Liver Lab #2

Bacterial Hepatitis

Case: O12561-04. Adult ewe.

Describe the lesion: Multifocal large nodules ranging in size from 1-3.5cm in greatest diameter are present within the liver and are filled with caseous material.

Give a morphologic diagnosis: Liver: Multifocal, chronic-active. Moderate-severe, hepatic abscessation

What is the likely etiologic agent? *Corynebacterium pseudotuberculosis*
Case: O9211-04. 8 day old, male lamb.

Describe the lesion: The liver contains numerous, multifocal, pale, tan, foci of necrosis which extend deep into the parenchyma.

Morphologic diagnosis: Liver: Multifocal, acute, severe, necrotizing hepatitis

This lesion in lambs is often associated with omphalophlebitis or entry of bacteria from the gastrointestinal tract. *Fusobacterium necrophorui* was cultured in this case, but differentials include *E. coli, Salmonella* sp., *Trueperella pyogenes* and *Listeria* sp. among others.

Case: G-5389-04. 5 year old, male goat in moderate body condition.
Describe the lesion: Numerous, white, thick-capsuled, firm nodules with dense white exudates ranging from 5mm to 3cm in greatest diameter were scattered throughout the liver.

Morphologic diagnosis: Liver: Multifocal, chronic, moderate-severe granulomatous hepatitis

Can you think of any possible etiologies? Rhodococcus equi and Corynebacterium pseudotuberculosis were isolated in this case. Differentials include fungi and Mycobacterium sp.

Viral and Protozoal Hepatitis

Case A20532-02. 14 week old turkey.

Describe the lesion: Numerous 5-10mm round to ovoid foci with a target pattern (white core surrounded by a red rim surrounded by a white rim) are present throughout the liver on the capsule and on cut surface.

Morphologic diagnosis: Multifocal to coalescing, subacute severe, necrotizing hepatitis (granulomatous)

Etiology: Histomonas meleagridis (protozoan)

This protozoan is transmitted via the nematode Heterakis gallinarum which also causes a fibrinonecrotizing typhlitis. This is a common disease of poultry raised outside. The bird eats an earthworm that ingests eggs infected with the protozoan. The adult nematodes develop within the ceca releasing the protozoan that causes inflammation in the ceca. The protozoan then travels through the bloodstream to the liver and causes necrosis.
Case: X12558-94. 8 week old, female Dutch cross rabbit. (and Case X27396-10)

Describe the lesion: The liver is enlarged and contains numerous 0.2-0.7 white, firm areas.

Morphologic diagnosis: Liver: Multifocal, chronic, severe proliferative and fibrosing cholangitis

Etiology: *Eimeria stiedae*.

Case: F4122-08. 1.5 year old cat. (Similar cases: F22769-04 and C19089-97)

Describe the lesion: Large multifocal to coalescing nodular, tan foci are distributed throughout the liver.

Morphologic diagnosis: Liver: Multifocal, chronic, severe, granulomatous hepatitis

What is the likely etiologic agent: Feline coronavirus (Feline Infectious Peritonitis)
Case: F1285-90. Male, 18 year old domestic short hair cat.

Describe the lesion: The left lobe of the liver is replaced by a large, multicystic, firm nodular mass (14 x 11 x 6cm). Smaller tan umbilicated masses are present throughout the liver.

Differentials:
- Cholangiocellular carcinoma/adenocarcinoma
- Hepatocellular carcinoma
- Metastatic carcinoma

Similar cases: F22769-04: Cholangiocellular adenocarcinoma
C19089-97: Cholangiocellular carcinoma
Case C25806-11. Male, castrated ten year old German Shepherd presented for right hind limb lameness. (similar case is F15402-94)

Describe the lesion: Red nodular masses, ranging in size from 0.3 to 1cm are scattered throughout the liver with several round to irregular indentations in the hepatic capsular surface.

Likely diagnosis: Hemangiosarcoma (other forms of neoplasia and nodular hyperplasia are differentials)
Case C22315-11. Male, castrated, ten year old Boxer dog. (similar case is C13100-90)

Describe the lesion: The liver contains numerous variably sized, tan, soft tissue masses that often have an umbilicated appearance.

Differentials:
- Cholangiocellular carcinoma/adenocarcinoma
- Hepatocellular carcinoma
- Metastatic carcinoma
- This was diagnosed as a sarcoma by histology

C13100-90 was a fibrosarcoma (diagnosed with histology)

Describe the lesion: Multifocal, up to 5mm in diameter tan-white foci are scattered throughout the liver parenchyma.

