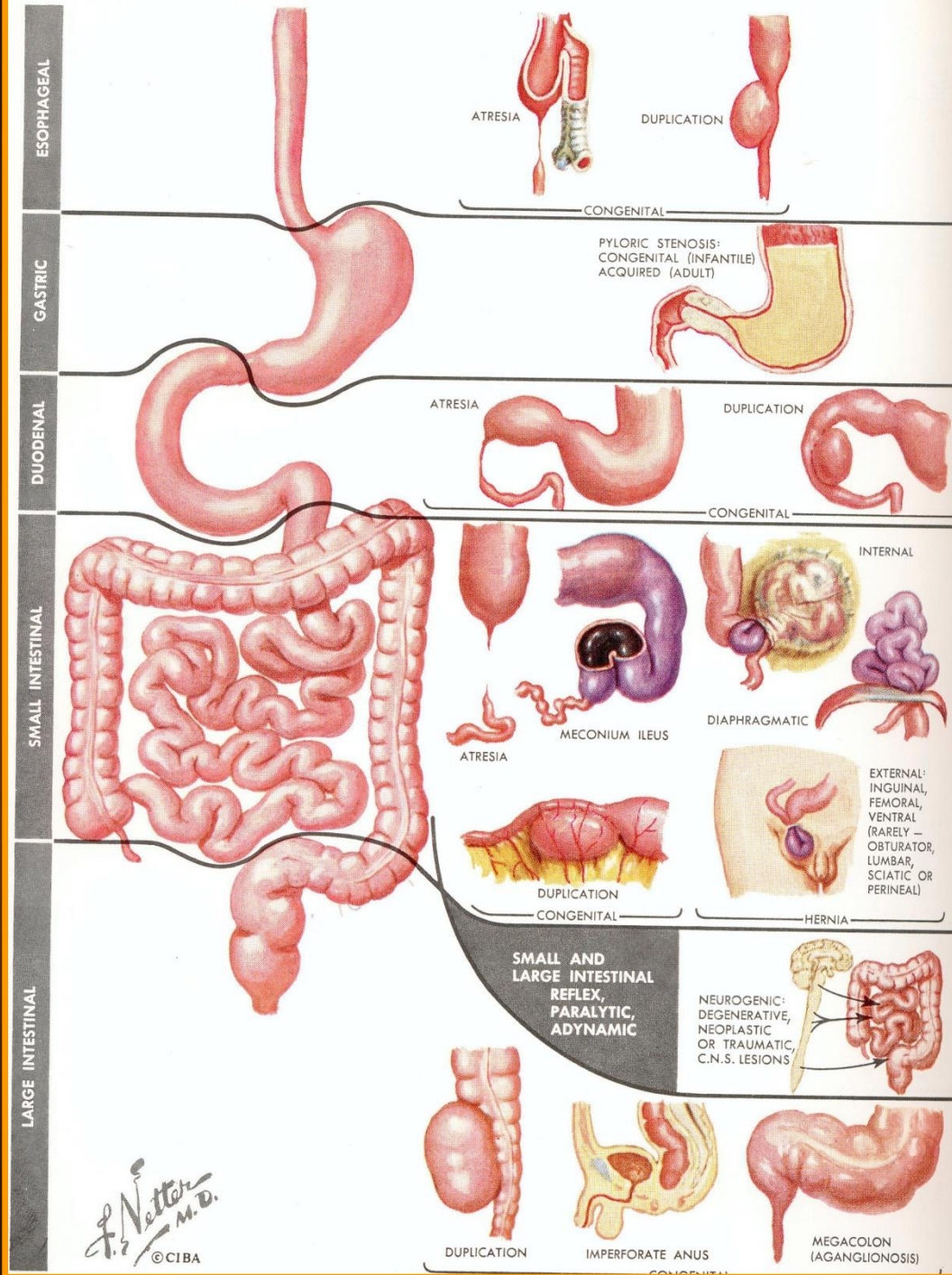
ILEO-ILEAL INTUSSUSCEPTION  
(INTUSSUSCEPTUM "SPEARHEADED"  
BY PEDUNCULATED TUMOR)



