Department of Pathology
College of Medicine
King Saud University

Path 210
2nd Semester
Academic year 1427 - 1428

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Histopathology Practicals and slide numbers

Note:
The following is a guideline of the main microscopic features to provided glass slides and is not meant to be a full description. Students are advised to examine the microscopic appearances and to draw labelled diagrams. Different sections may be used for examination.

Inflammation and Repair:

[1] ***Fibrinous pericarditis: Section of heart shows:***
- The pericardium is distorted by thick irregular layer of pinkish fibrinous exudate with some red cells and inflammatory cells.
- The subpericardial layer is thickened by edema and shows dilated blood vessels, chronic inflammatory cells and areas of calcification.

[2] ***Acute suppurative appendicitis: Cross section of appendix shows:***
- Accumulation of inflammatory exudate and pus in the lumen and the mucosa is ulcerated.
- All layers of the appendix wall show edema, dilated and congested blood vessels and infiltration by many neutrophils.
- Fibrino-purulent exudate is present on the serosal surface.

[3] ***Foreign body reaction (pilonidal sinus): Section of skin shows:***
- A sinus tract lined by an inflammatory granulation tissue in the dermis.
- The lumen of sinus and wall contain large number of hair shafts with foreign body giant cells, lymphocytes, macrophages & neutrophils.

[4] ***Granulation tissue: Section of fragments of edematous, loose connective tissue shows:***
- Small newly formed capillaries lined by plump endothelial cells.
- Proliferation of fibroblasts.
- Inflammatory cells like macrophages, lymphocytes, plasma cells and neutrophils.
- Pink homogenous collagen fibres may be seen.

Degeneration and infiltrations:

[5] ***Fatty change of the liver:*** ***Section of liver shows:***

- Normal lobular architecture and the liver cells are distended by clear vacuoles of dissolved fat and displacement of nuclei to the periphery.
- No inflammation and no fibrosis.
- Fatty cysts may be seen.

[7] ***Amyloidosis of the kidney:*** ***Section of kidney shows:***

- The glomeruli show varying degrees of replacement by homogenous pinkish amyloid deposits. There is cellular loss and some cappilaries are obliterated.
- The basement membrane of the tubules as well as the wall of blood vessels show thick wall staining homogenously pink and the lumen is narrowed.

[8] ***Dystrophic calcification:Section of skin shows:***

- Irregular blue deposits of calcium in the dermis surrounded either by fibrous tissue or by foreign body giant cell reaction.

Circulatory disorders:

[11] ***Organizing thrombus:*** ***Cross section of a blood vessel shows:***

- The lumen is occluded by thrombus which consists of alternate layers of platelet with fibrin thread and clotted blood (line of Zahn).
- Organization is seen at the periphery of thrombus which shows small capillaries, fibroblasts and chronic inflammatory cells.
- Recanalization is seen at one side.

[12] ***Myocardial infarction:*** ***Section of myocardium shows:***

- Patchy coagulative necrosis of myocardial fibres. The dead muscle fibres are structureless and hyalinized.
- The necrotic muscle fibres are pale with loss of nuclei and striations.
- Infiltration of neutrophils may be seen.
- Later granulation tissue formation and fibrosis.

Granulomas

[14] ***Tuberculous lymphadenitis: Section of a lymph node with connective tissue capsule and lymphoid tissue shows:***

- Many round and oval tubercles/granulomas with and without central caseation that appears structureless, granular and pink in colour.
- The granulomas consists of epithelioid cells, few Langhan's giant cells (large cell with multiple peripheral nuclei) and rim of lymphocytes.

[15] ***Miliary tuberculosis of the lung: Section of lung shows:***

- The alveolar septae contain many tubercles with or without structureless granular pinkish caseation.
- Tubercles consist of epithelioid cells, few Langhan's giant cells and rim of lymphocytes.

Hyperplasia:

[19] ***Cystic hyperplasia of the endometrium: Section shows fragments of endometrial tissue and blood clot:***

- The endometrial glands are increased in number and show marked variation in size and shape and some are cystically dilated.
- The glands are lined by more than one layer of tall columnar epithelium with many mitoses.
- The stroma in between glands is increased and cellular.

