Principles of pathology (General pathology)

Practical slides

Cell Injury and Response

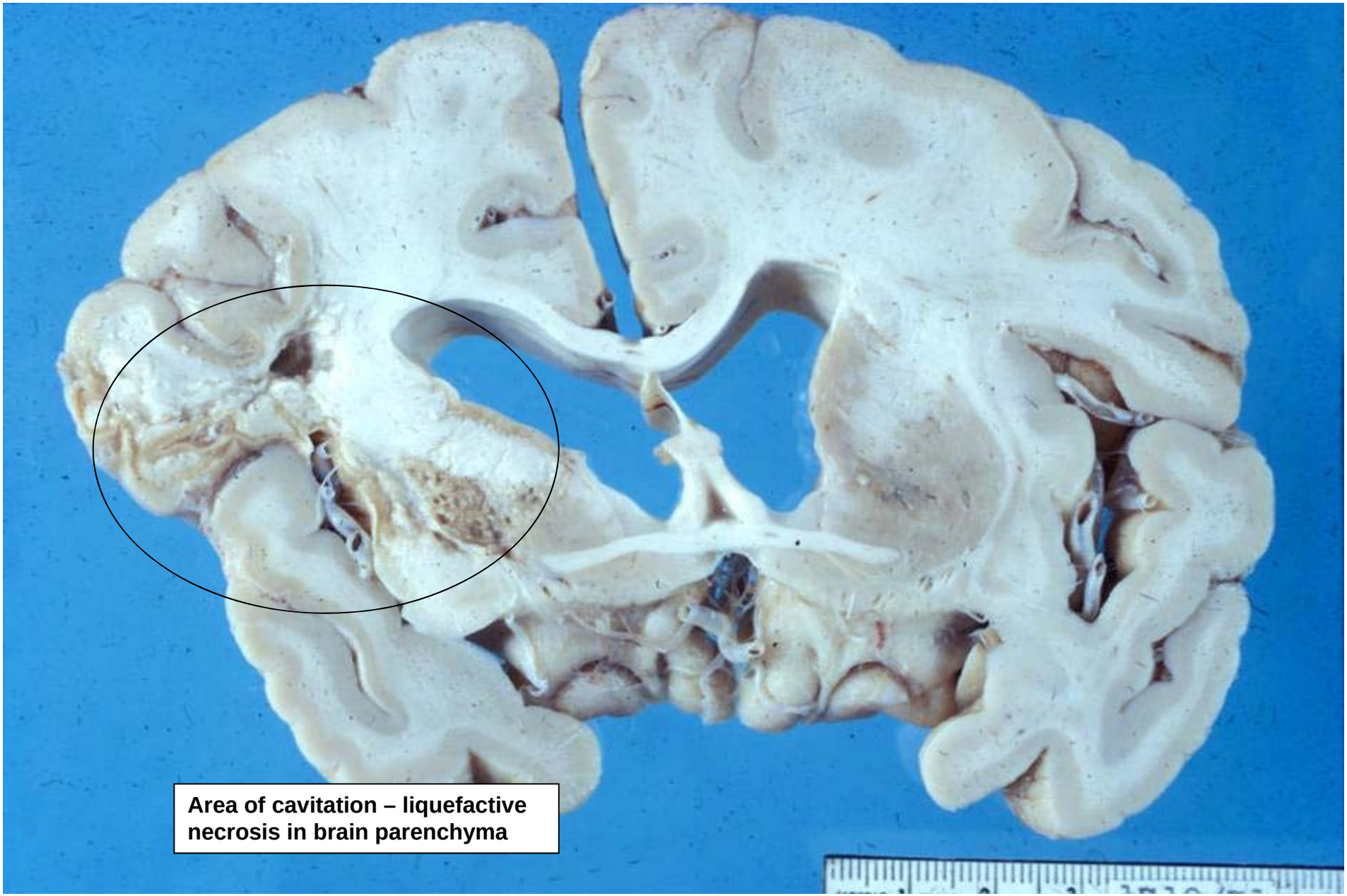
Cell Injury/ Response

- *Slide 11 : Liver: Fatty change*
- *Slide 3: Heart: Acute myocardial infarction (coagulative necrosis)*
- *Slide 6: Lung: Miliary Tuberculosis (caseous necrosis)*

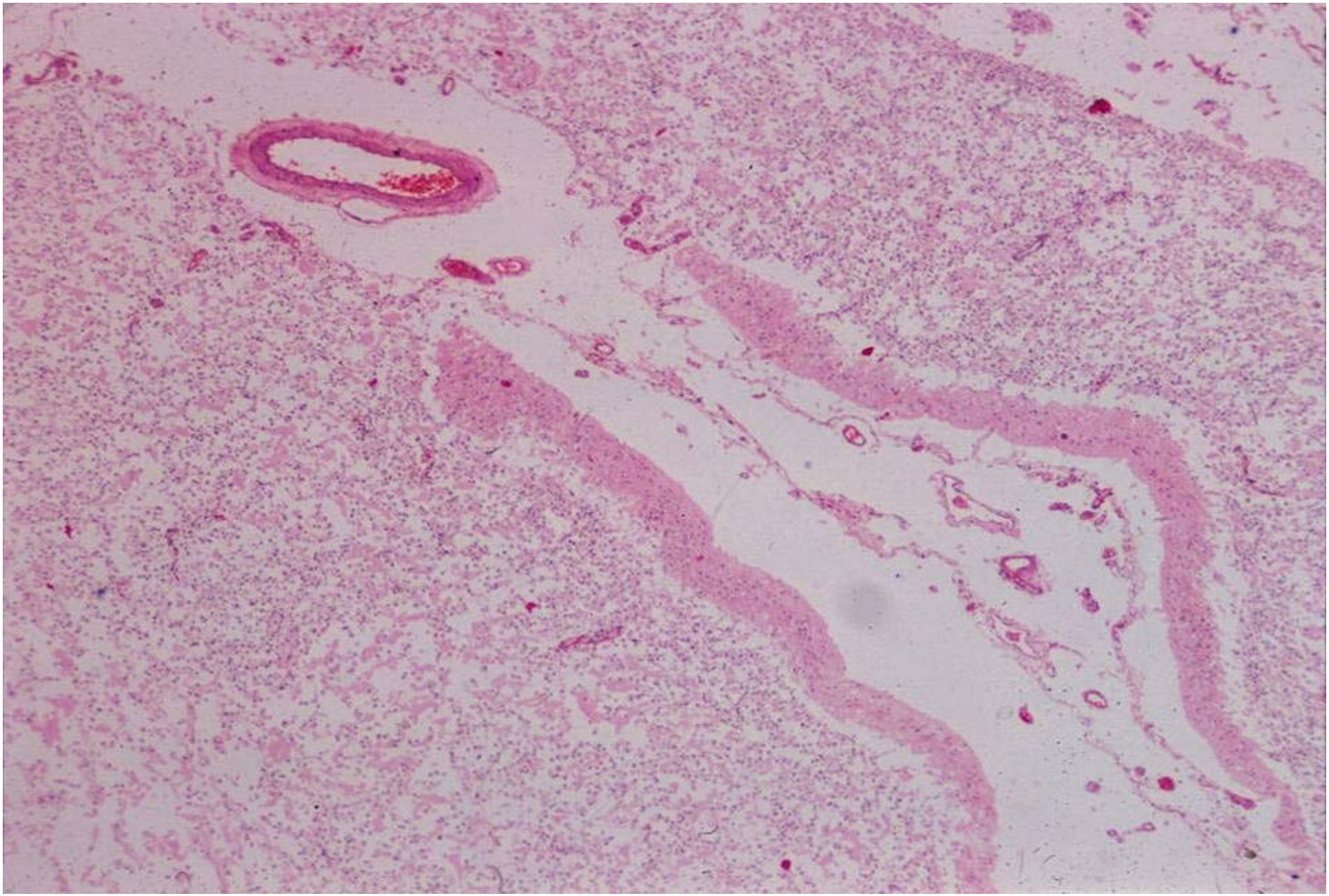
(refer to systemic pathology)

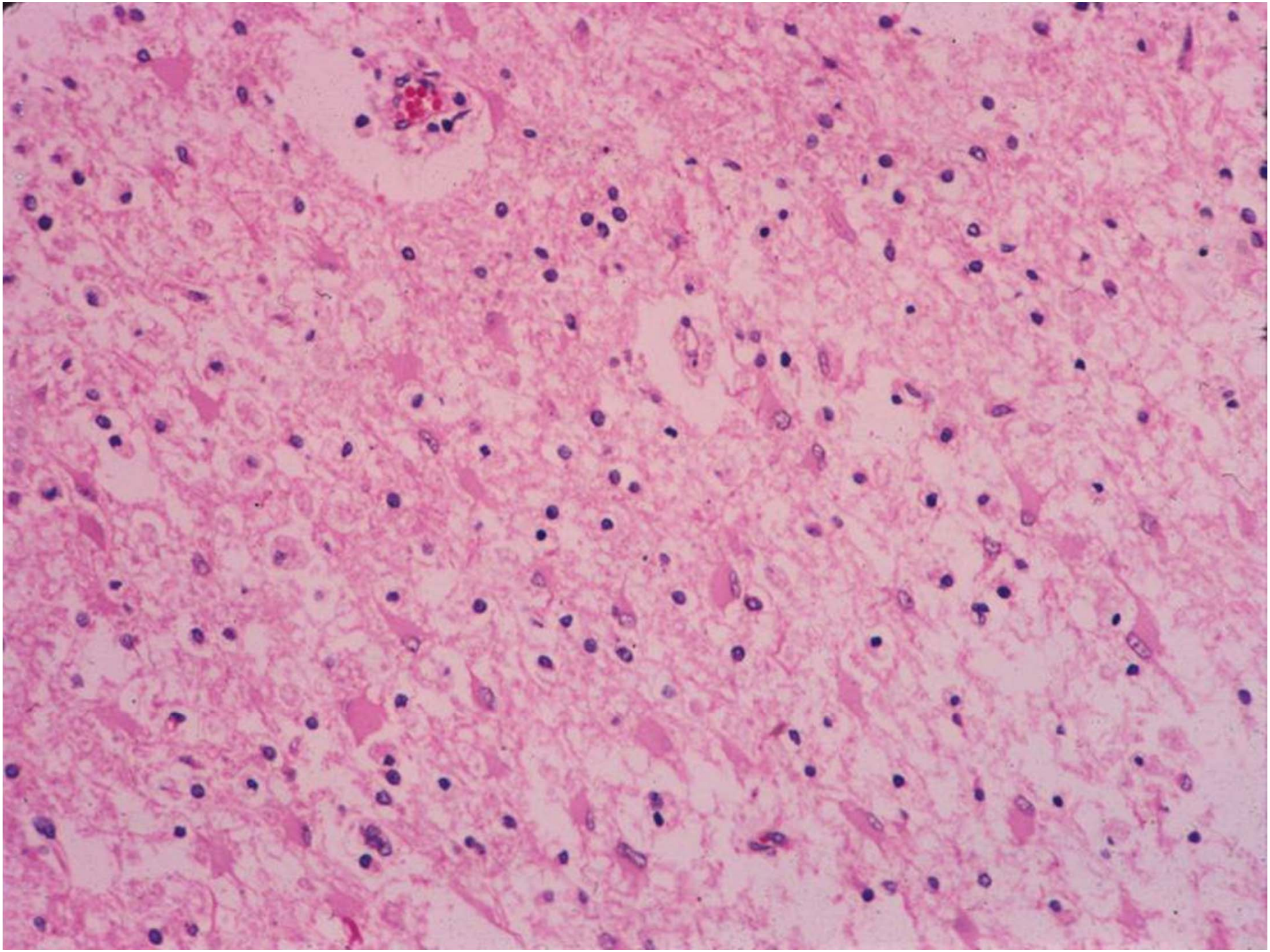
- Demo: Brain Infarct (liquefactive necrosis)

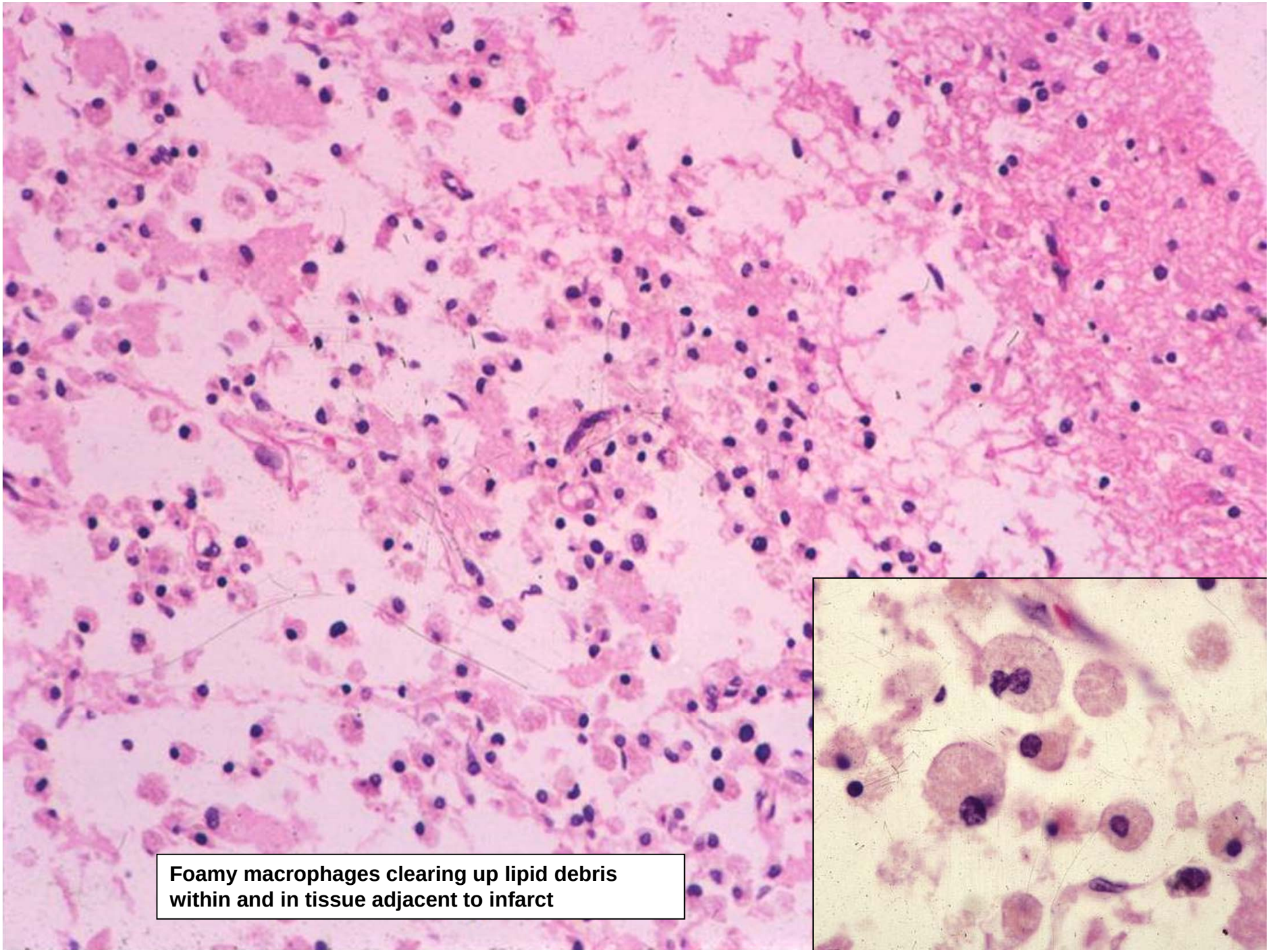
Demo slide:
Brain: Infarct (Liquefactive necrosis)