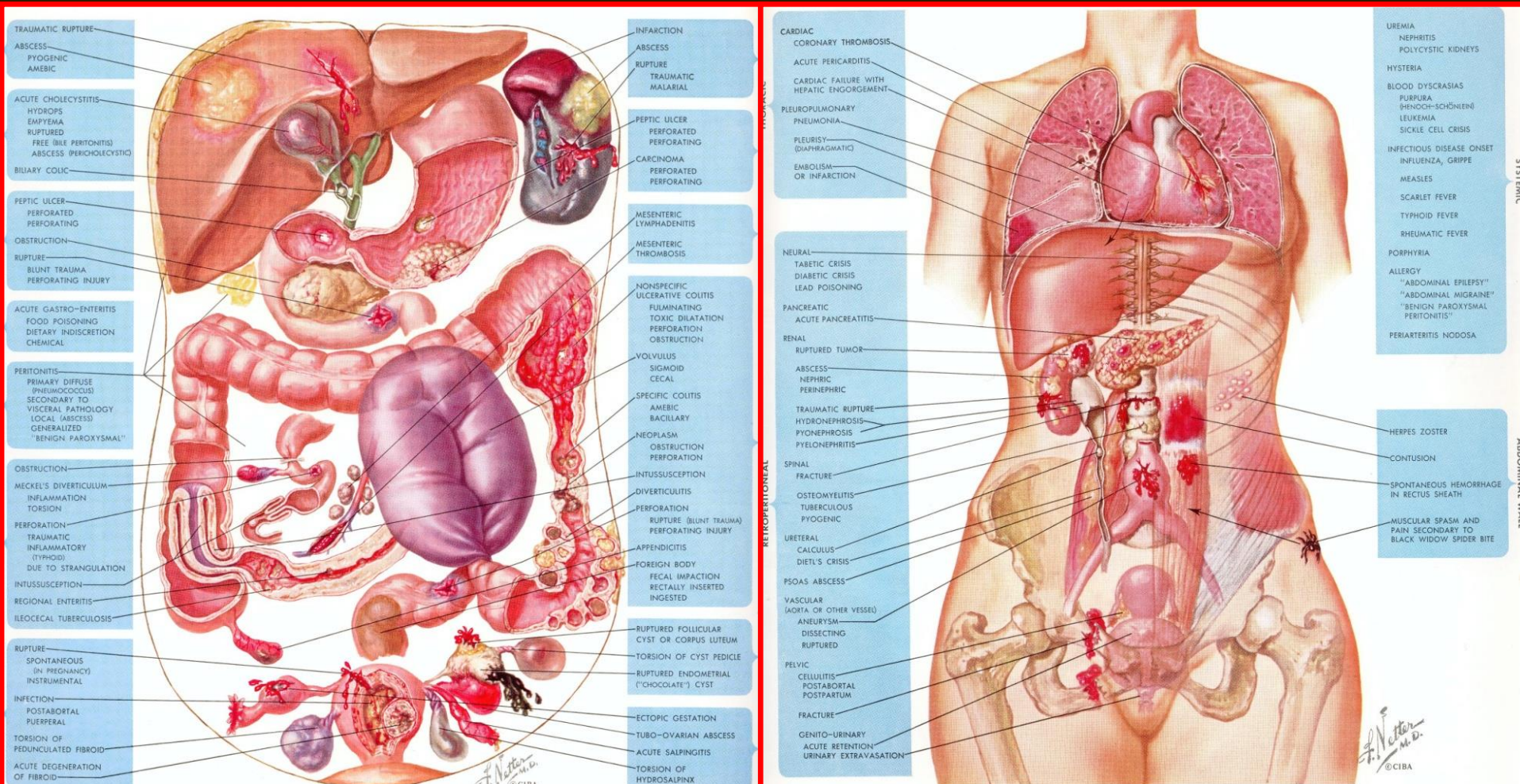




# EXAMPLES OF CONGENITAL OBSTRUCTION OF THE ALIMENTARY TRACT ON DIFFERENT LEVELS





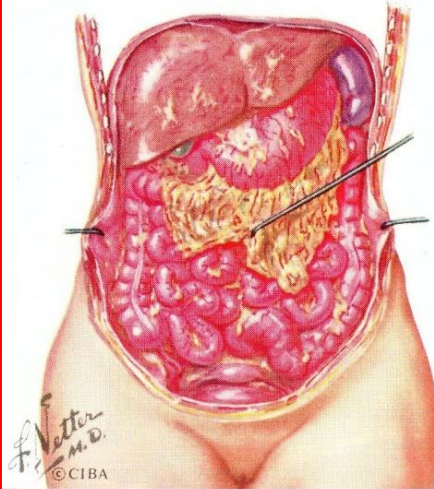


## CAUSES OF ACUTE ABDOMEN

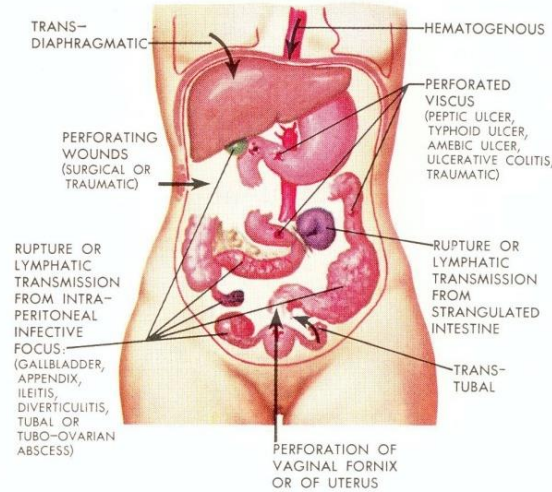
**„ACUTE ABDOMEN” – A DISEASE WITH A SUDDEN BEGINNING, INCREASING RISK OF DEATH REQUIRING IMMEDIATE DIAGNOSIS. THE MAIN SYMPTOMS ARE: ABDOMINAL PAIN, VOMITING, DISTURBANCES IN PERISTALSIS, MUSCULAR DEFENSE UPON PALPATION, INCREASE IN LEUKOCYTE AND FEVER. REQUIRES SURGERY !!!**



