SAWA UNIVERSITY

HISTOPATHOLOGY
1

CONCRETIONS

Sawa University — جامعـــــة ســـــــاوة الاهلية

College of health and medical techniques — كليـــــة التقنيـــات الصحيـة والطبيـة

Department of Medical Laboratories — قسم تقنيات المختبرات الطبية

Third Stage — المرحلـــــــــــة الثالثة

الجانب النظري — محاضرة رقم 11

Theoretical — Lecture No. 11

تدريسي المادة : م.د. قاسم عباس محمد.

OBJECTIVE

- Define concretions and recognize their main types and locations in tissues.
- Explain the basic mechanisms leading to the formation of concretions.
- Identify key histopathological features of common concretions.
- Relate the clinical significance of concretions to associated diseases.

Concretions

- are localized, abnormal, solid masses formed by the deposition of organic or inorganic materials within tissues or luminal structures.
- They typically occur in tubular organs or secretory glands and are commonly associated with chronic inflammation, obstruction, or degeneration.

Examples include:

A. Dystrophic calcification

B. Psammoma bodies

C. Rosenthal fibers

D. Corpora amylacea

E. Sialoliths and gallstones

F. Prostatic concretions

G. Conjunctival concretions.

Classification of Concretions

Concretions can be categorized based on their composition:

A. Calcific Concretions

1. Dystrophic calcification
2. Metastatic calcification
3. Psammoma bodies

B. Proteinaceous Concretions

1. Corpora amylacea
2. Hyaline globules
3. Russell bodies

C. Lipid-based Concretions

1. Cholesterol clefts
2. Xanthoma bodies

D. Mixed Organic Concretions

1. Prostatic concretions (prostatic corpora amylacea)
2. Conjunctival concretions
3. Sialoliths
4. Gallstones

Pathogenesis:

1. Precipitation of material(Calcium salts, Glycoproteins, Lipoproteins, Secretory debris)

2. Role of chronic inflammation that leads to: Tissue degeneration, Necrotic cell debris acting as a nidus, Protein leakage, Altered pH → facilitates crystallization

3. Obstruction of ducts: Salivary gland ducts (sialolithiasis), Prostatic ducts, Bronchial glands, Gallbladder cystic duct

4. Aging-related changes: Accumulation of glycoproteins or lipids in aging tissues contributes to corpora amylacea and ocular concretions.