Area of cavitation – liquefactive necrosis in brain parenchyma

Brain: Liquefactive necrosis







Foamy macrophages clearing up lipid debris within and in tissue adjacent to infarct

Haemodynamic Disorders

Haemodynamic Disorders

- *Demo: Lung : Chronic venous congestion/oedema*
- *Slide 12: Liver : Chronic venous congestion*
- *Slide 2: Coronary artery : Fresh thrombus*
- *Slide 3: Coronary artery : Organised thrombus*
- *Slide 17: Kidney : Infarct*

(refer to systemic pathology tutorials)

Acute Inflammation

Acute inflammation

- *Slide 9 : Appendix: Acute inflammation*
- *Slide 5: Lung Bronchopneumonia*
- *Slide 7: Lung: Abscess*

(refer to systemic pathology tutorials)

Chronic Inflammation, Healing and Repair

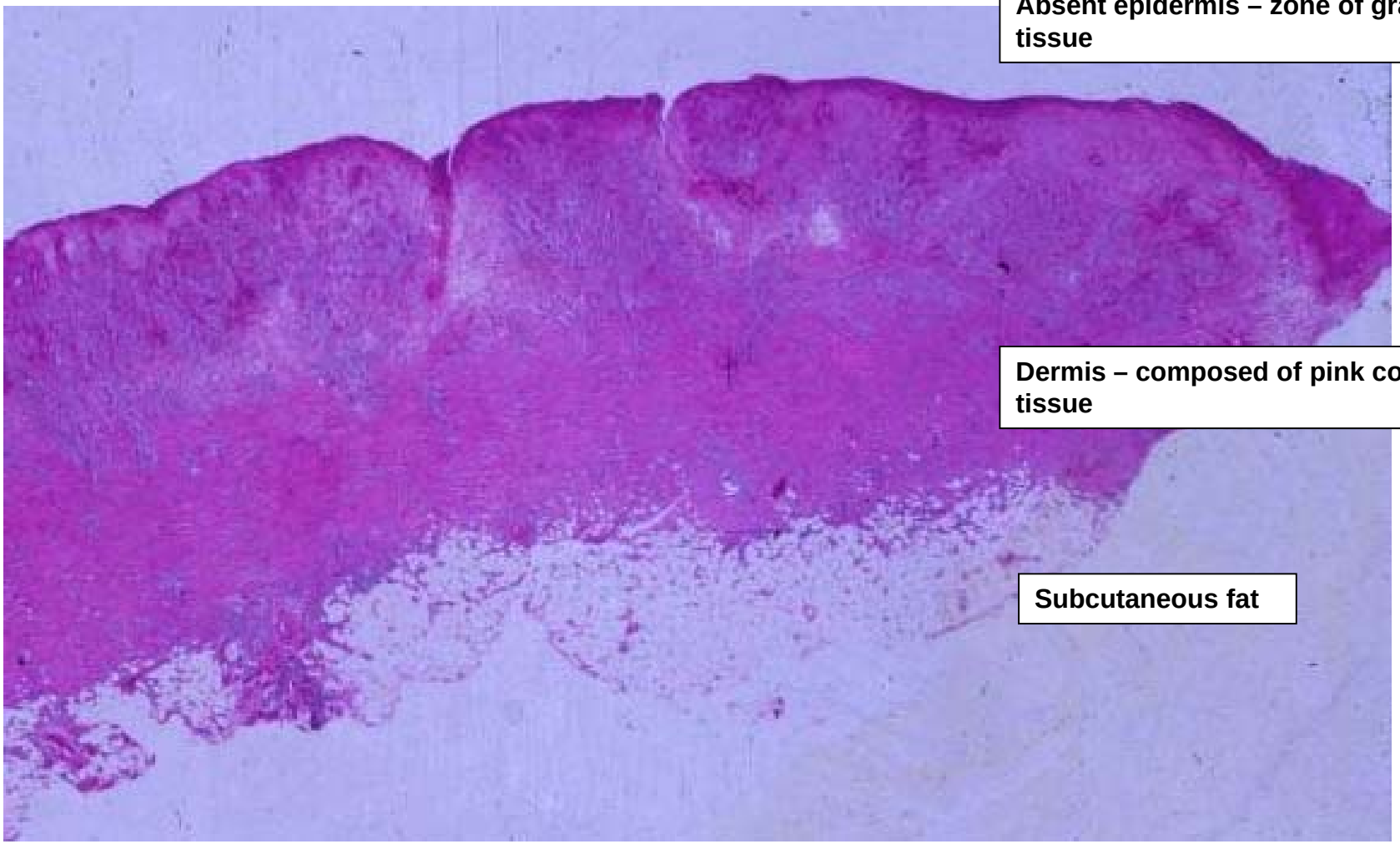
Chronic inflammation, healing and repair

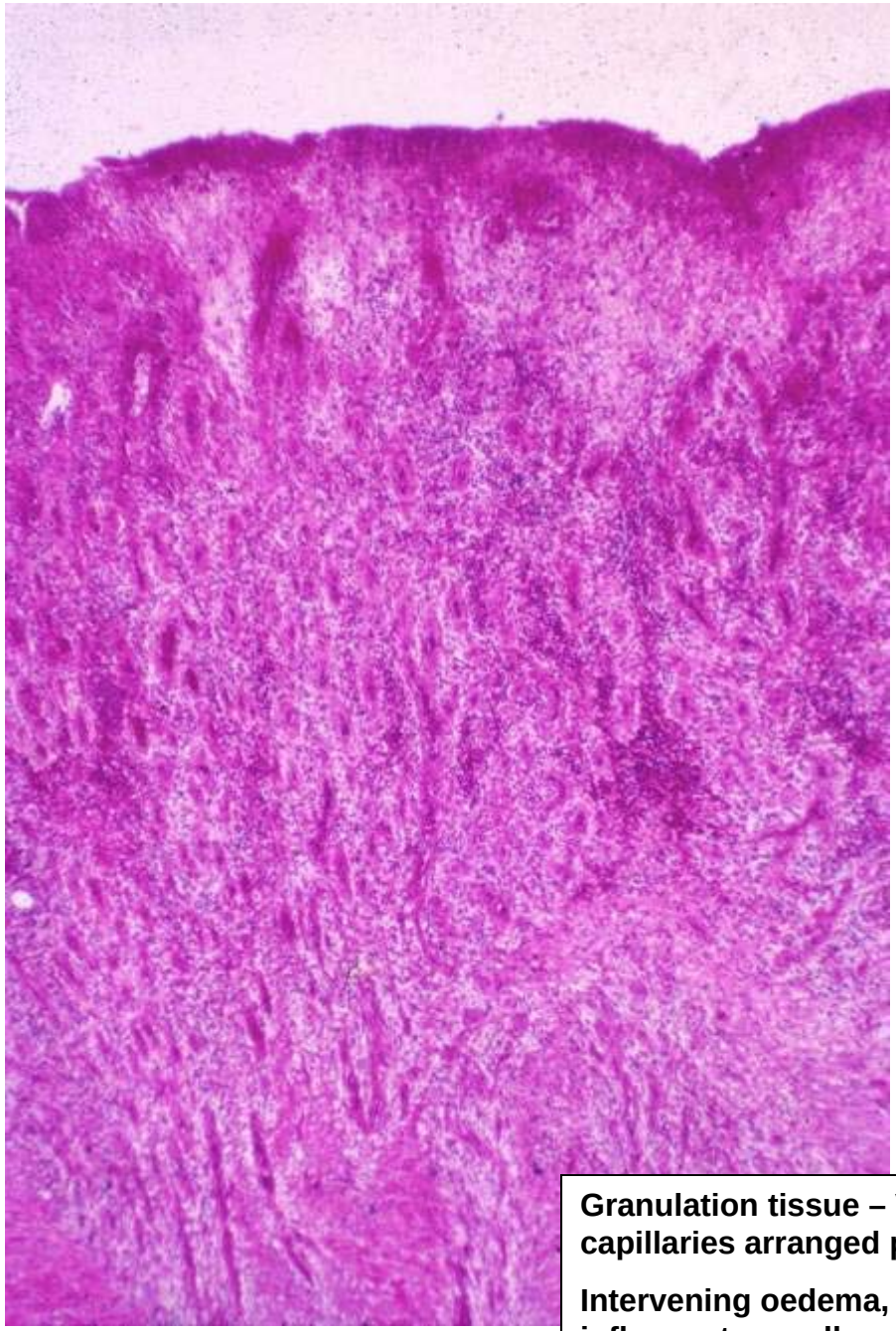
- *Slide 14 : Lymph node: Tuberculosis*
- *Slide 4: Heart: Healed Infarct*

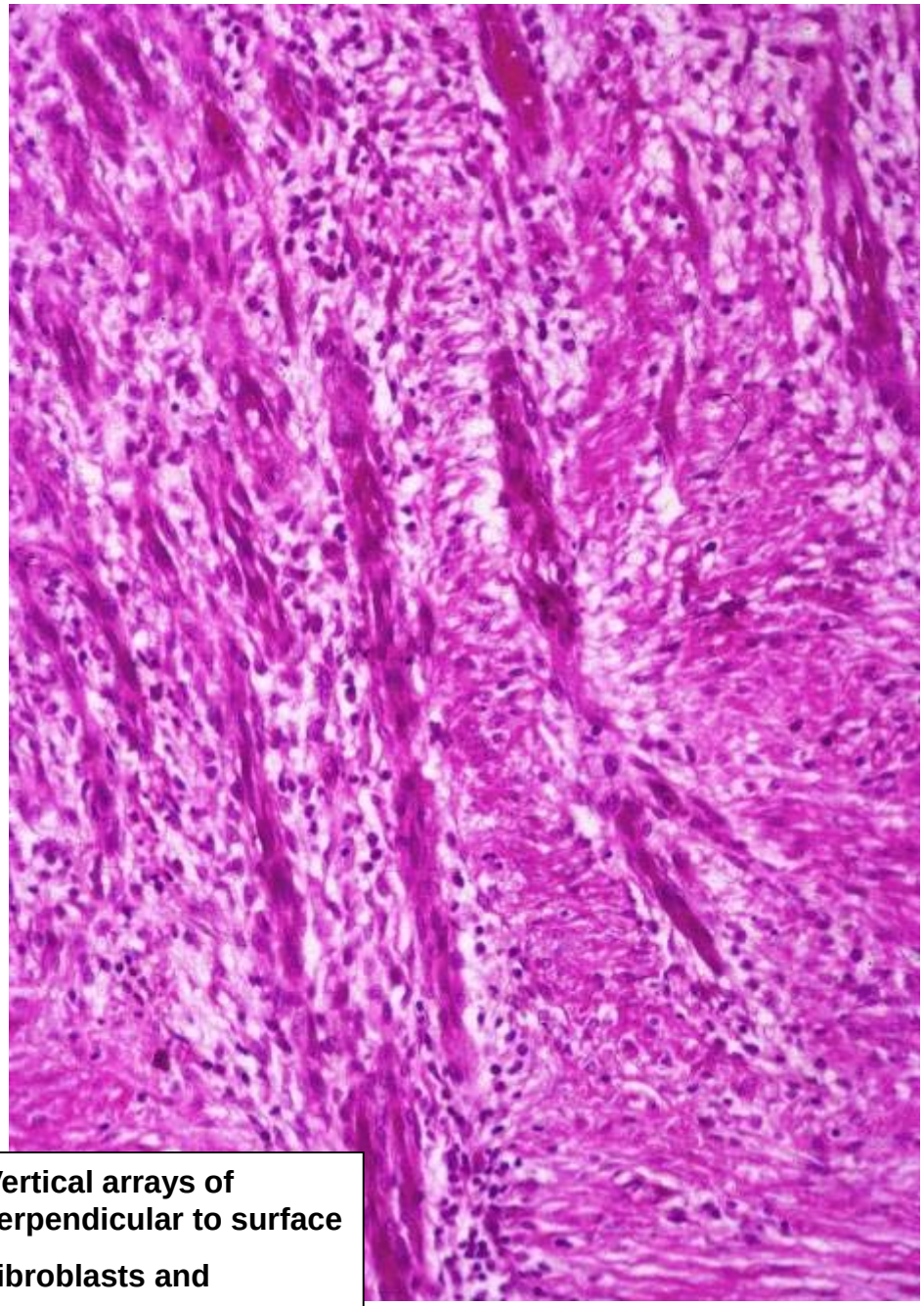
(refer to systemic pathology)

- Slide 24: Skin: Granulation tissue
- Demo Slide: Skin: Foreign body giant cell reaction

Slide 24:
Skin: Granulation tissue


Absent epidermis – zone of granulation tissue
Dermis – composed of pink collagenous tissue
Subcutaneous fat