Give a morphologic diagnosis: Liver: Capsular and portal fibrosis

What is the common name for this condition? This is referred to as a “milk spot liver” and is due to previous *Ascaris suis* migration. It is considered an incidental finding.
Case: E14426-03. Ten year old, mixed breed gelding.

Describe the lesion: The liver has a boscillated appearance. There are myriad, randomly scattered tan-white, firm foci up to 2mm in diameter throughout the entire parenchyma.

Give a morphologic diagnosis: Liver: Multifocal, macronodular hepatocellular regeneration and fibrosis (cirrhosis), chronic, marked

Any thoughts on an underlying cause?

Histologically, this liver also had bridging portal fibrosis and megalocytosis which is a characteristic lesion of pyrrolizidine alkaloid toxicity. Plants that cause this lesion are (Senecio, Crotalaria, Amsinckia, Trichodesma, Echium and Heliotropium. Alsike clover is also commonly associated with this lesion and is found in our region. Contamination of hay with mycotoxins (e.g. aflatoxin or sporidesmin) can also produce similar lesions.
Case C20252-97. 12 year old, female cocker spaniel.

Describe the lesion: The liver has a roughened appearance. The gall bladder is distended. The mucosa is thickened by edema.

Morphologic diagnosis: Gall bladder: Diffuse, severe, mucinous hyperplasia

This lesion will progress into a mucocoele.
What are the structures present within the gall bladder of the pig?

Choleliths
Case F15067-90. Ten year old, female, domestic shorthair cat with a history of weight loss and anorexia.

Describe the lesion: The liver is moderately enlarged and contains several lobulated and umbilicated masses bulging from the surface. The masses vary in size 0.5-4cm in diameter. There is a firm nodule approximately 3cm in diameter at the ileo-cecal junction. Multiple smaller masses are present within the mesentery.

Can you think of any differentials?

- Metastatic carcinoma (in this case it was an intestinal stenosing adenocarcinoma with metastasis)
- Cholangiocellular carcinoma/adenocarcinoma
- Hepatocellular carcinoma
Case: O-12754-11. 7 year old, female ewe.

**Describe the lesion:** The liver is markedly distorted by numerous, multifocal to coalescing, dissecting bands to nodules of firm, soft tissue.

**Can you think of any differentials?**
- Metastatic carcinoma (in this case it was an intestinal adenocarcinoma with metastasis)
- Cholangiocellular carcinoma/adenocarcinoma
- Hepatocellular carcinoma

Case: B14565-03. 20 month old, Jersey heifer.
**Describe the changes**: The liver is markedly enlarged, pale, tan and firm with round edges. On cut surface, the liver has a pale, tan reticular pattern.

**Morphologic diagnosis**: Lymphoma

This animal also had involvement of the lymph nodes, kidney

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**Diseases of the Pancreas**

**Case C3857-93. 13 year old, male castrated, border collie.**

**Describe the lesion**: The pancreas is firm, irregular and lobular. Lobules range from 0.2-0.8cm in diameter.

**Give a morphologic diagnosis**: Severe, chronic-active, fibrosing pancreatitis and nodular hyperplasia.

**Case C16807-08. 11 year old, male castrated, Keeshound with a 2 week history of decreased appetite.**
Describe the lesions: The mesentery and omentum contain myriads of small, firm, white-tan, 3-6mm in greatest diameter, nodules. The pancreas is generally thickened and nodular. The gastric lobe of the pancreas contains a trilobuled, 7cm in greatest diameter, multinodular, firm, white-tan mass.

What are your likely morphologic diagnoses (2)?

1) Pancreas: Multifocal, moderate, chronic, nodular hyperplasia
2) Exocrine pancreatic adenocarcinoma

Differentials for the mass would be metastatic neoplasia or an endocrine pancreatic carcinoma. This animal also had fat necrosis evident grossly, due to leakage of exocrine pancreatic enzymes into the mesentery.
Case: **C3658-95**. 8 year old, female, spayed Samoyed dog.

**Describe the changes:** The pancreas has mottled dark areas.

**Morphologic diagnosis:** Pancreas: Acute, severe, necrotizing and hemorrhagic pancreatitis

This animal also had Immune Mediated Hemolytic Anemia. The pancreatitis was likely a secondary lesion to systemic shock and disseminated intravascular coagulation.

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Case: **B10198-11**. Eight year old Holstein having difficulty rising.

**Describe the lesion:** The pancreas is nodular and firm. On cut surface, the pancreatic ducts are fibrotic and distended with numerous intraluminal granules

**Morphologic diagnosis:** Fibrosing pancreatitis with intraductal calculi (pancreolithiasis)