

SURGERY OF THE LIVER

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Anatomy

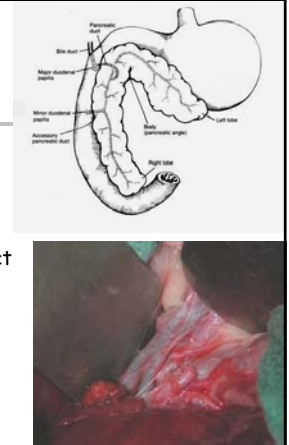
- Left medial and lateral
- Quadrate
 - Gall bladder
- Right medial and lateral
- Caudate lobe
 - Caudate process
 - Papillary process

Anatomy

- Hepatic artery
 - 25 to 30% blood flow
- Portal vein
 - 70 to 75% of blood flow
- Hepatic vein

Anatomy

- Bile duct
 - Intrahepatic
 - Extrahepatic
 - Common bile duct
 - Pancreatic duct
 - Cystic bile duct
- Gallbladder



Disease of the liver

- Trauma
- Abscess
- Torsion
- Neoplasia
 - Primary
 - Metastasis

Disease of the liver

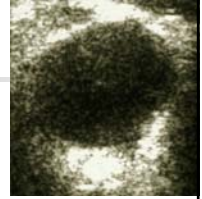
- Liver Trauma
 - Hemoabdomen
 - Surgery rare

Disease of the liver

- Liver abscess
 - Rare
 - Hematogenous
 - Foreign body
 - Other organs
 - Abdominal pain

Disease of the liver

- Liver abscess
 - Liver lobectomy
 - Sepsis
 - Escherichia Coli
 - Klebsiella
 - Proteus
 - Peritonitis
 - Rupture
 - Poor prognosis



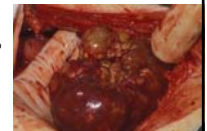
Disease of the liver

- Liver lobe torsion
 - Rare
 - Left medial
 - Acute abdomen
 - Abdominal effusion
 - Exsudate



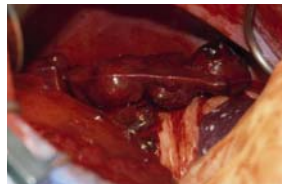
Disease of the liver

- Primary tumor
 - Hepatocellular adenoma
 - Hepatocellular carcinoma
 - Hepatoblastoma
 - Hepatic carcinoids
 - Neuroendocrine tumor



Disease of the liver

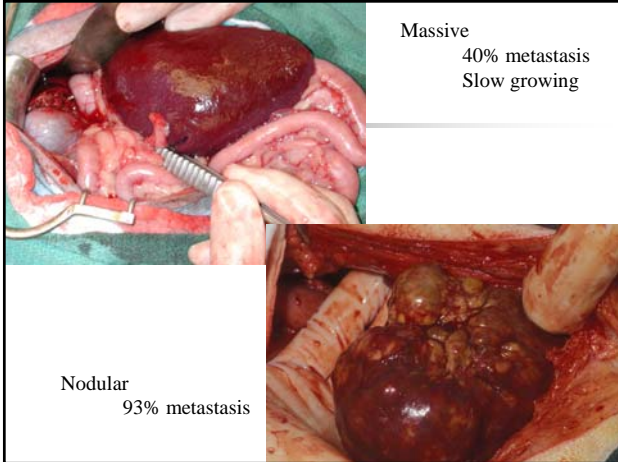
- Primary tumor
 - Hemangiosarcoma
 - Leiomyosarcoma
 - Lymphoma



Disease of the liver


- Hepatic adenocarcinoma
 - 10 to 11 years old
 - Dogs > cats
 - Diffuse
 - 100% metastasis
 - Nodular
 - Massive





Disease of the liver

- Hepatic adenocarcinoma
 - Metastasis
 - Other lobes
 - Lymph nodes
 - Lungs
 - Omentum
 - Carcinomatosis
 - Peritoneum




Disease of the liver

- Carcinoid
 - Neuroendocrine
 - Vasoactive peptides
 - 15% of liver tumors
 - Small masses
 - Metastasis: 90%