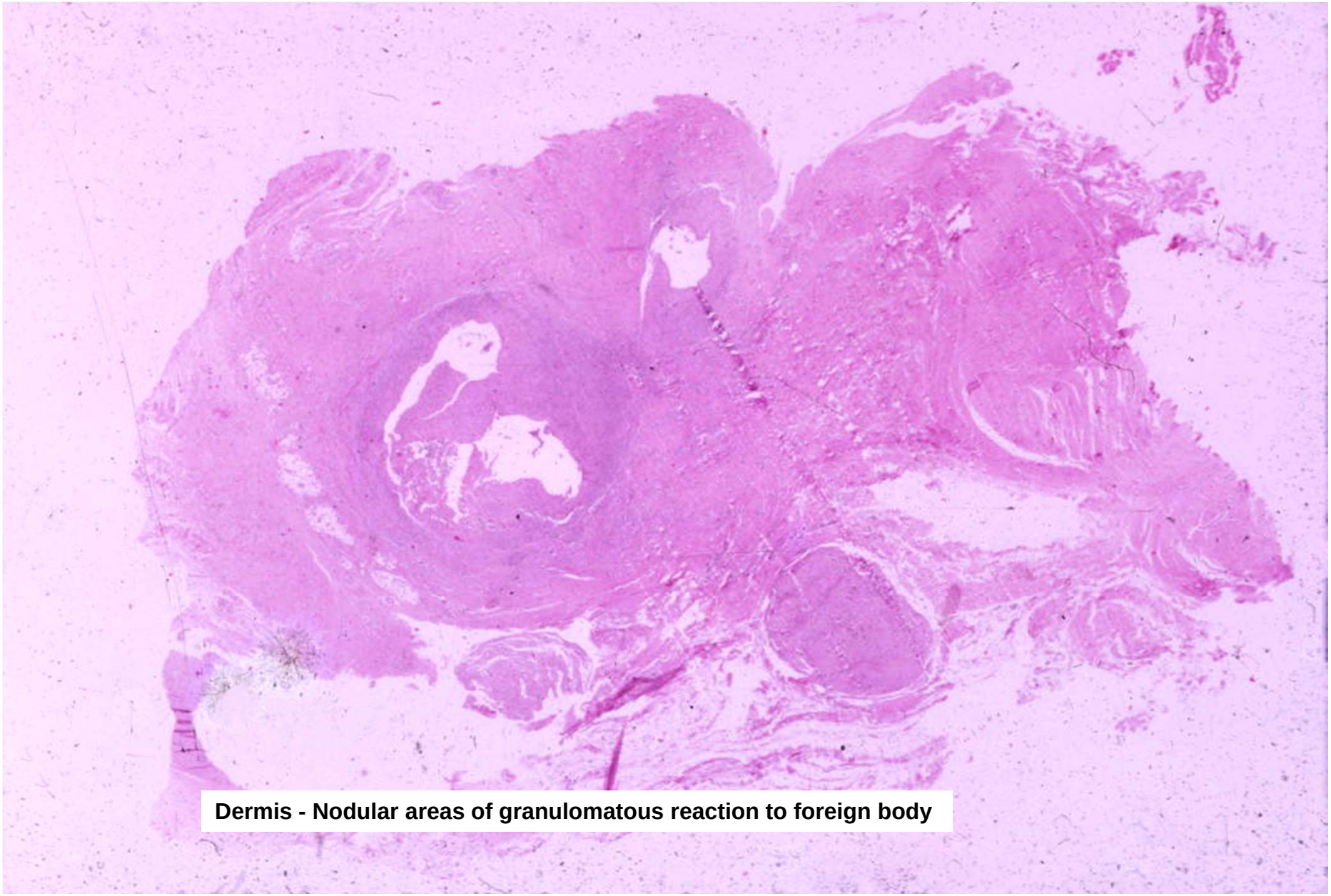


Granulation tissue – Vertical arrays of capillaries arranged perpendicular to surface

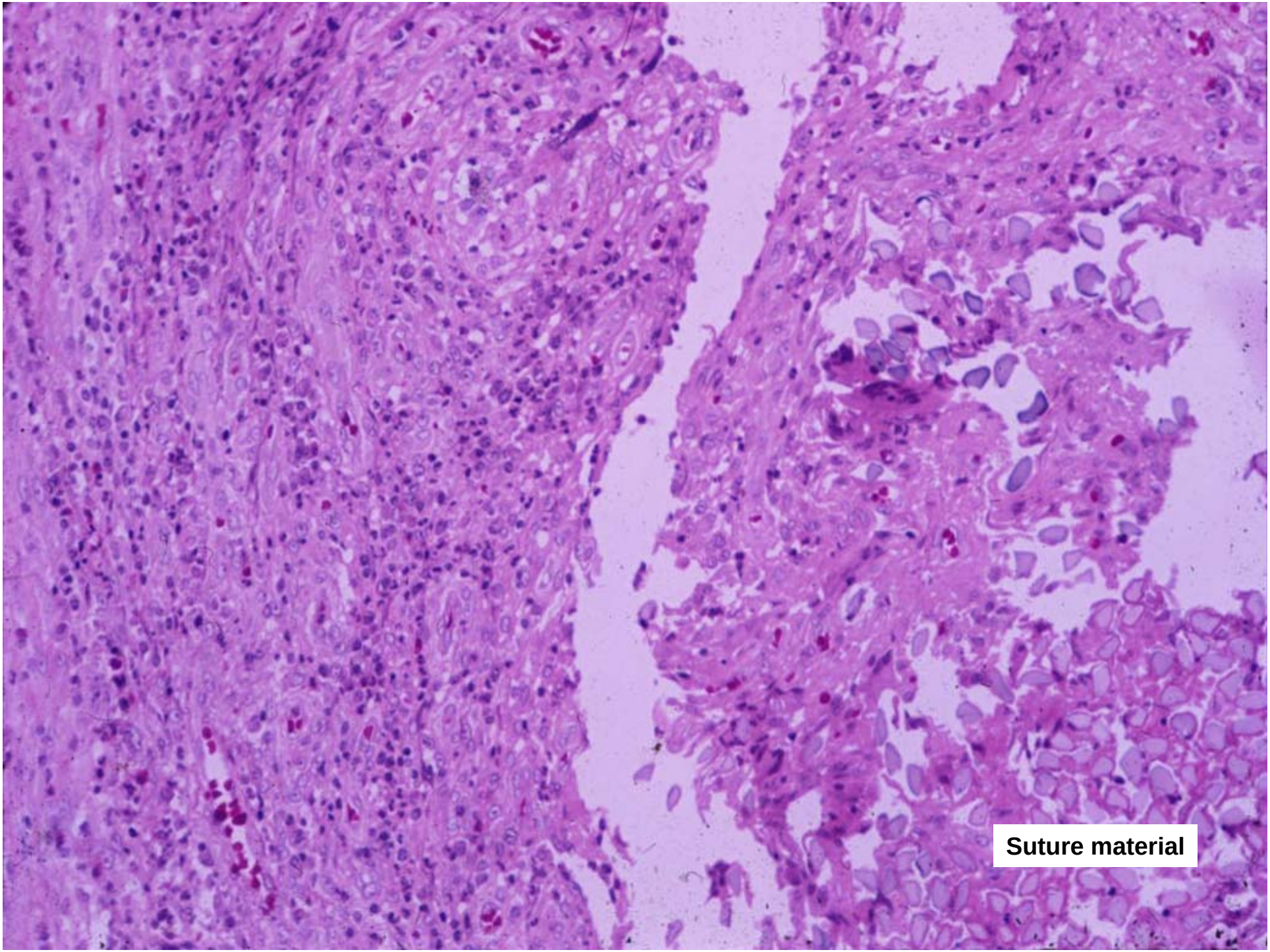
Intervening oedema, fibroblasts and inflammatory cells

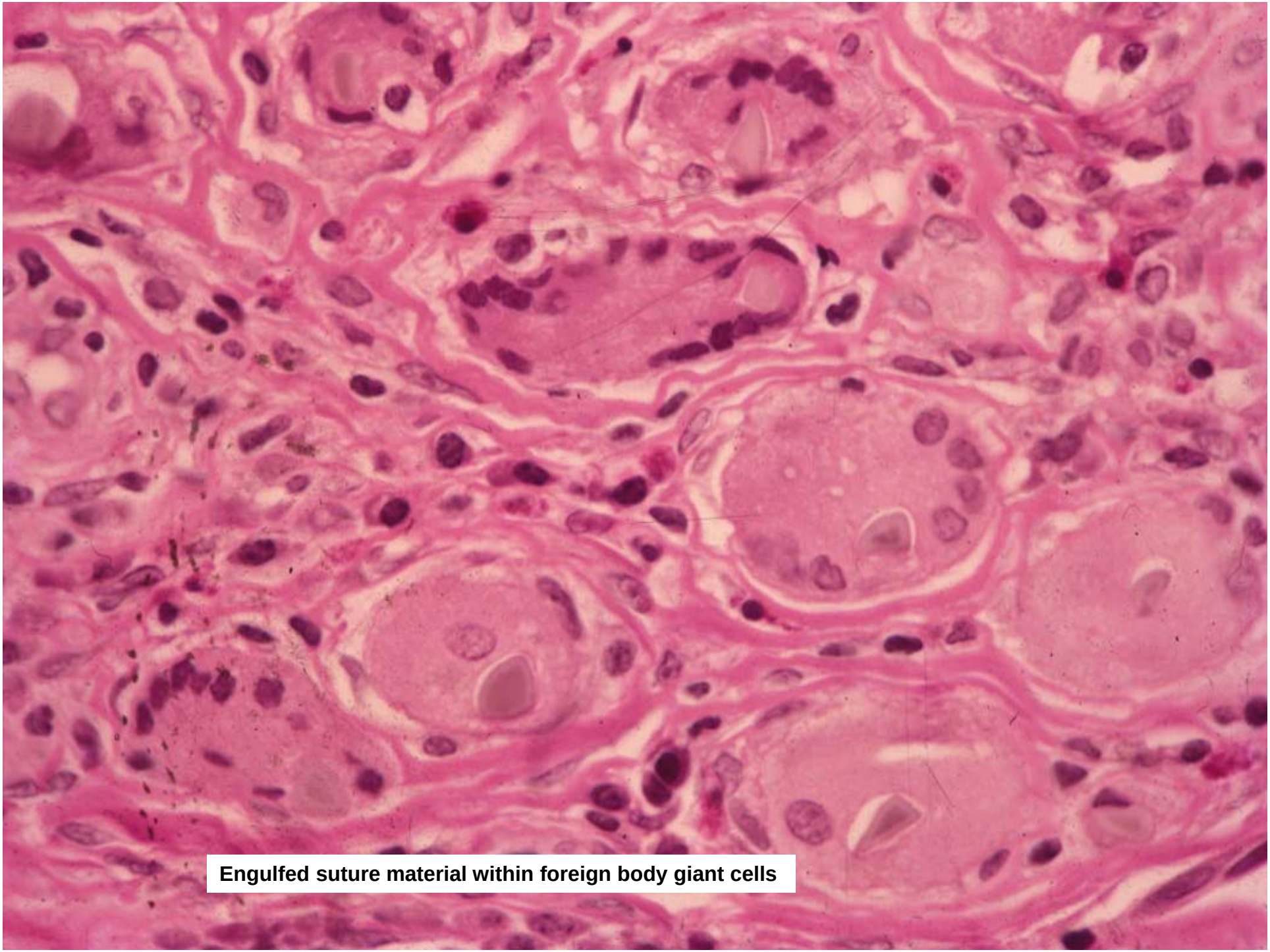
Demostration slide
Skin: Foreign body giant cell reaction