[20] ***Cystic hyperplasia of the breast: Section of breast shows:***

- Adenosis: Increased in number and size of glands.
- Epitheliosis: Epithelial hyperplasia of ducts with occasional papillae formation.
- Cystic dilatation of some ducts.
- Few cystic ducts are lined by large cells with eosinophilic cytoplasm (apocrine metaplasia).
- Dense hyalinized fibrous tissue around ducts with scattered lymphocytes.

Benign tumours

[21] ***Nevus: Section of skin shows:***

- Clusters of small round or spindle shaped nevus cells with few melanophages in the upper dermis.
- The cells contain varying amount of brown melanin pigment.
- No junctional activity.

[22] ***Leiomyoma: Section of tumour shows:***

- A well demarcated tumour mass in the muscle coat of uterus without a definite capsule.
- Tumour consists of interlacing bundles of smooth muscle fibers.
- The smooth muscle cells are spindle shaped with elongated nuclei and eosinophilic cytoplasm.

[23] ***Chondroma: Section of tumour shows:***

- Lobules of mature cartilage separated by thin trabeculae of fibrous tissue with blood vessels.
- Lobules consists of mature chondrocytes irregularly distributed through pale blue homogenous matrix and are contained within lacunar spaces singly, in pairs or in tetrads.
- Few bony trabeculae are included in the tumour.

[24] ***Haemangioma: Section of the skin shows:***

- A tumour mass in the dermis which consists of large number of vascular spaces of varying shapes and sizes separated by connective tissue stroma.
- Vascular spaces are lined by the flattened endothelial cells and some contain blood.
- Delicate connective tissue stroma separates the capillary vascular spaces.

[25] ***Fibroadenoma of the breast: Section shows breast tumour:***

(a)
- A tumour shows proliferation of both glandular tissues and fibrous tissue.
- Proliferating fibrous tissue is invaginating the ducts causing elongation, compression and distortion of the ducts which have slit-like lumen (intracanalicular).

(b) At places fibrous tissue is arranged around the ducts (pericanalicular) and does not invaginate.

Malignant tumours:

[26] ***Basal cell carcinoma of skin: Section of skin shows:***

- Normal epidermis with appendages on both ends of the section.
- Epidermis shows an ulcer covered by inflammatory exudate.
- Dermis is infiltrated by masses of neoplastic basal cell of variable size and shape separated by connective tissue stroma.
- The neoplastic cells are small dark staining and show little pleomorphism and palisading at periphery of masses.
- Some masses show cystic degeneration and melanin pigment.
- Few mitoses are seen.

[27] ***Squamous cell carcinoma of the skin: Section of the skin shows an ulcer coverd by inflammatory exudate:***

- The dermis is infiltrated by masses of well differentiated neoplastic squamous cells of varying size and shape which are separated by fibrous tissue stroma with chronic inflammatory cells.
- Tumour cells show pleomorphism, hyperchromatism and many mitotic figures.
- Pinkish laminated keratin pearls (epithelial cell nests) are present in the center of some masses.

[28] ***Adenocarcinoma of the large intestine: Section of large intestine shows a tumour mass at one end, and a normal mucosa on the other side:***

- Tumour consists of crowded irregular malignant acini separated by thin fibrovascular stroma.
- The acini are lined by one or several layers of neoplastic cells with papillary projections showing pleomorphism, hyperchromatism and few mitoses.
- Muscle coat is invaded by neoplastic glands.

[29] ***Mucoid carcinoma of the large intestine: Section of large intestine shows normal mucosa:***

- All the layers under mucosa are infiltrated by masses of tumour cells separated by connective tissue stroma.
- Tumour cells are present either singly or as imperfect acini floating in large quantities of mucin secreted by malignant cells.
- The cells are pleomorphic with large basophilic nuclei, pushed to side by presence of mucin giving signet-ring appearance.

[30] ***Fibrosarcoma: Section of the tumour shows:***

- The tumour consists of interlacing bundles of pelomorphic spindle shaped cells with large area of haemorrhage and necrosis.
- The cells show marked variation in size and shape, nuclear hyperchromatism, tumour giant cells and many mitoses.

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