Histological Features of Major Types of Concretions

A. Psammoma Bodies: **Seen in:** Papillary thyroid carcinoma, Meningioma and Serous papillary ovarian carcinoma

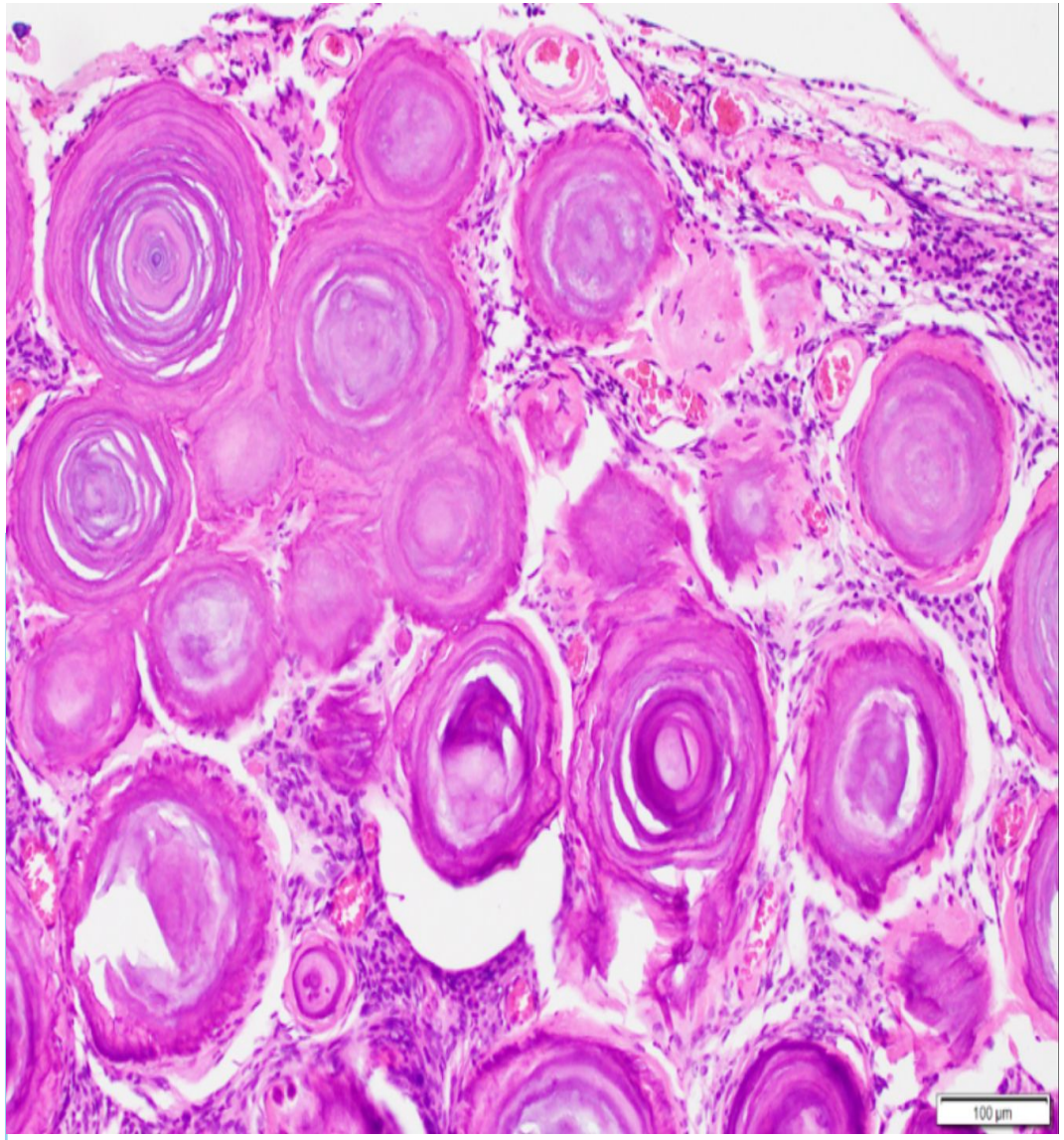
Histopathological:

1. Round, concentrically laminated calcified bodies.
2. Basophilic on H&E.
3. Often associated with necrotic tumor cells

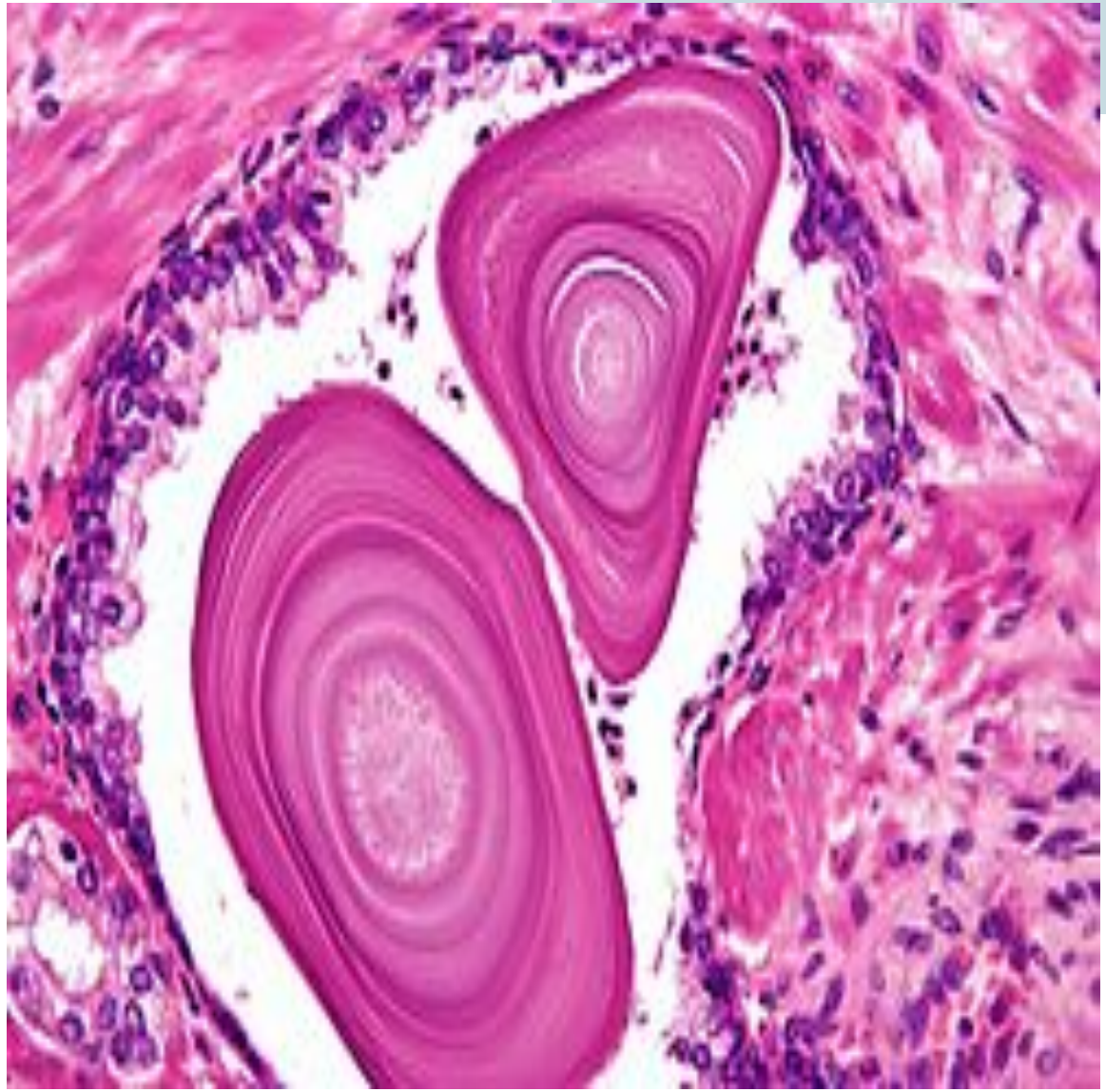
B. Corpora Amylacea : Seen in: Prostate, Brain (astrocytes) and Lung

Histopathological :

1. Round, eosinophilic, lamellated bodies
2. PAS-positive
3. Sometimes calcified
4. Located in glands and ducts



Psammoma bodies in meningioma



Corpora amylacea in benign Prostatic glands

C. Dystrophic Calcification

Seen in: Dead or degenerated tissues, Atherosclerotic plaques, Old scars and Tuberculous granulomas

Histopathological :