Skin: Foreign body giant cell reaction



Dermis - Nodular areas of granulomatous reaction to foreign body


Suture material



Engulfed suture material within foreign body giant cells

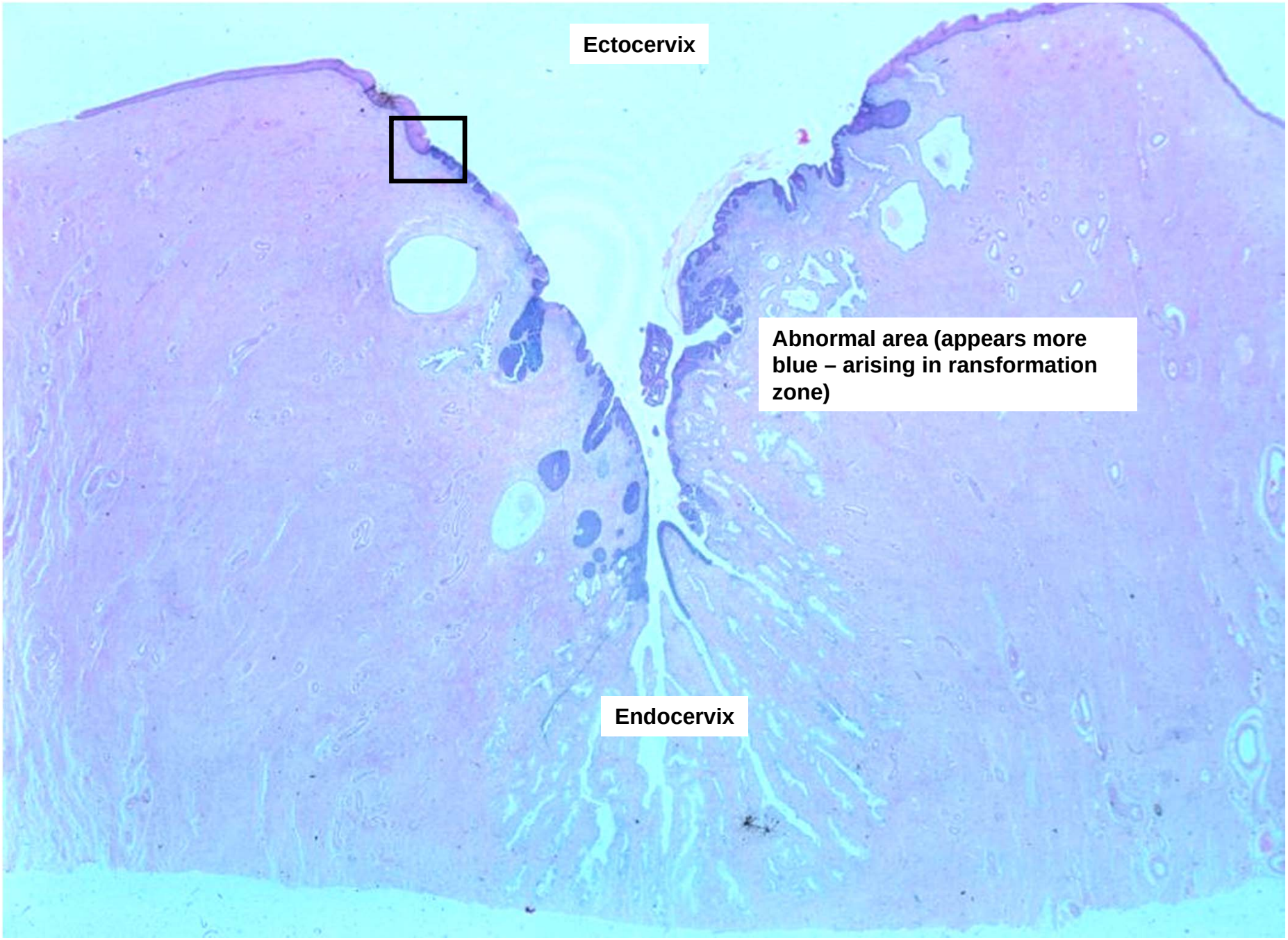
Cancer I

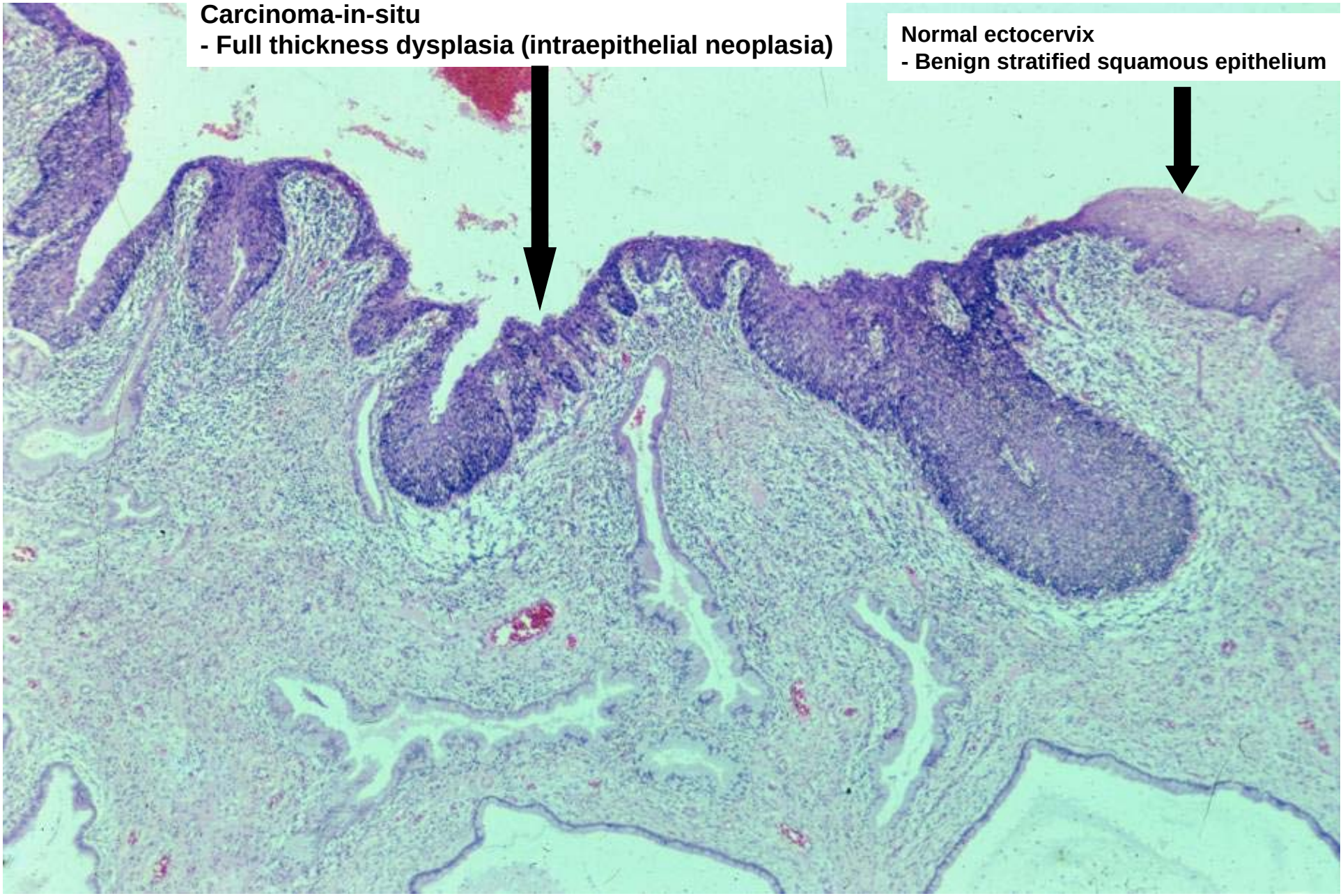
PATHOLOGY OF CANCER

- Slide 20 : Cervix – Carcinoma-in-Situ (CIN III)
- Slide 21 : Cervix – Squamous cell carcinoma
- Slide 22 : Uterus – Leiomyoma
- Demo slide : Ovary – Mature cystic teratoma

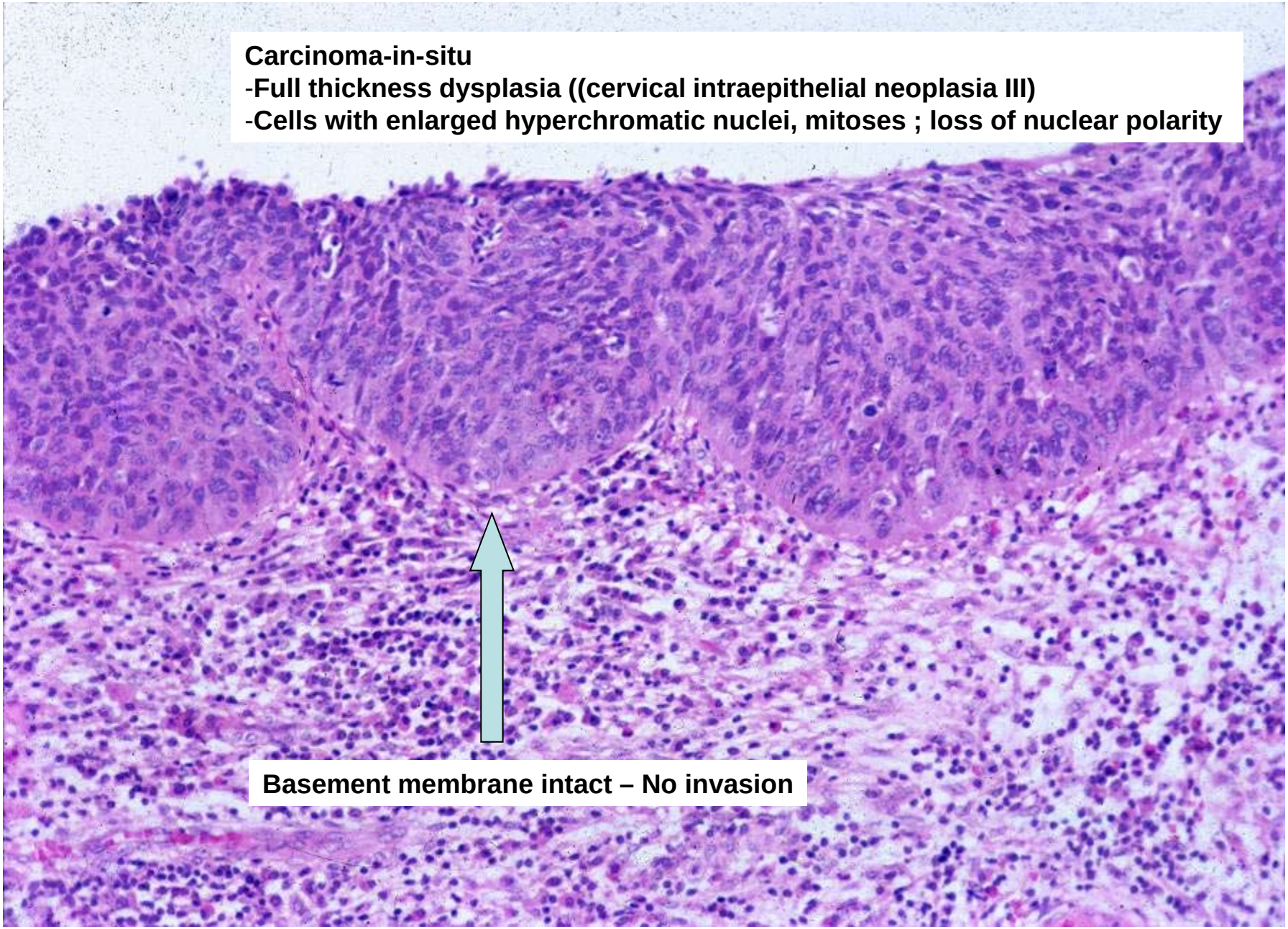
SLIDE 20
Cervix – Carcinoma-in-Situ (CIN III)

A 35-yr-old woman who had history of multiple sex partners in the past was found on routine gynaecological check-up to have an abnormal PAP smear. She was otherwise asymptomatic. Biopsy of the cervix was performed.


Ectocervix
Abnormal area (appears more blue – arising in ransformation zone)
Endocervix


Carcinoma-in-situ
- Full thickness dysplasia (intraepithelial neoplasia)
Normal ectocervix
- Benign stratified squamous epithelium

