9. Tissue from a Woodchuck

Liver. There is a multinodular, ill demarcated, partially encapsulated, infiltrative, **highly cellular neoplasm** composed of tightly packed **lobules, trabeculae** and few acini within a small amount of **fibrovascular stroma**. Neoplastic cells are **20-25 micrometers** in diameter, **cuboidal**, with **distinct margins**, containing a moderate amount of **eosinophilic cytoplasm**, which rarely possesses a single round well-demarcated 5-20 micrometers in diameter **empty vacuole** (lipid storage). Their **nucleus** is central, 10-12 micrometers in diameter, round to ovoid, hypochromatic, with marginated chromatin and one or two prominent eosinophilic peripheral **nucleoli**. **Cellular atypia** are marked (anisocytosis, anisokaryosis, nuclear gigantism, vesicular nuclei, **multinucleated neoplastic cells**). The mitotic index averages 2 per high power field. Within the neoplasm there are abundant **megakaryocytes**, which often show nuclear shrinkage and fragmentation, and cytoplasmic hyperacidophilia (**necrosis / apoptosis**). Rubriblasts, myeloblasts and myelocytes are also scattered within the neoplasm (**extramedullary hematopoiesis**).

The **remaining liver** shows a diffuse severe **loss of hepatocytes**, replaced by numerous unistratified cuboidal tubes (**bile duct hyperplasia, ductular reaction**). There are diffuse interstitial deposition of collagen bundles (**fibrosis**), infiltration with inflammatory cells (**lymphocytes, plasma cells**, few neutrophils), golden brown **pigment-laden macrophages**, and hematopoietic cells. Remaining hepatocytes are filled with abundant small empty vacuoles (**microvacuolar steatosis**) and sometimes display single cell necrosis.

Morphologic diagnosis / diagnoses
Liver, trabecular **hepatocellular carcinoma**.
Liver, diffuse severe **chronic hepatitis** with fibrosis and bile duct hyperplasia.
Liver, extramedullary hematopoiesis.

Etiology / Etiologies: Woodchuck Hepatitis Virus (*Hepadnaviridae*, *Orthohepadnavirus*).

Marks

Liver	1
High cellular density of the neoplasm	1
Trabeculae	1
Cuboidal neoplastic cells	1
Description of neoplastic cells: size, cytoplasm, nucleus, nucleolus	4
Cellular atypia / Syncytial cells	1
Mitotic index	1
Hematopoietic cells, megakaryocytes	1
Loss of hepatocytes	1
Fibrosis	1
Lymphocytes	1
Bile duct hyperplasia / Ductular reaction	1
Morphologic diagnoses	3
Etiology	1
Design	1