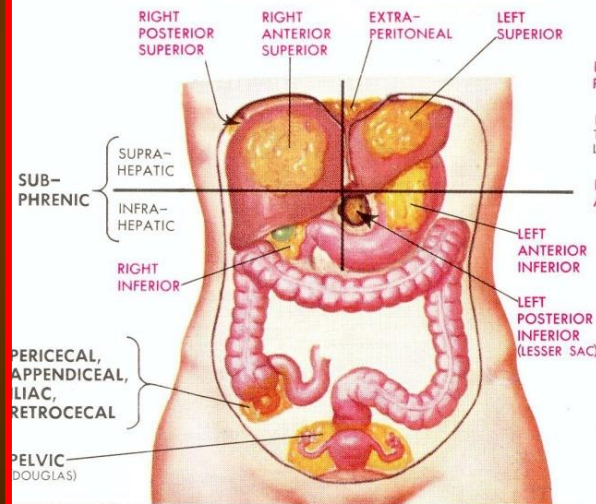
## GENERALIZED ACUTE BACTERIAL PERITONITIS



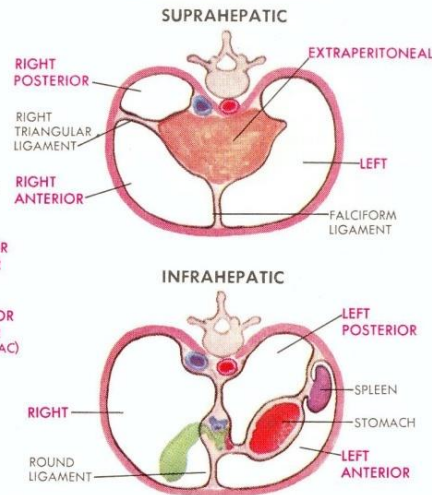
## ROUTES OF BACTERIAL INVASION



## LOCALIZED ACUTE BACTERIAL PERITONITIS (ABSCESS)



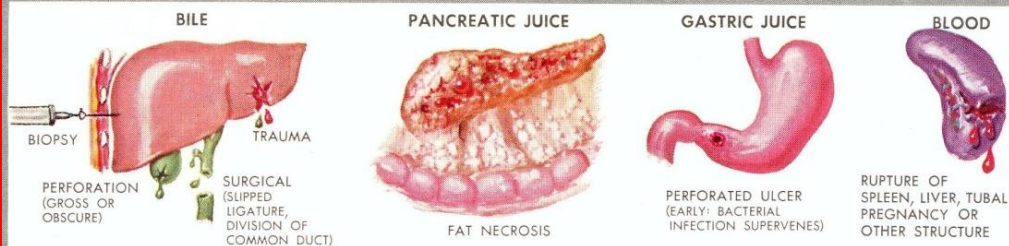
## SUBPHRENIC SPACES



# PERITONITIS

# PERITONITIS – CLINICAL PICTURE AND CAUSES

## ACUTE PERITONITIS DUE TO IRRITATING SUBSTANCES



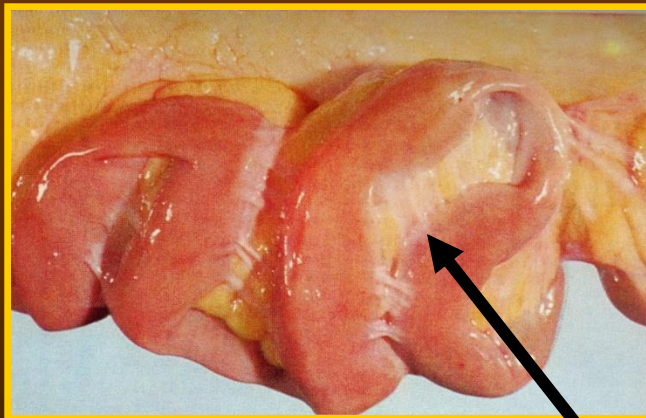