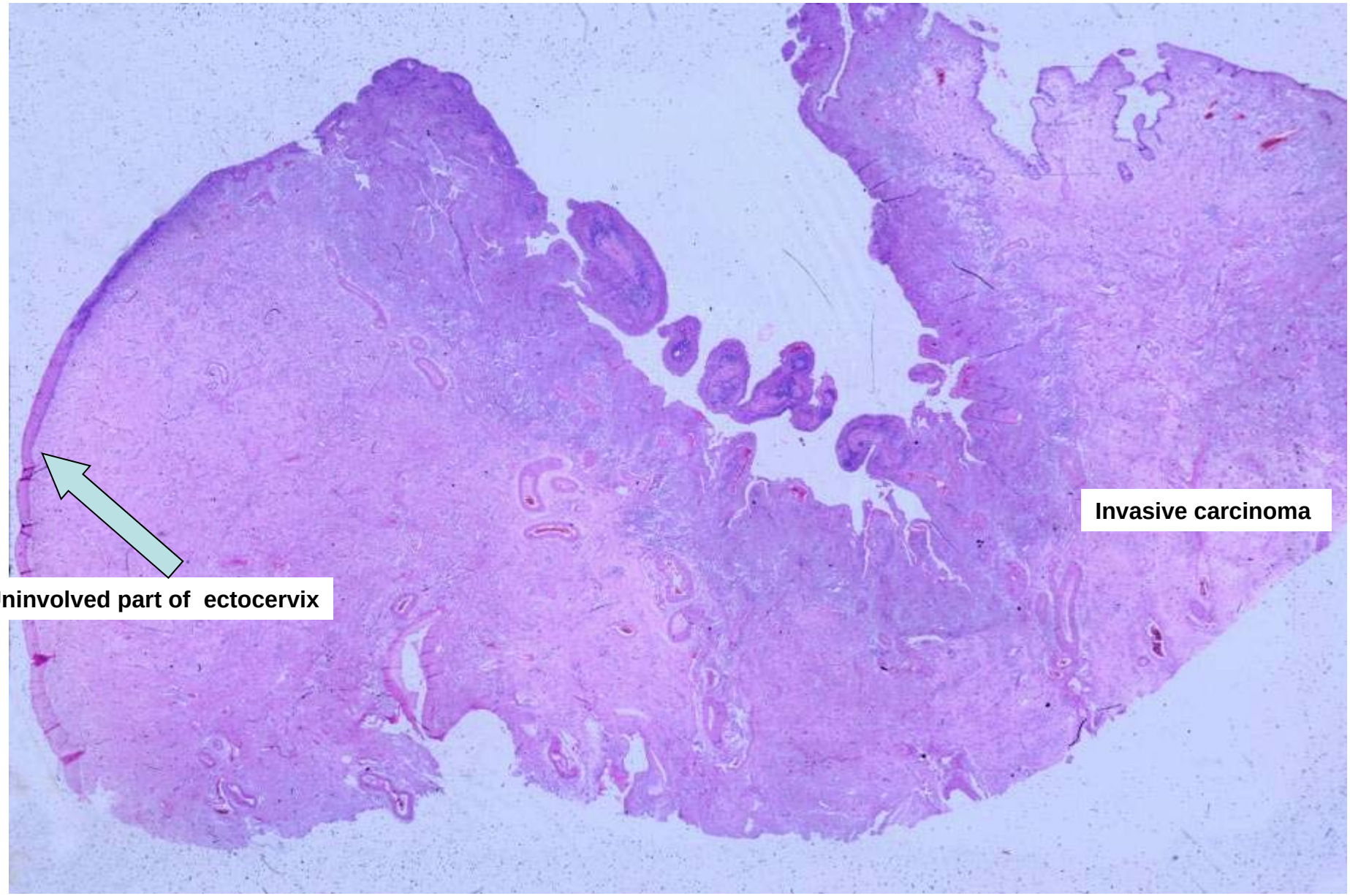

Abrupt transition to carcinoma-in-situ

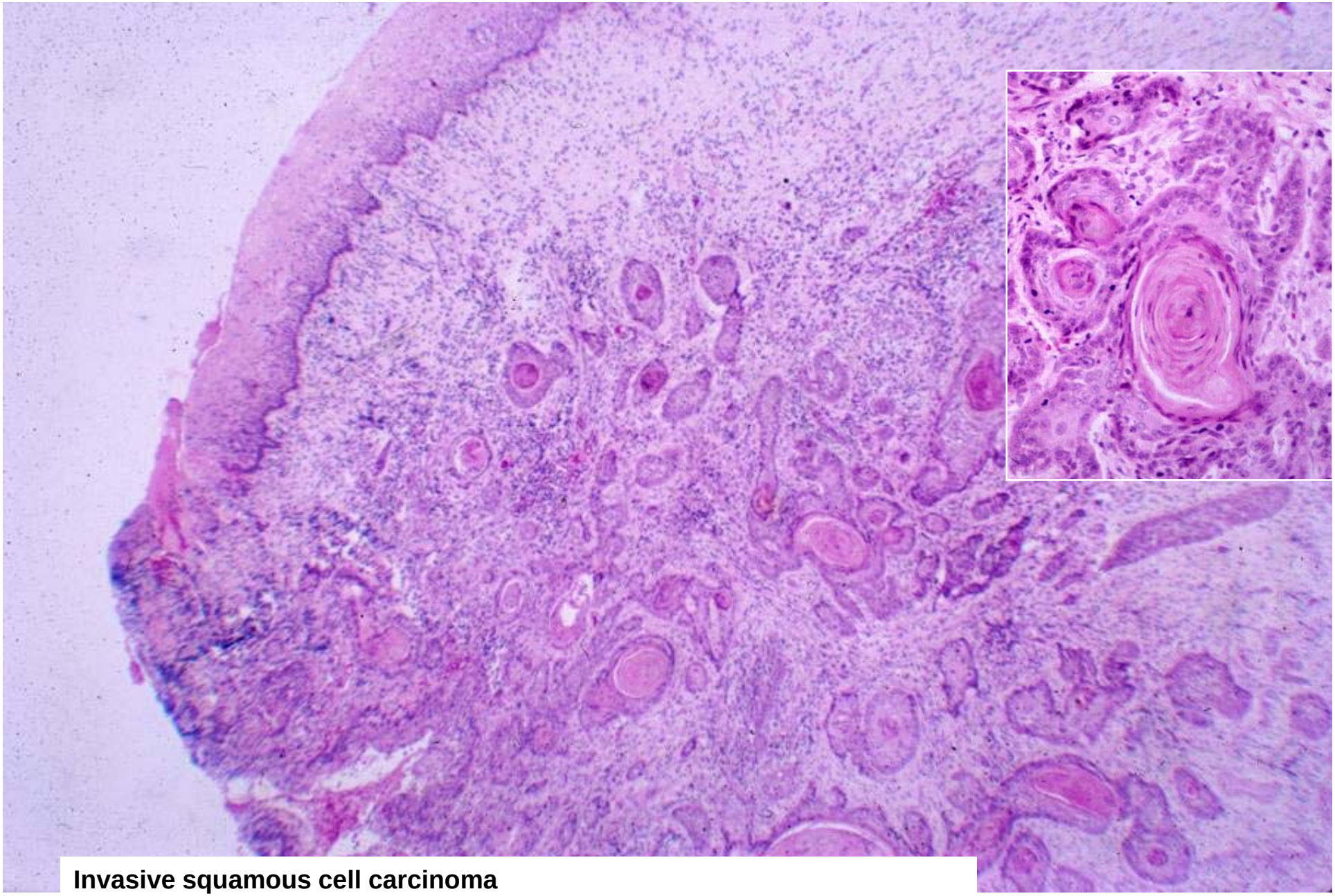

Carcinoma-in-situ
-Full thickness dysplasia ((cervical intraepithelial neoplasia III)
-Cells with enlarged hyperchromatic nuclei, mitoses ; loss of nuclear polarity
Basement membrane intact – No invasion

SLIDE 21
Cervix – Squamous cell carcinoma

A 50-yr-old woman noticed post-coital bleeding 6 months ago. She now has intermittent spotting and vaginal discharge. An ulcerated exophytic growth was seen in the cervix. A PAP smear was taken followed by definite surgery.

Large fungating, ulcerating mass involving cervix


Uninvolved part of ectocervix
Invasive carcinoma

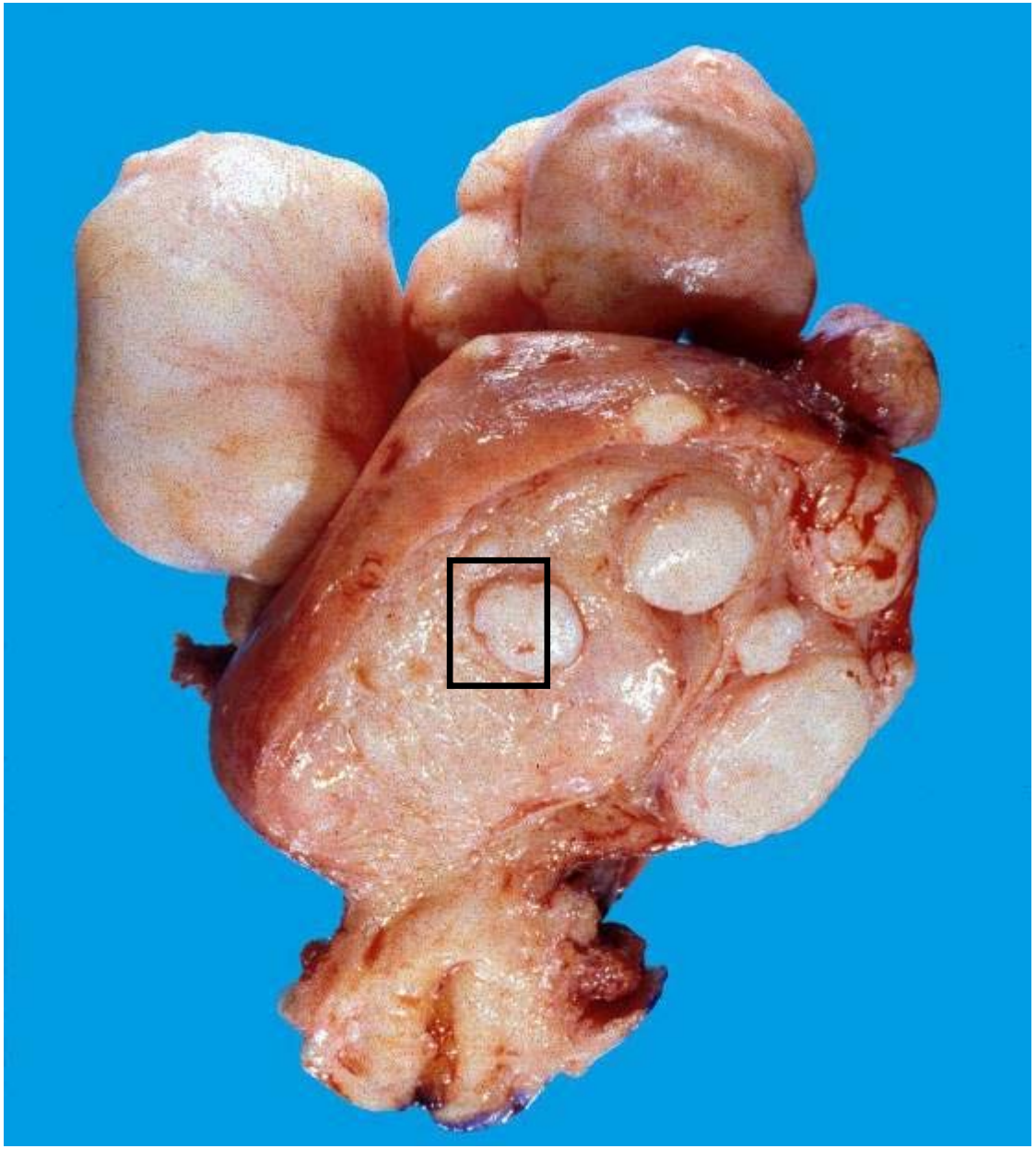


Invasive squamous cell carcinoma
-**Islands of malignant squamous cells infiltrating into a desmoplastic stroma**
-**Some keratin pearls seen (inset)**

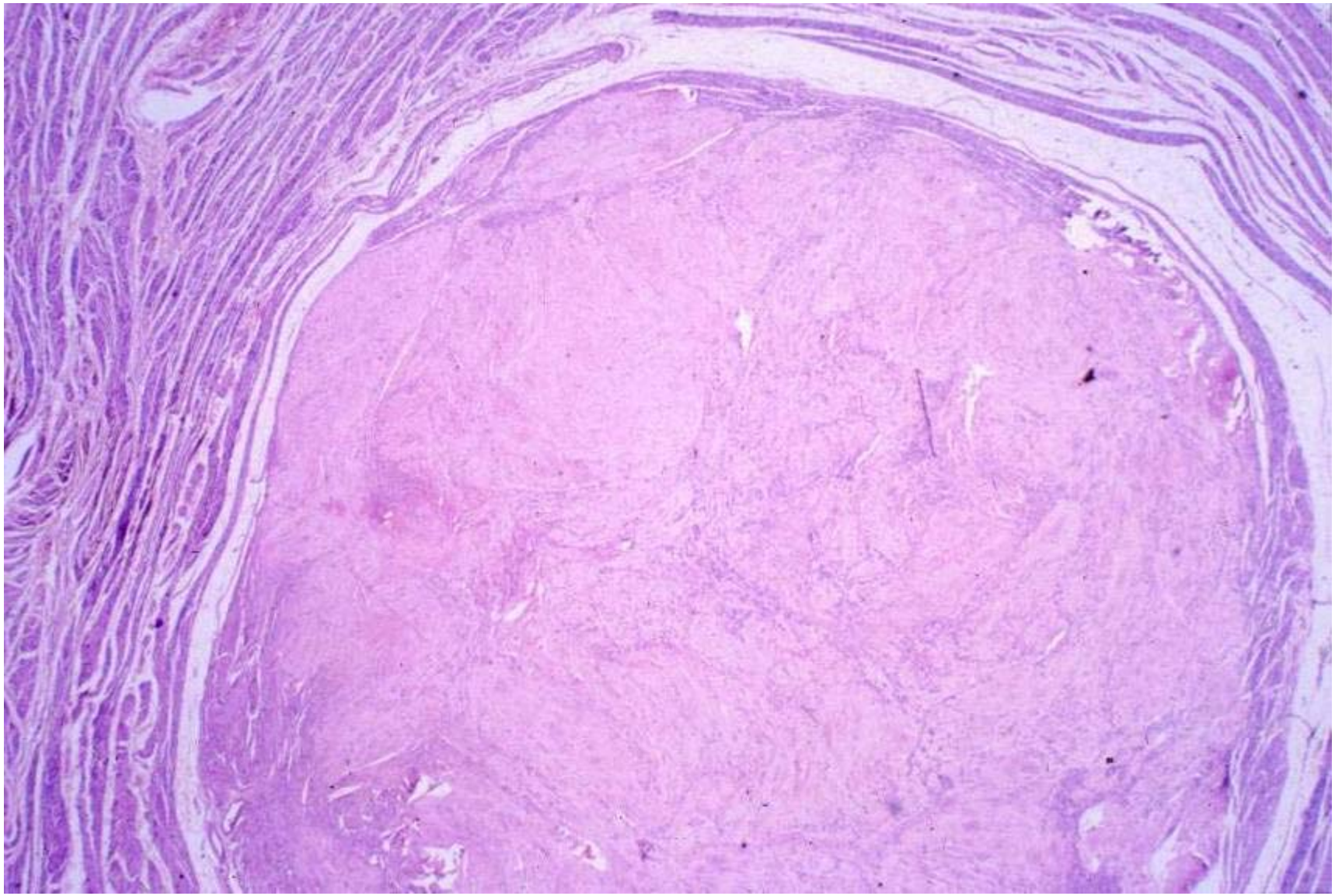
SLIDE 22

Uterus – Leiomyoma

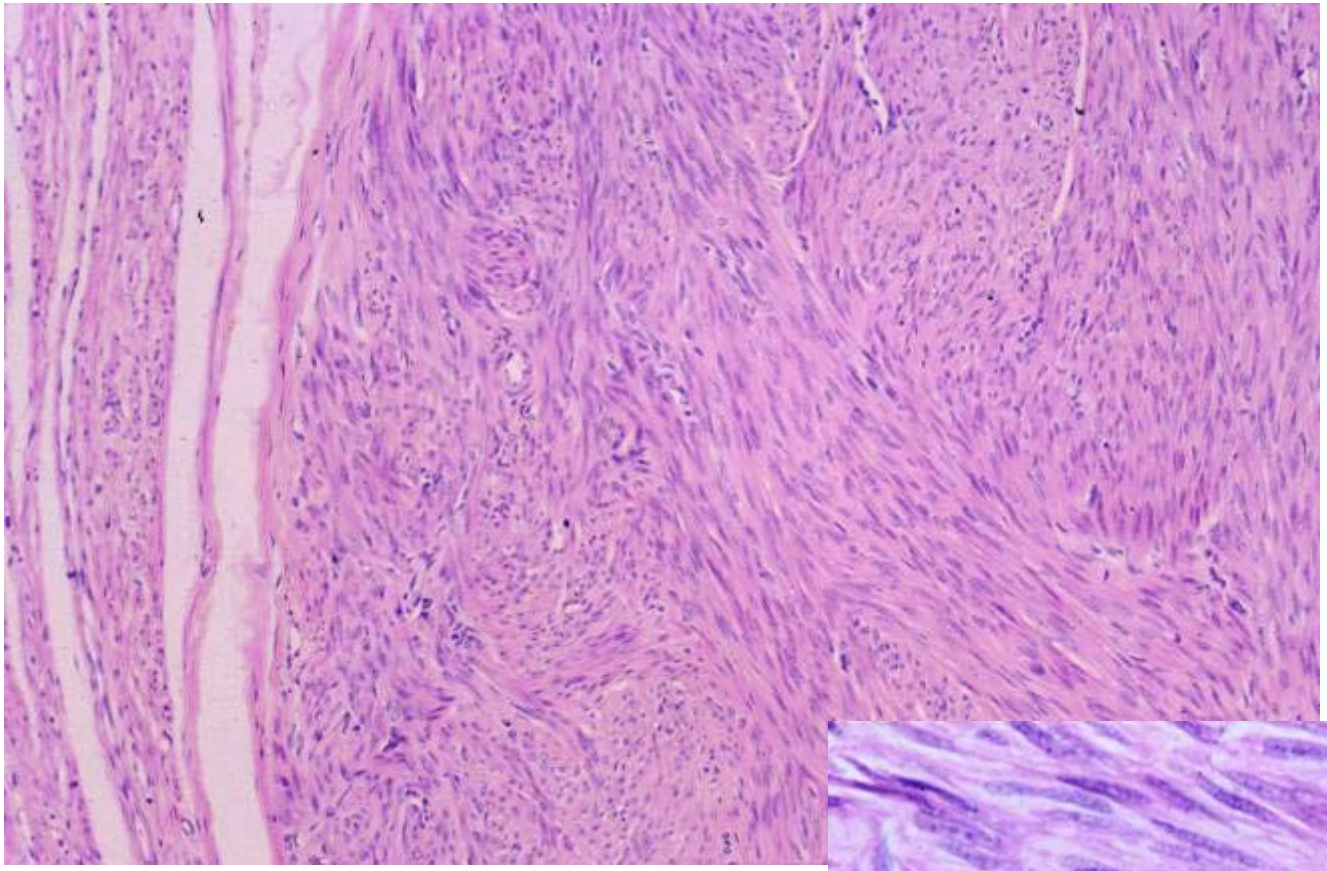
A 45 year old lady complains of heavy menses. Her full blood count shows her to be anaemic. After appropriate investigations, she undergoes a hysterectomy.