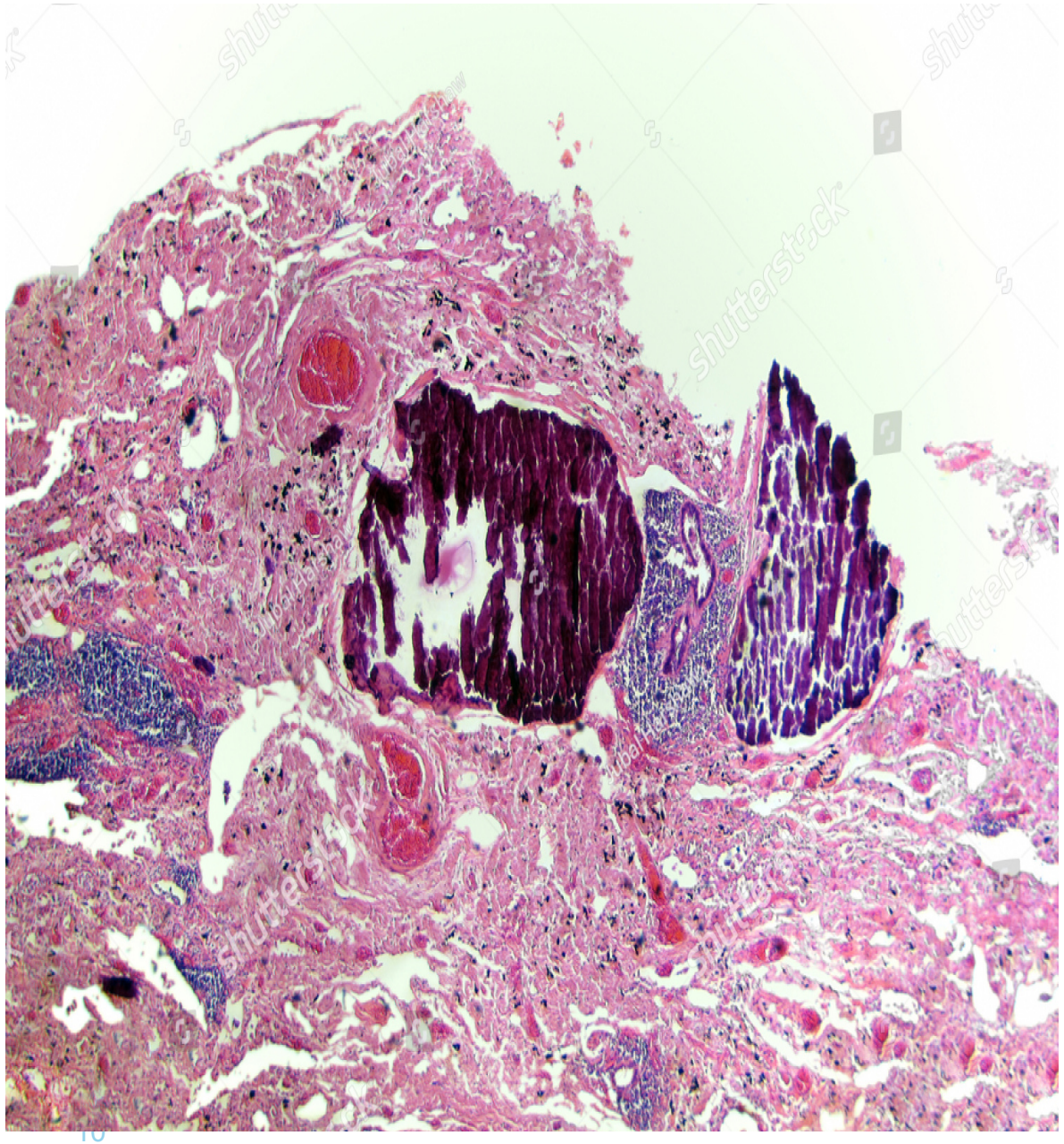
1. Deeply basophilic granular deposits
2. Often irregular
3. Forms a nidus for larger concretions