Disease of the liver

- Neoplasia: Metastasis
 - Spleen
 - Gastro-intestinal
 - Pancreas
 - Prostate



Disease of the liver

- Nodular hyperplasia
 - Old dogs
 - 60% of cases
 - Not precancerous
 - Biopsy

Disease of the liver

- Weight loss
- Anorexia
- Distended abdomen
- Vomiting
- Ataxia
- Seizures

Disease of the liver

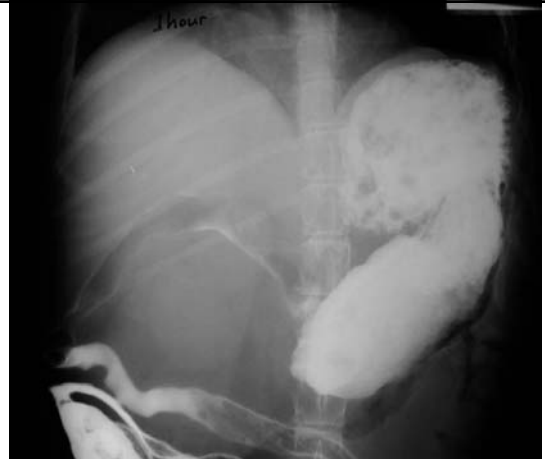
- Abdominal mass
- Abdominal effusion
- Icterus

Disease of the liver

- Hypoglycemia
- Elevated liver enzymes
- Low albumin
- Low protein
- Low cholesterol
- Elevated bilirubin?

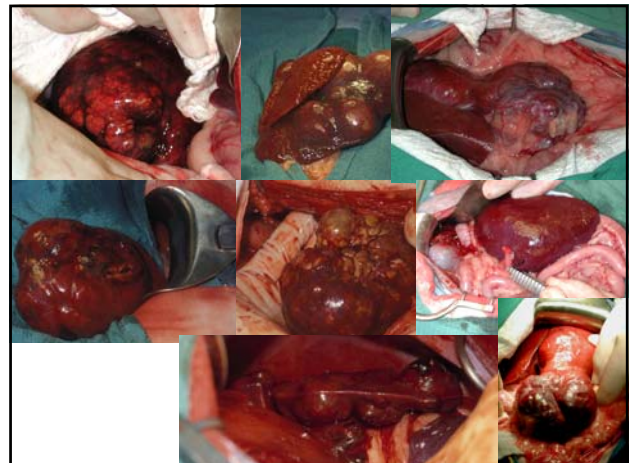
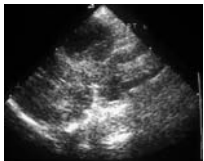
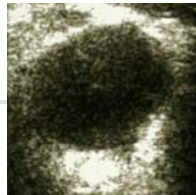
Disease of the liver

- Radiographs
 - Cranial abdominal mass
 - Stomach caudal to last rib



Disease of the liver

- Ultrasound
 - Size
 - Cytology



Disease of the liver

- Biopsy
 - Laparotomy
 - Laparoscopy



QuipTone™ and a
Surgical Video Recorder
are needed to see this picture.

Liver lobectomy

- 70% of liver mass
- Regeneration
 - Hypertrophy, hyperplasia
 - 24 hours
 - 3 days
 - 6 weeks

Liver lobectomy

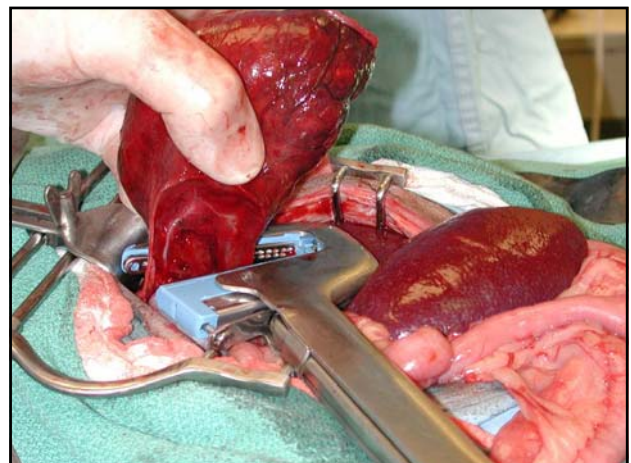
- Hypoglycemia
 - Rare
 - Glucagon
 - Massive resection
- Bilirubin
 - Obstruction
 - Inflammation

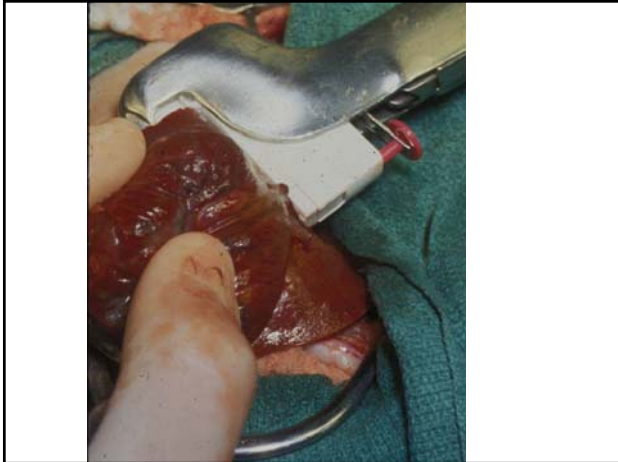
Liver lobectomy

- Liver enzymes
 - 6 weeks
- Ammonia
 - 60%
- Coagulation disorder
 - Not if 70% removed