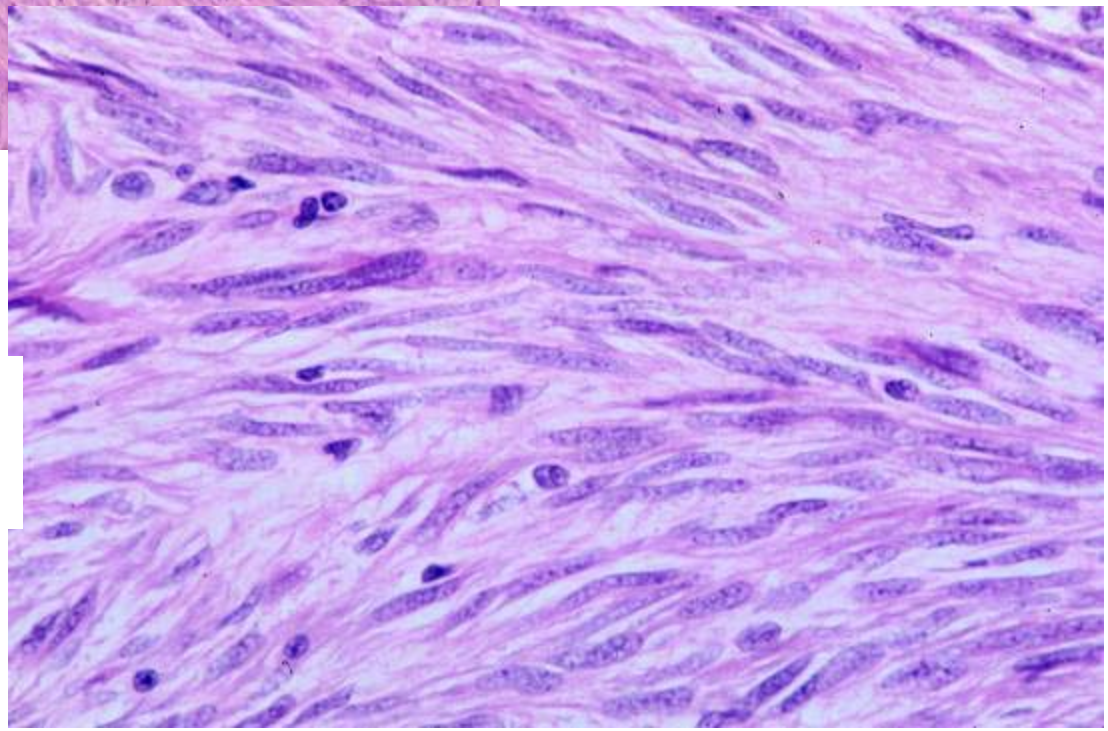


Uterus enlarged and distorted by multiple nodules : Well circumscribed, with pale, whorled cut surfaces



Well circumscribed nodule composed of fascicles (bundles) of spindled cells with eosinophilic (pink) cytoplasm

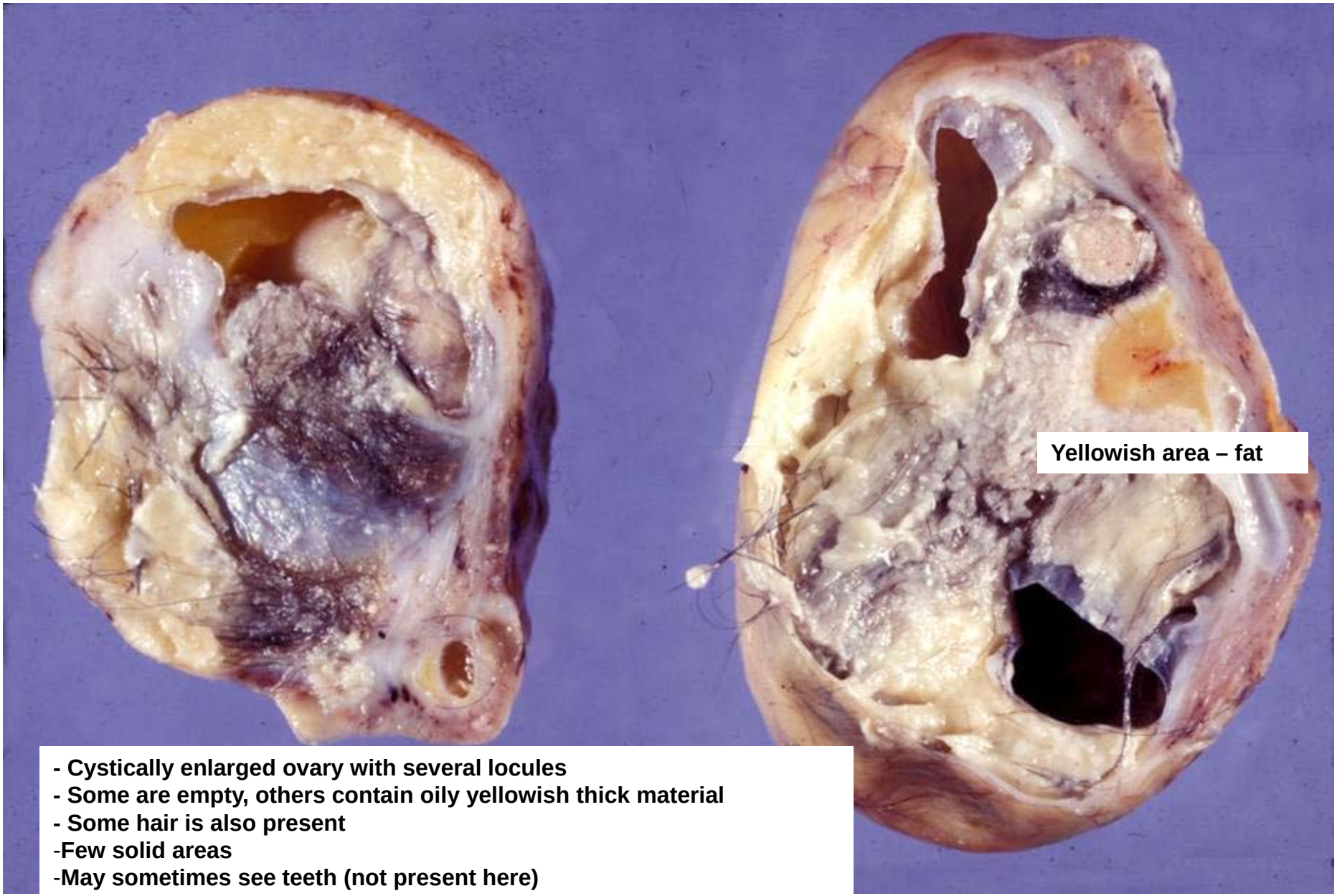




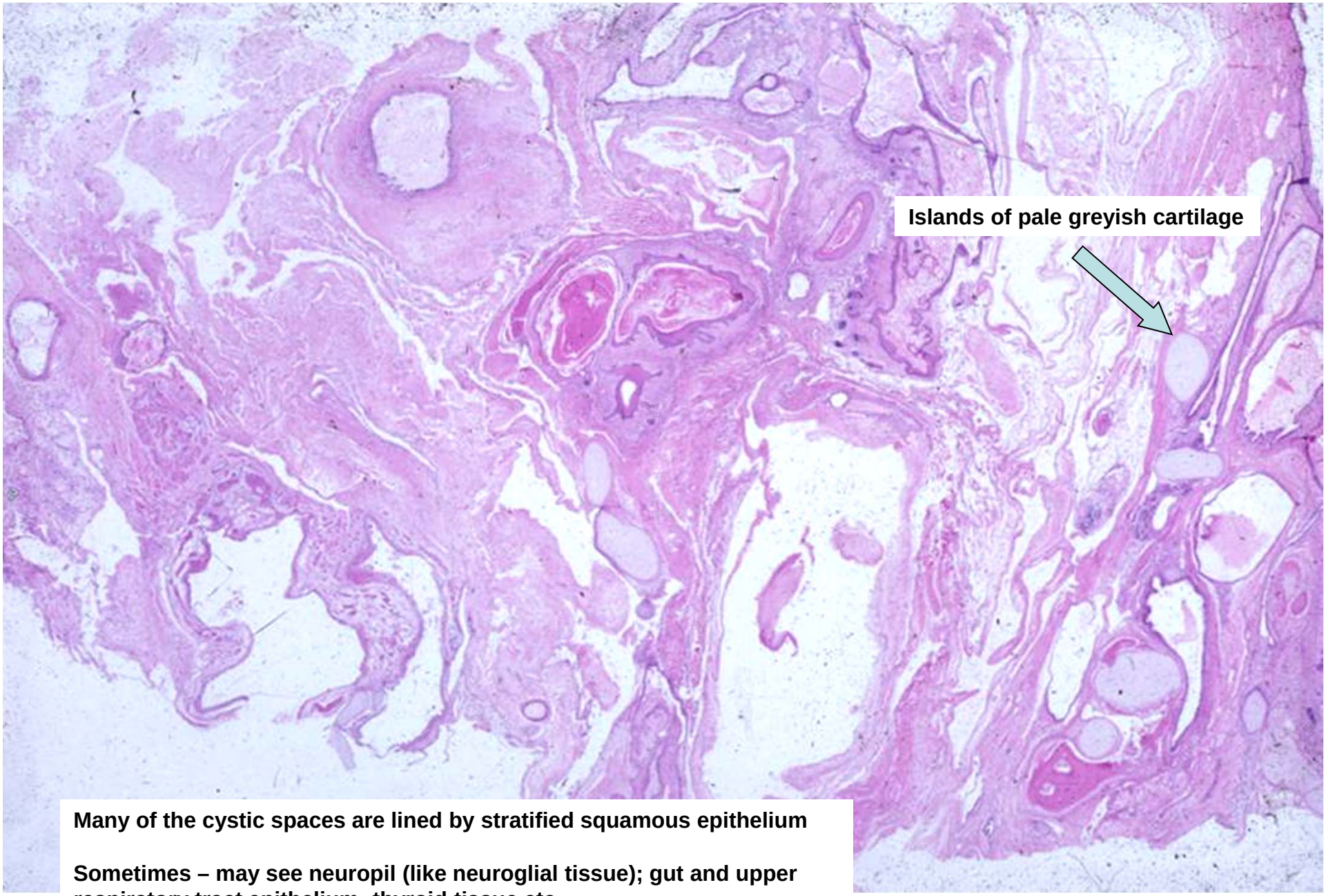
- Bland spindled cells with fibrillary pink cytoplasm
- No significant cytologic atypia, necrosis or increased mitoses