D. Sialoliths : Seen in: Submandibular gland most commonly

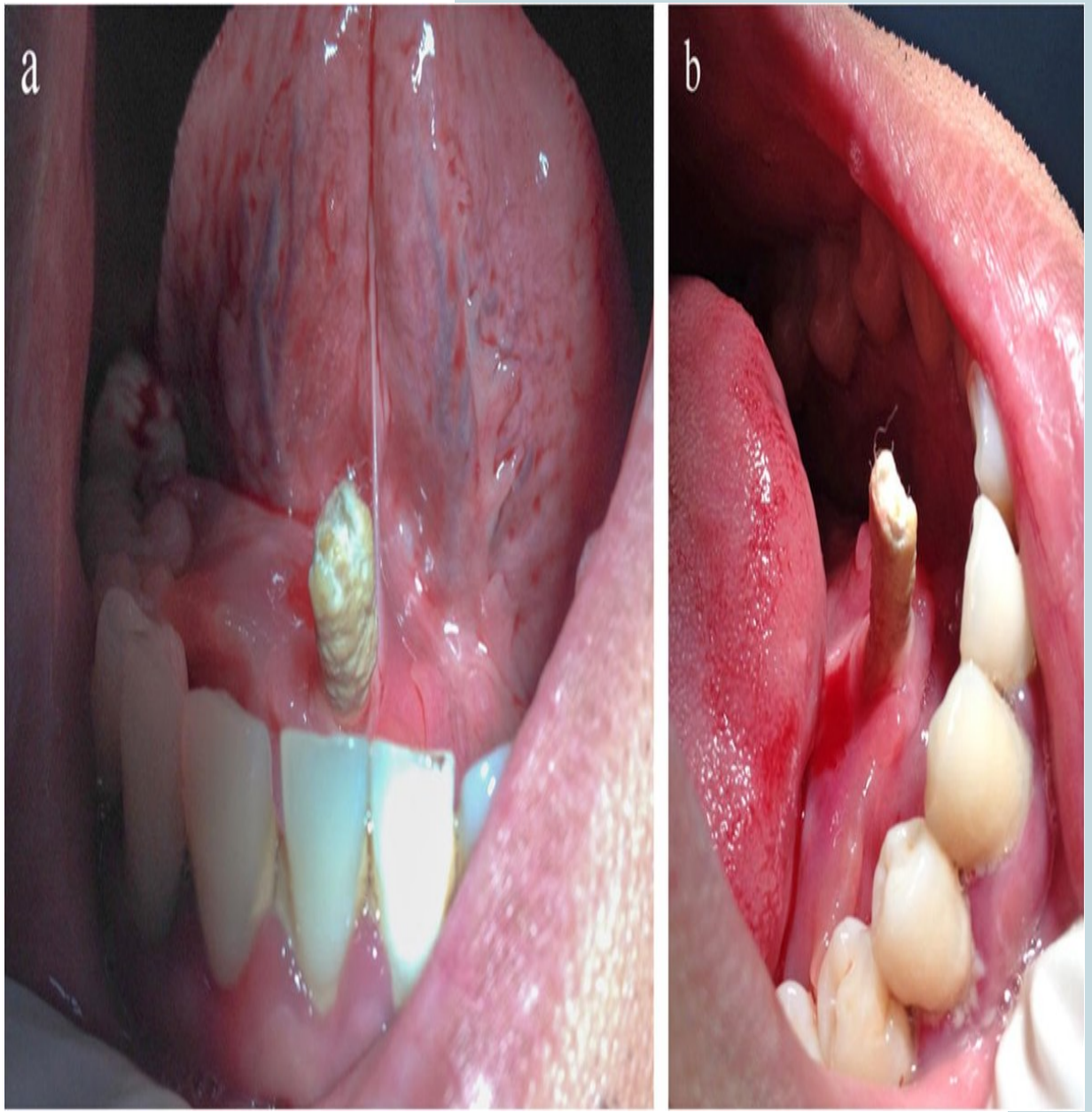
Features: - Concentric layering of mineral and organic material

- Causes duct dilation and chronic sialadenitis

- Eosinophilic matrix with basophilic calcifications



Dystrophic calcification (Osteodystrophy)



Submandibular Gland Duct Sialolith

E. Prostatic Concretions (prostatic corpora amylacea) :Seen in aging prostates and chronic prostatitis.

Histopathological :

1. Eosinophilic, lamellated, rounded bodies.
2. Sometimes calcified.
3. Located within prostatic acini.

F. Conjunctival Concretions: Seen in: Chronic conjunctivitis, Aging and Vitamin A deficiency

Features:

1. Yellow–white hard particles
2. Keratin + degenerated epithelial cells
3. Often palpable beneath conjunctiva

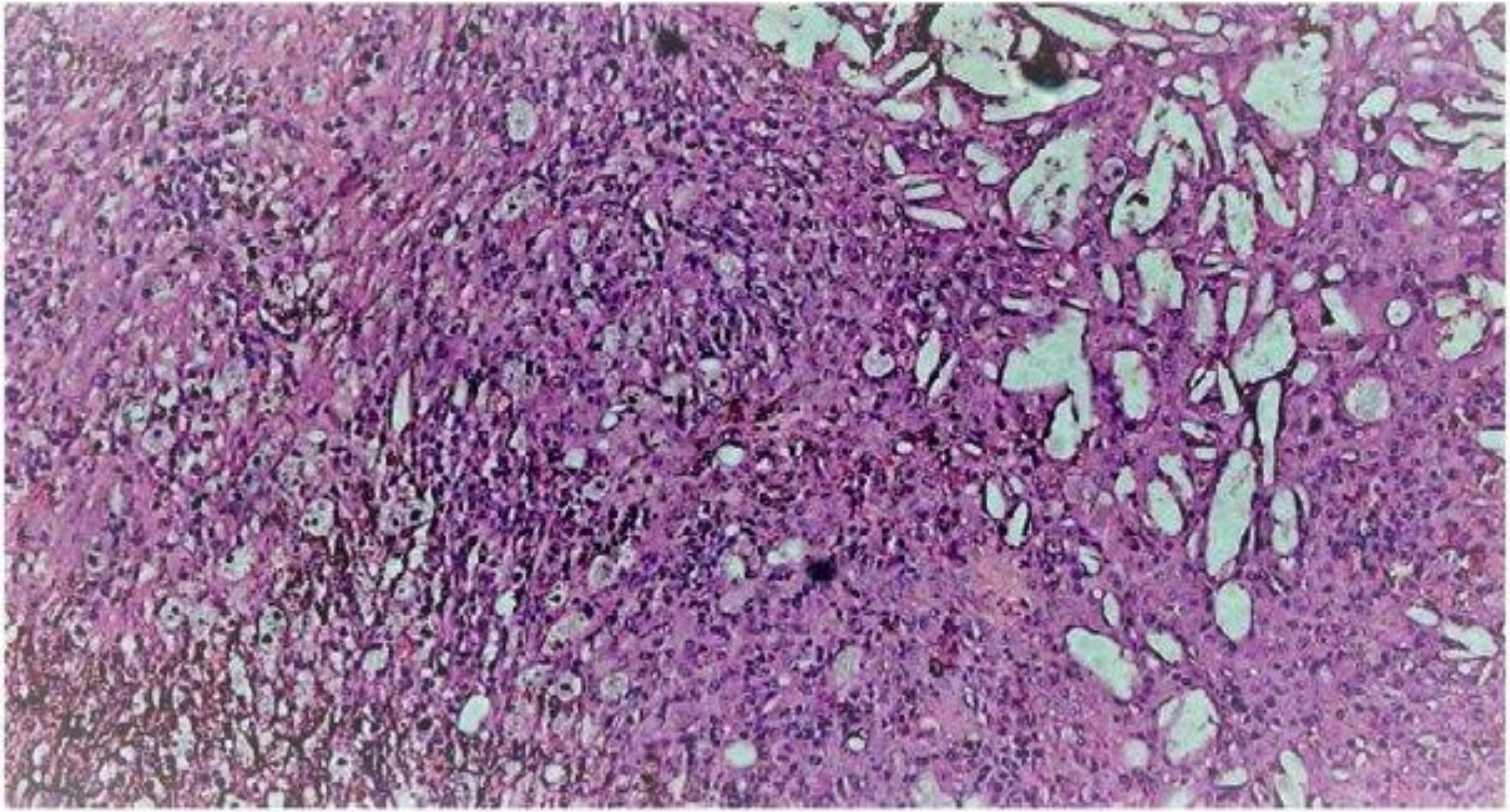
Conjunctival Concretions

G. Gallstones (Cholelithiasis)

Types: Cholesterol stones, Pigment stones and Mixed stones

Histopathological :

1. Crystalline cholesterol clefts
2. Bilirubin pigments
3. Calcification possible



Foamy macrophages and cholesterol clefts in gallbladder wall

Special Stains Used in Studying Concretions

Concretion Type	Useful Stain
Calcification	Von Kossa, Alizarin red
Corpora amylacea	PAS, Congo red (sometimes)
Lipid concretions	Oil Red O (frozen sections)
Pigmented concretions	Masson-Fontana (melanin)

Differential Diagnosis

Concretions may resemble:

- Fungal spores (Histoplasma, Cryptococcus)
- Calcified parasites
- Keratin pearls
- Amyloid deposits
- Hyaline droplets

Distinction depends on:

- Stains
- Morphology
- Location
- Clinical context

References

1. Kumar, V., Abbas, A. K., & Aster, J. C. (2023). Robbins & Cotran Pathologic Basis of Disease (11th ed.). Elsevier.

2. Mitchell, R. N. (2023). Basic Pathology. Elsevier.

Any questions?