# PERITONITIS

## DIFFUSE PERITONITIS

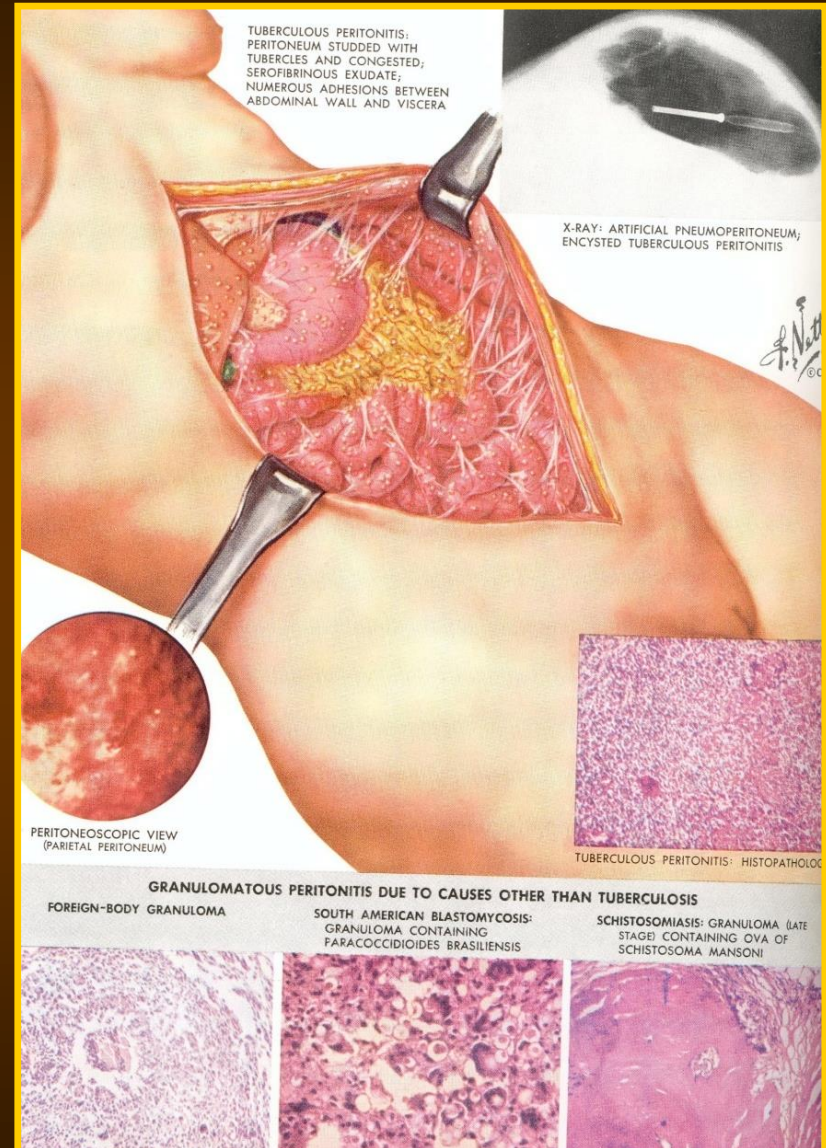


## ACUTE FIBRINOUS PERITONITIS



## PERITONEAL ADHESIONS

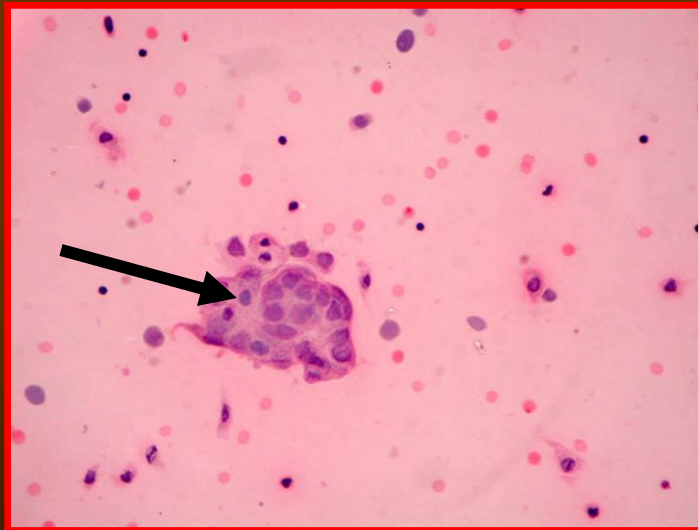
## LOCAL PERITONITIS



## GRANULOMATOUS PERITONITIS



# ASCITES



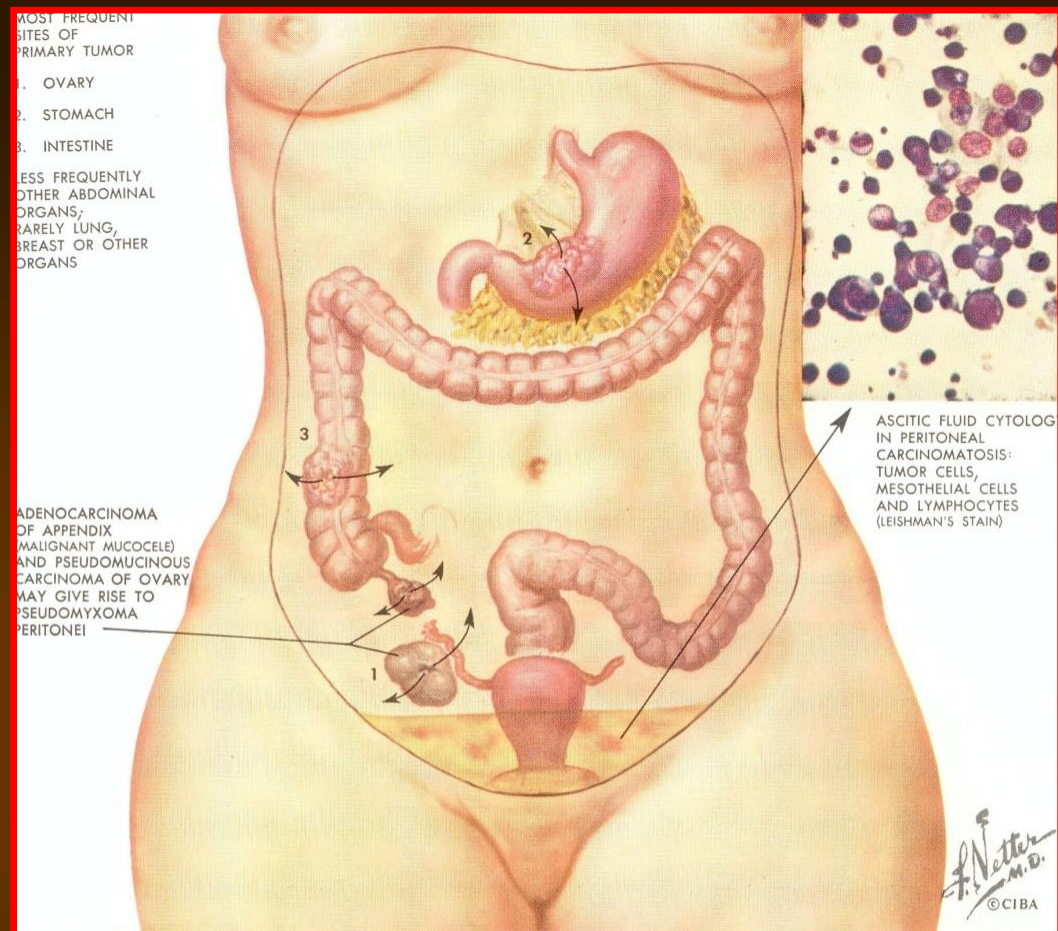
**OVARIAN CARCINOMA  
CELLS IN ABDOMINAL  
FLUID**

MOST FREQUENT  
SITES OF  
PRIMARY TUMOR

1. OVARY
2. STOMACH
3. INTESTINE

LESS FREQUENTLY  
OTHER ABDOMINAL  
ORGANS;  
RARELY LUNG,  
BREAST OR OTHER  
ORGANS

ADENOCARCINOMA  
OF APPENDIX  
(MALIGNANT MUCOCELE)  
AND PSEUDOMUCINOUS  
CARCINOMA OF OVARY  
MAY GIVE RISE TO  
PSEUDOMYXOMA  
PERITONEI



ASCITIC FLUID CYTOLOG  
IN PERITONEAL  
CARCINOMATOSIS:  
TUMOR CELLS,  
MESOTHELIAL CELLS  
AND LYMPHOCYTES  
(LEISHMAN'S STAIN)

*F. Netter M.D.*  
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## PERITONEAL CARCINOMATOSIS: PERITONEOSCOPIC VIEWS