Demo slide : Ovary – Mature cystic teratoma

Ovary: Mature cystic teratoma

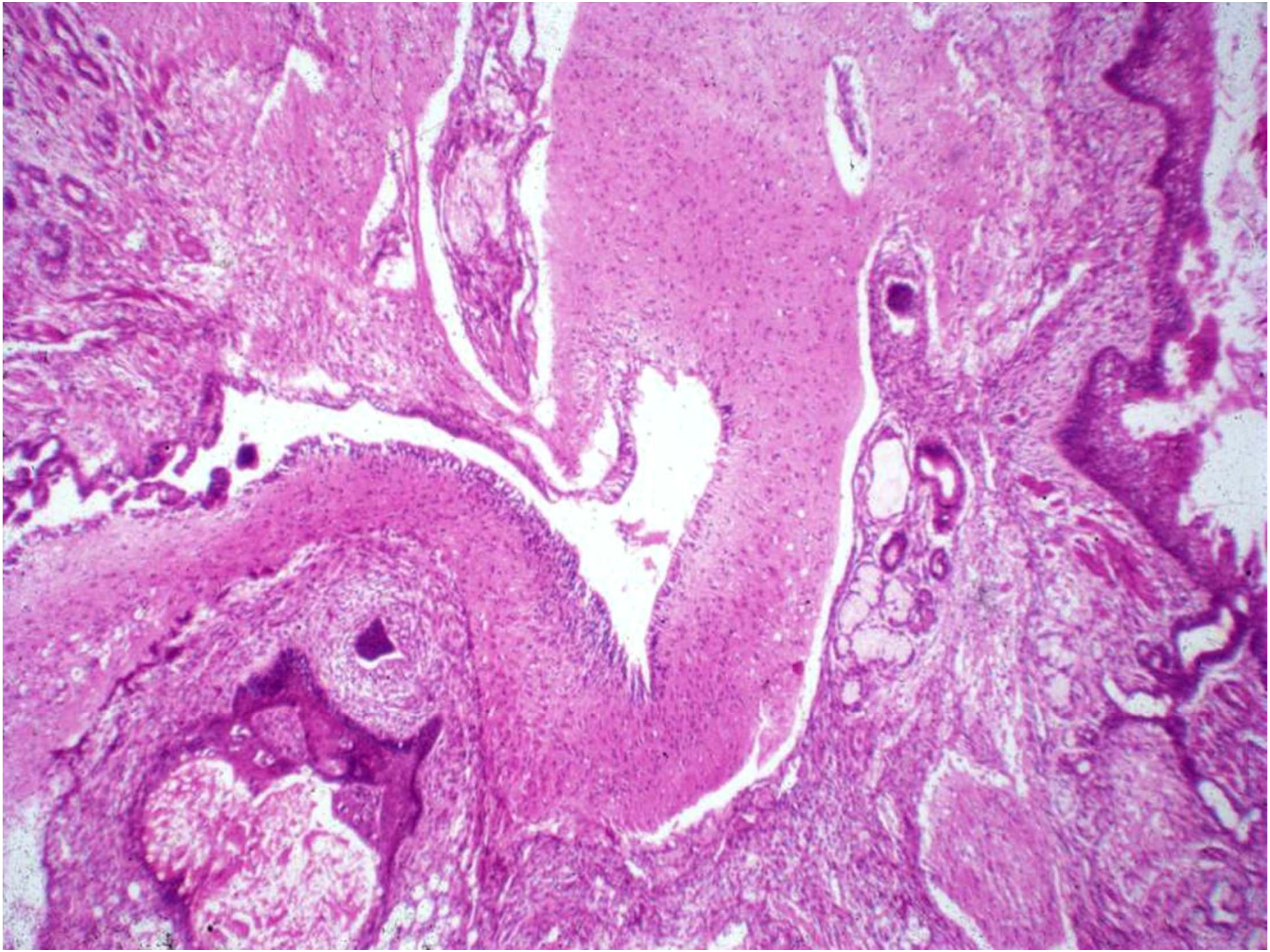


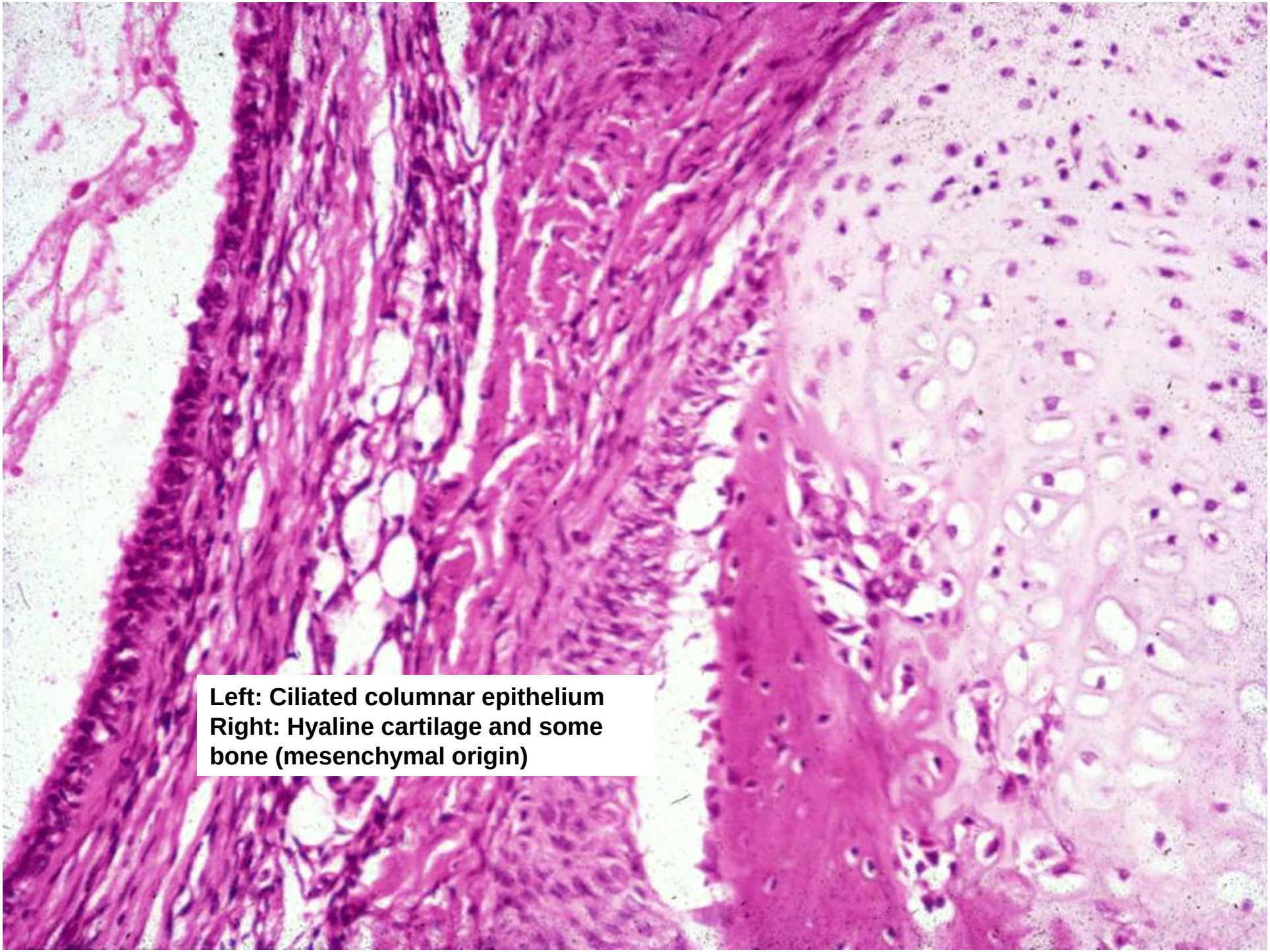
- **Cystically enlarged ovary with several locules**
- **Some are empty, others contain oily yellowish thick material**
- **Some hair is also present**
- **Few solid areas**
- **May sometimes see teeth (not present here)**

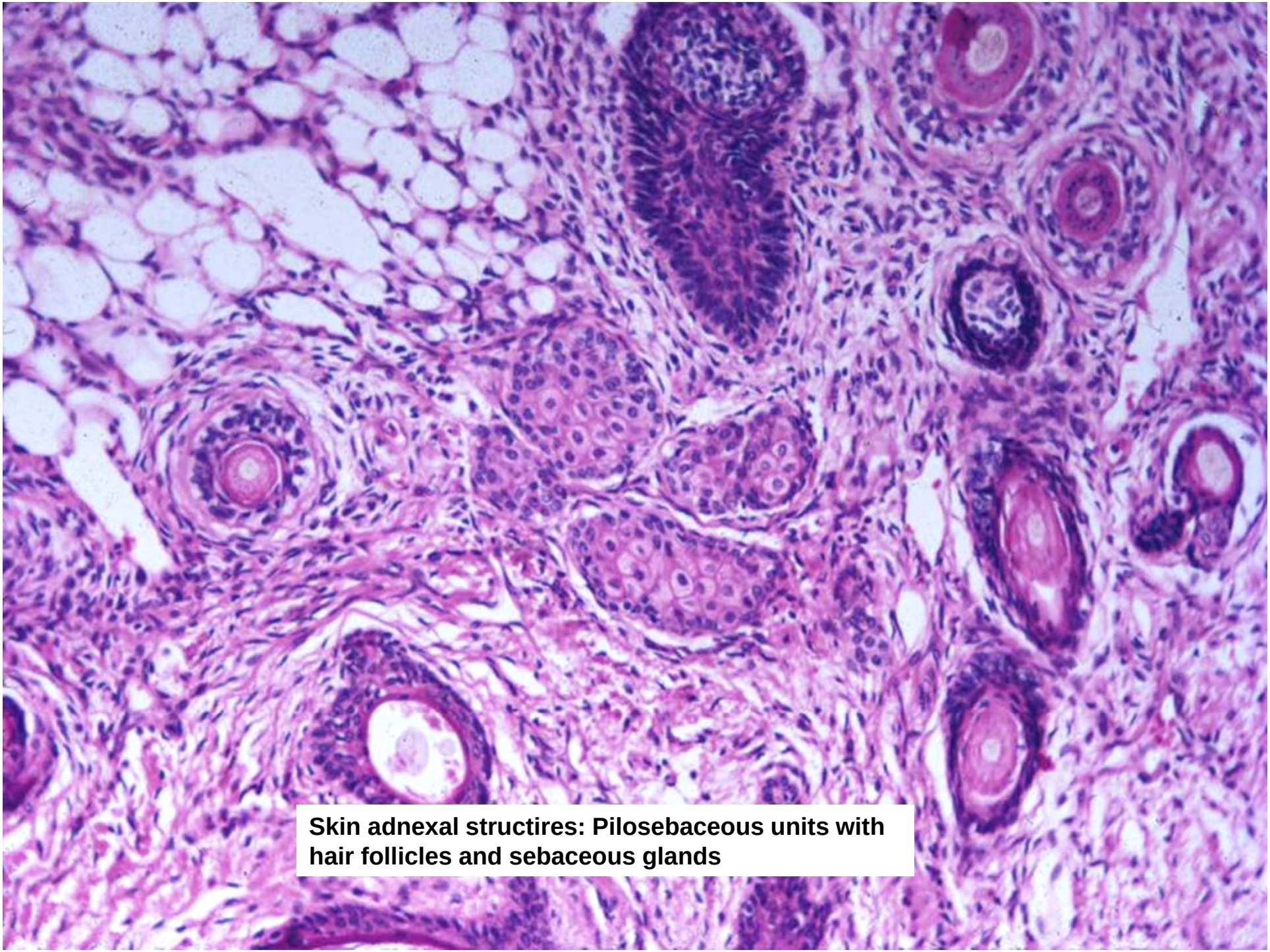


Many of the cystic spaces are lined by stratified squamous epithelium

Sometimes – may see neuropil (like neuroglial tissue); gut and upper respiratory tract epithelium; thyroid tissue etc.




Left: Ciliated columnar epithelium
Right: Hyaline cartilage and some bone (mesenchymal origin)



Skin adnexal structires: Pilosebaceous units with hair follicles and sebaceous glands

Cancer II

EFFECT OF CANCER ON HOST

- *Slide 15 : Lymph node – Metastases (Squamous cell carcinoma)*
- *Demo slide : Liver – Metastases (Secondary adenocarcinoma)*
- *Slide 19 : Breast – Invasive ductal carcinoma*

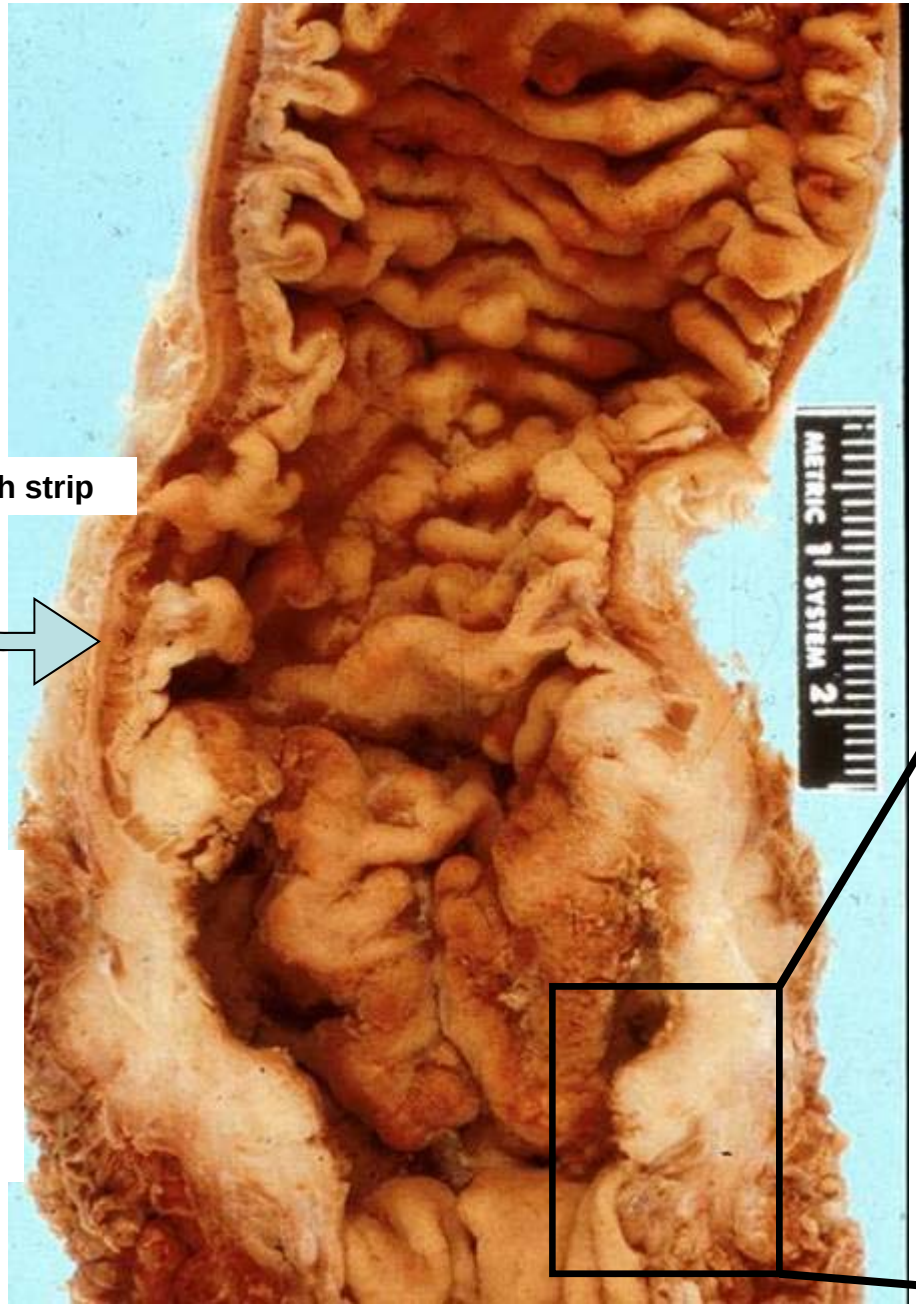
(refer to systemic pathology)