Liver lobectomy

- Partial lobectomy
 - Finger fracture
 - Minimize bleeding
 - Ligate vessels





Liver lobectomy


- Complete lobectomy
 - Portal vein
 - Hepatic artery
 - Hepatic vein
 - Bile duct

Liver lobectomy

- Left medial and lateral liver lobes
 - Easy to visualize the hilus
 - Finger fracture
- Hand suture
 - Encircling
- Staples

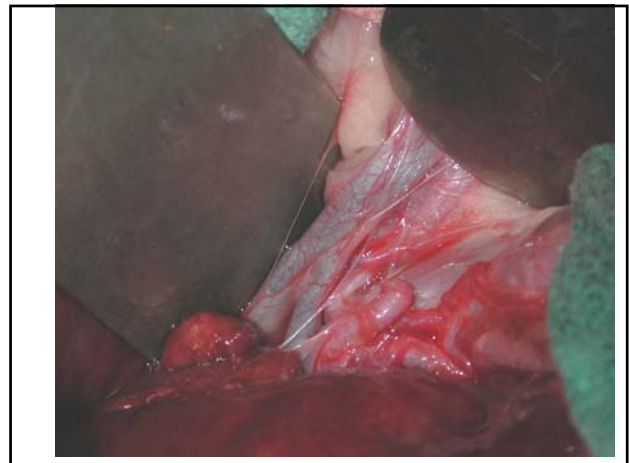
Liver lobectomy

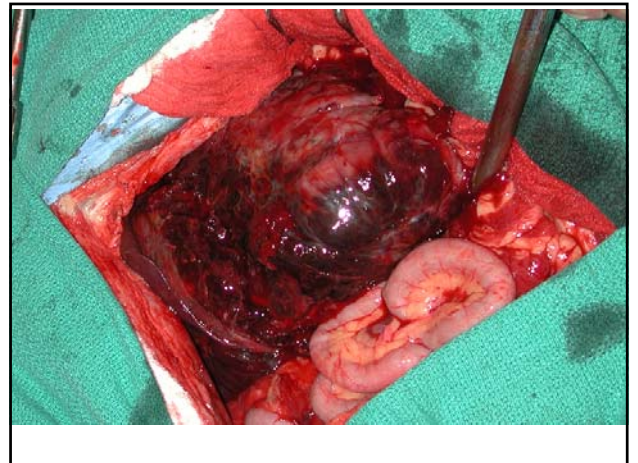
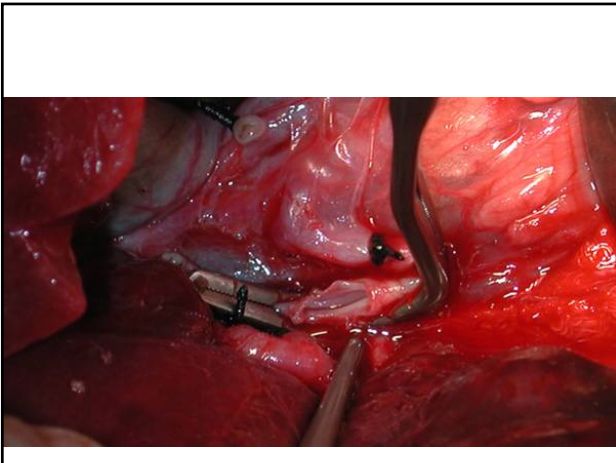
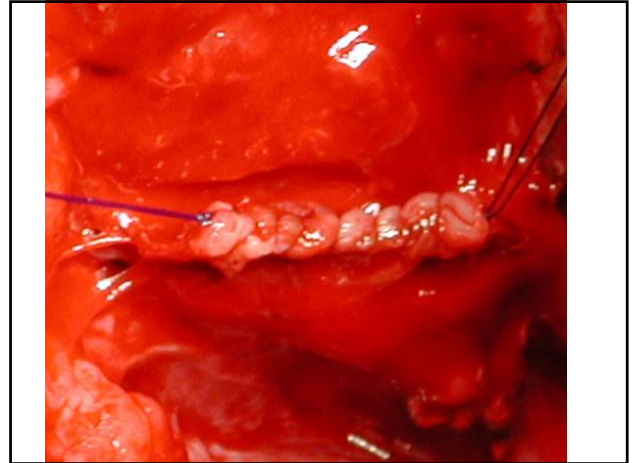
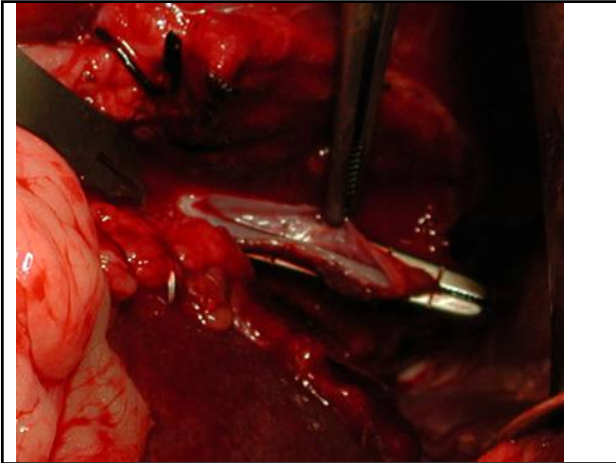
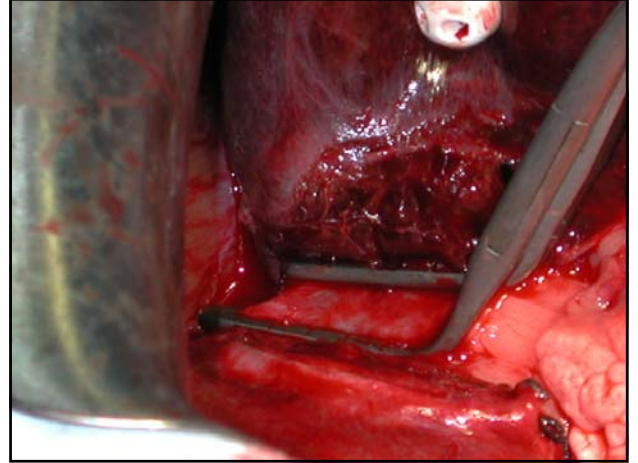
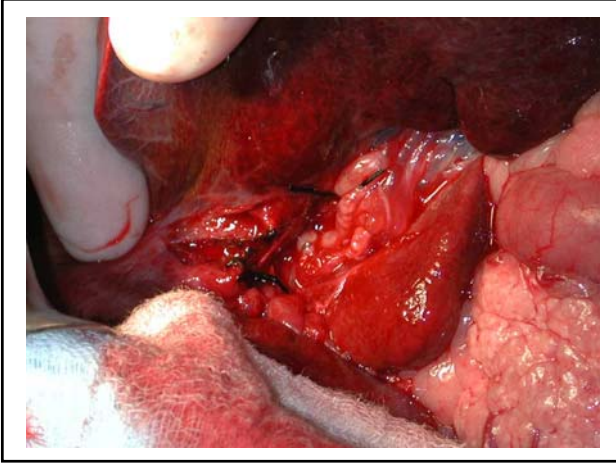
- Quadrate liver lobe
 - Gallbladder
 - Dissection
 - Pexy
 - Liver lobe
 - Resection