NODULAR FORM

PLAQUELIKE  
LESION (WAXY)  
ON PARIETAL  
PERITONEUM

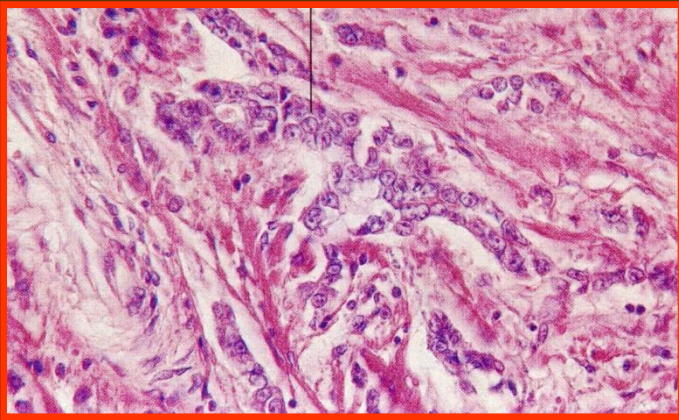
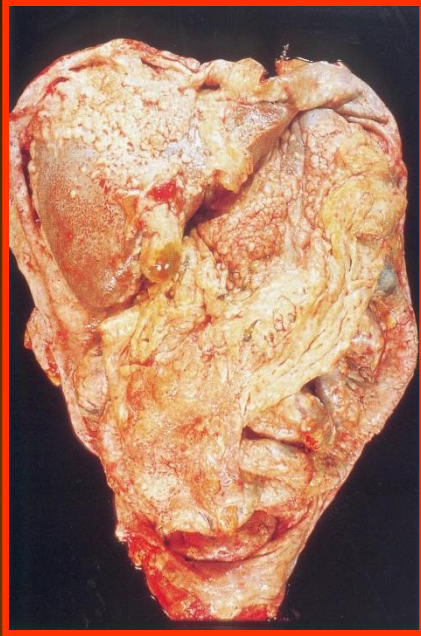
ULCERATED  
PLAQUES

ADHESIVE FORM  
ABDOMINAL WALL, ABOVE  
LIVER, CENTER  
OMENTUM, BELOW



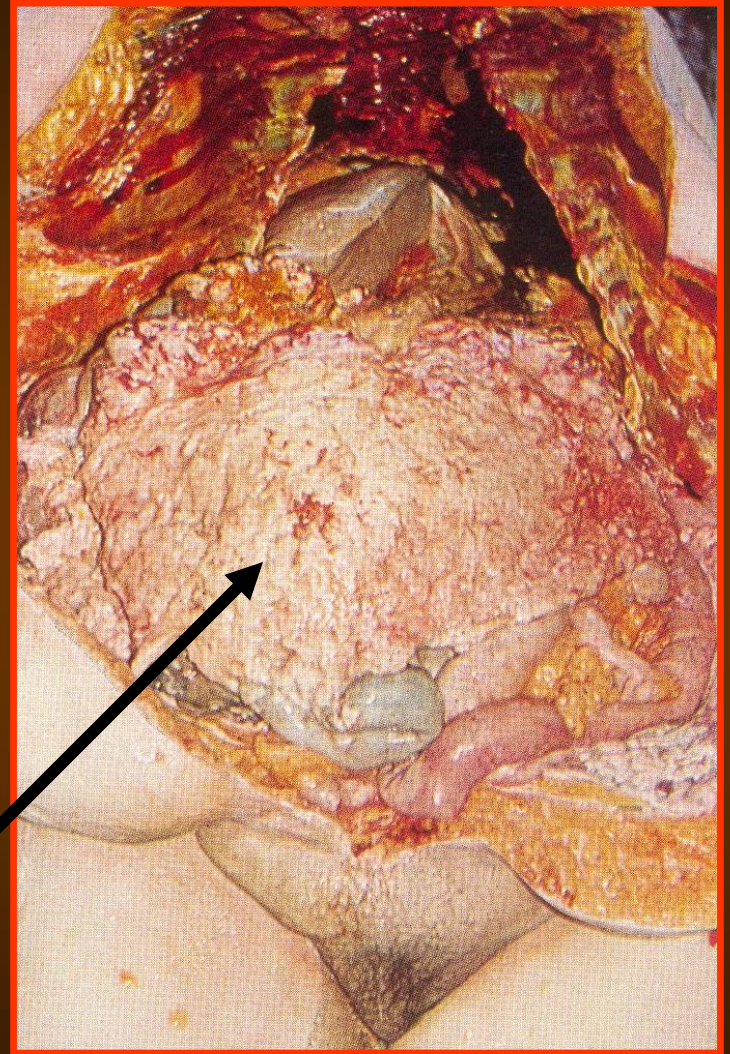
# PERITONEAL TUMORS

## PRIMARY TUMORS (VERY RARE)



**MESOTHELIOMA**

## METASTATIC (VERY COMMON)



**DISSEMINATION OF STOMACH  
CANCER IN PERITONEUM**





**THANK YOU**