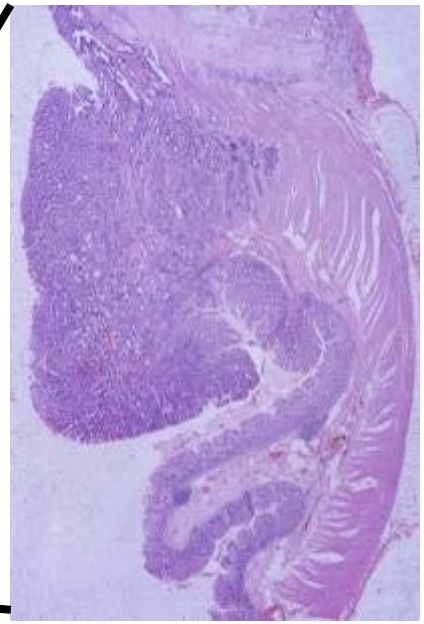
- Slide 10 : Rectum – Adenocarcinoma

SLIDE 10
Rectum – Adenocarcinoma

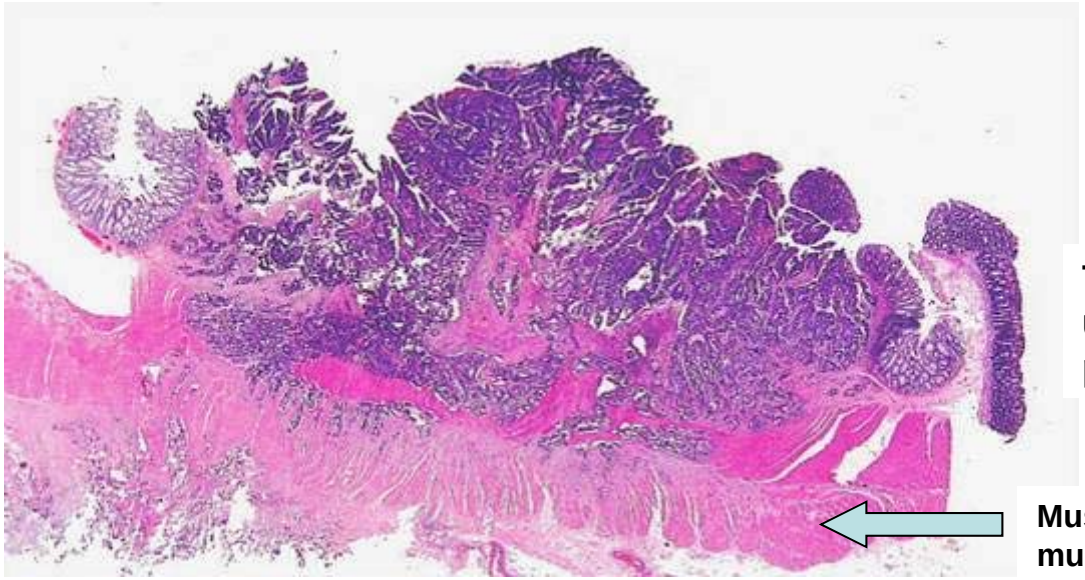
A 62 year old man complains of bleeding per rectum, constipation and loss of weight. After appropriate investigations, an anterior resection of the rectosigmoid colon was performed.

Muscularis propria – brownish strip





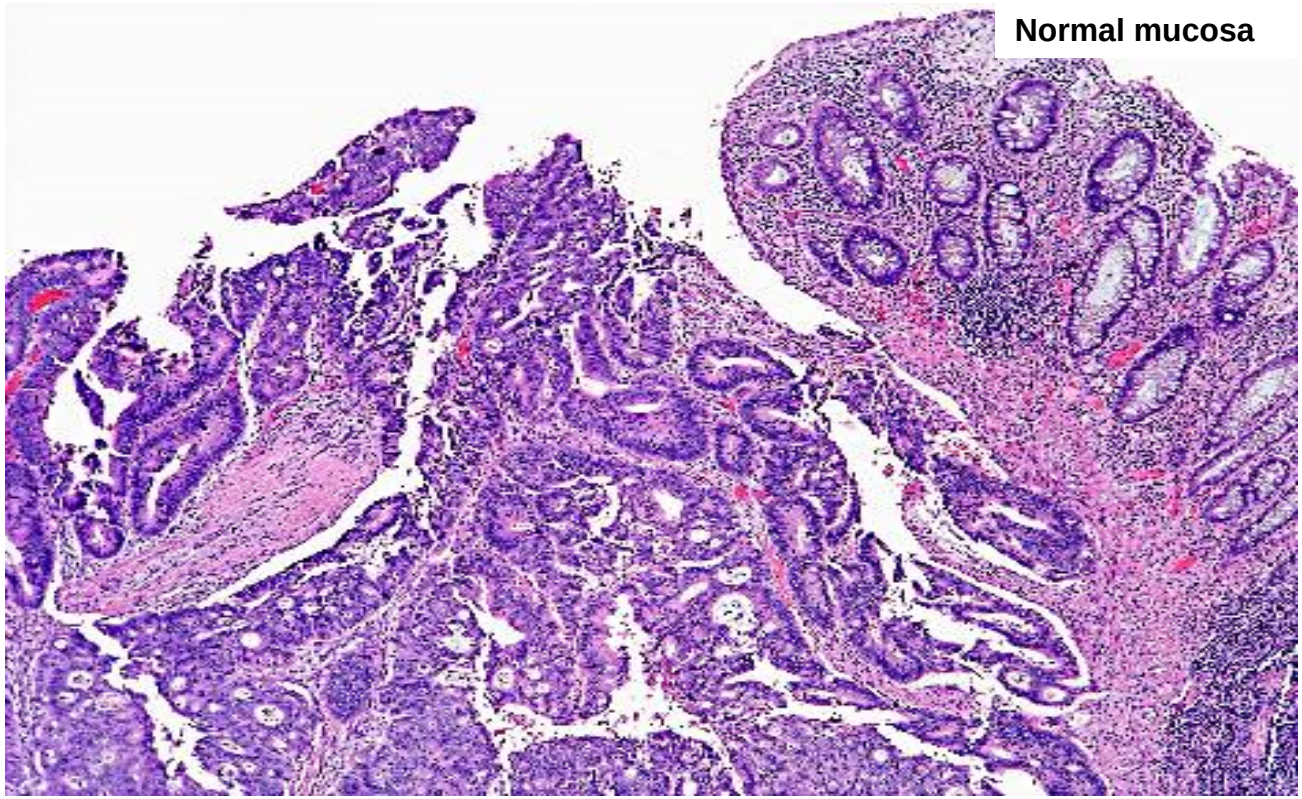
- Large ulcrating mass in colon.
- Thickening of the bowel wall by tumour involvement. - Invasion into muscularis propria is apparent grossly.



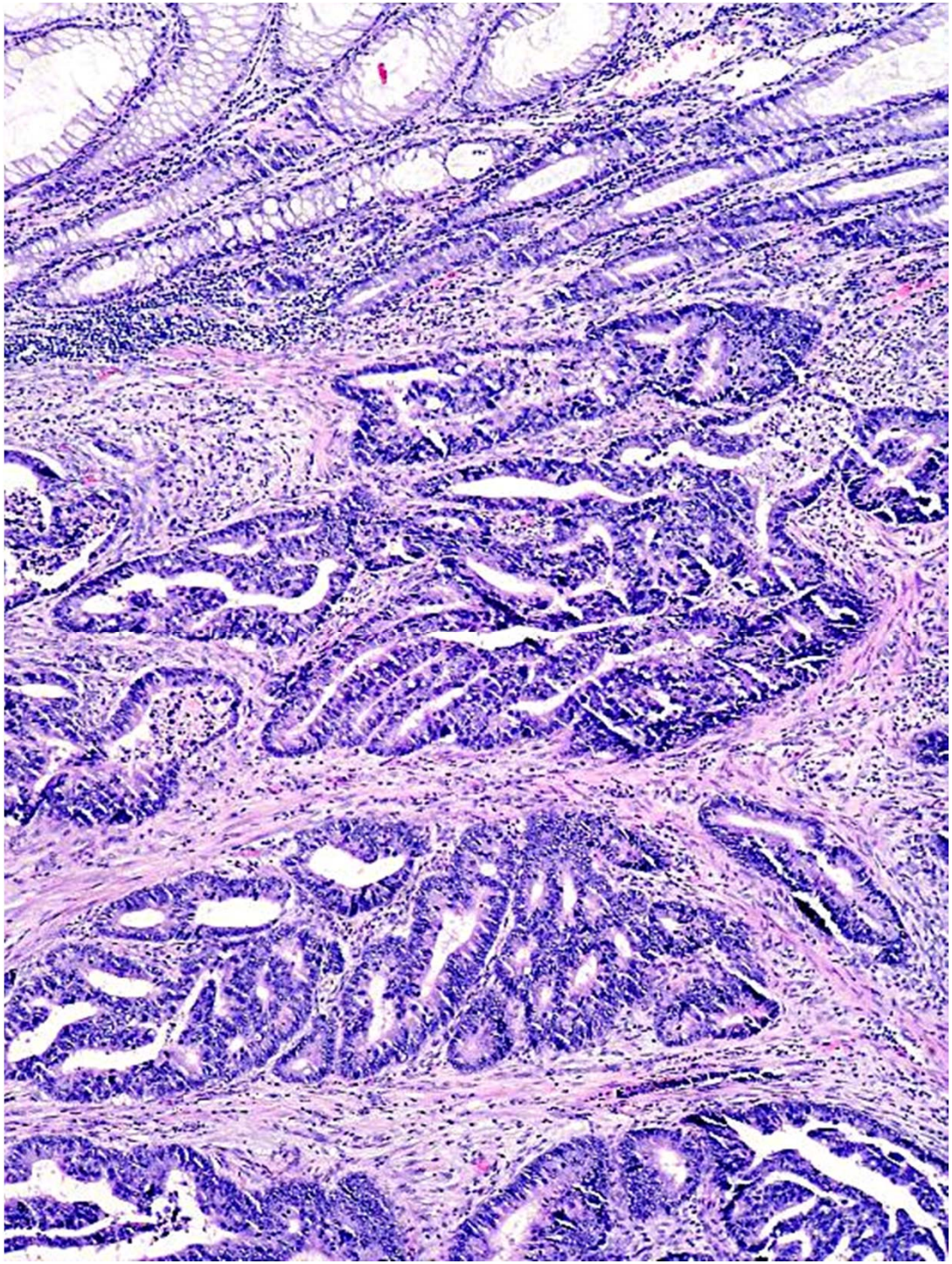
Tumour arising from mucosa, invading into underlying submucosa and muscularis propria

Muscualaris propria – pink appearing thick smooth muscle layer

Normal mucosa

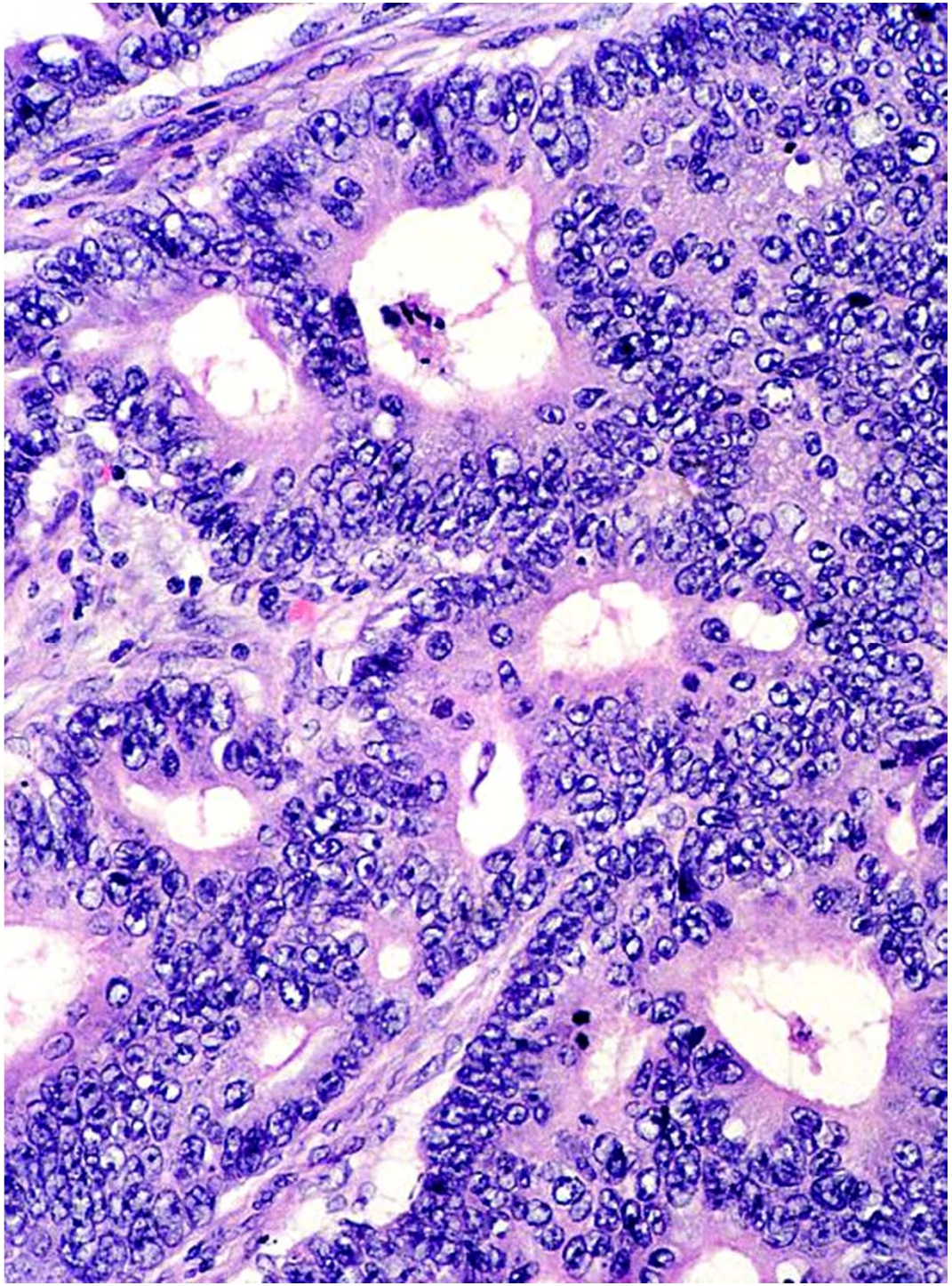


Adenocarcinoma – Irregular glands lined by malignant columnar cells, invading surrounding stroma



Benign colonic lmucosa

Adenocarcinoma – Irregular glands lined by malignant columnar cells, invading surrounding stroma



Adenocarcinoma – High power view – Columnar cells with large, hyperchromaic nuclei containing coarse chromatin. Some mitoses present.