Liver lobectomy

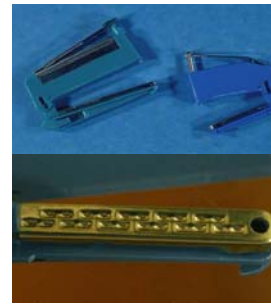
- Right medial and lateral liver lobes
 - Caudal Vena cava
- Caudate lobe liver lobe
 - Exposure
 - Caudal vena cava





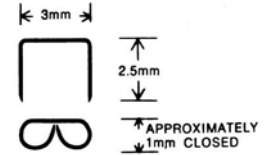
Liver lobectomy

- TA: Cartridge: Length
 - 30 mm
 - 50mm
 - 90 mm



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ACTUAL SIZE OF STAPLE

ACTUAL SIZE OF STAPLE LINE



Staples	Open (mm)	Closed (mm)
V3:	2.5	1.0
3.5:	3.5	1.5
4.8:	4.8	2.0

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RANGE OF CLOSURE

Surgery of the liver

- Enteral feeding
 - Gastrostomy tube
 - Jejunostomy tube
- Abdominal drainage
 - Liver abscess
 - Peritonitis

Surgery of the liver

- Hemorrhage
 - Vessels
 - Parenchyma
- Portal vein thrombosis
 - Portal hypertension
 - End stage liver disease

Surgery of the liver

- Hypoglycemia
- Bilirubine
 - Inflammation
 - Dexamethasone: 1mg/kg IV
 - Obstruction
- Liver enzymes

Surgery of the liver

- Systemic Inflammatory Response Syndrome
- Septic shock



Surgery of the liver

- Disseminated intravascular coagulation: Liver abscess
 - Coagulation profile
 - Platelet counts
 - AT III
 - Plasma Heparin