

Percutaneous Liver Sampling

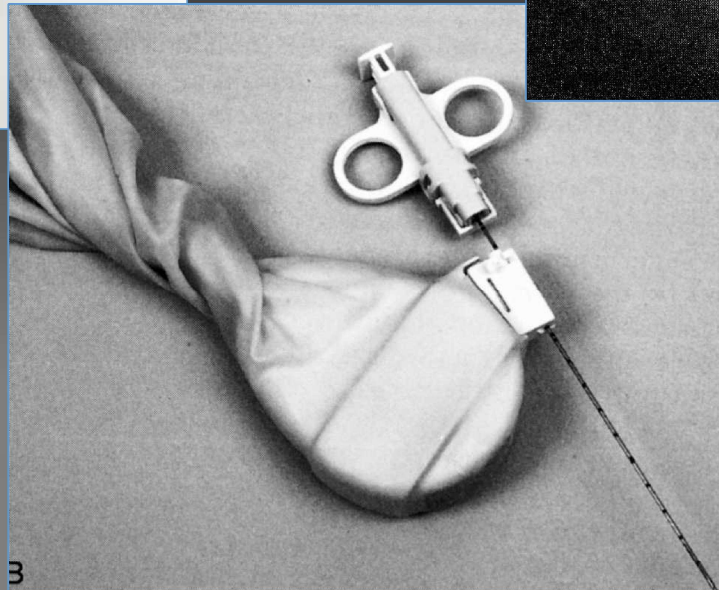
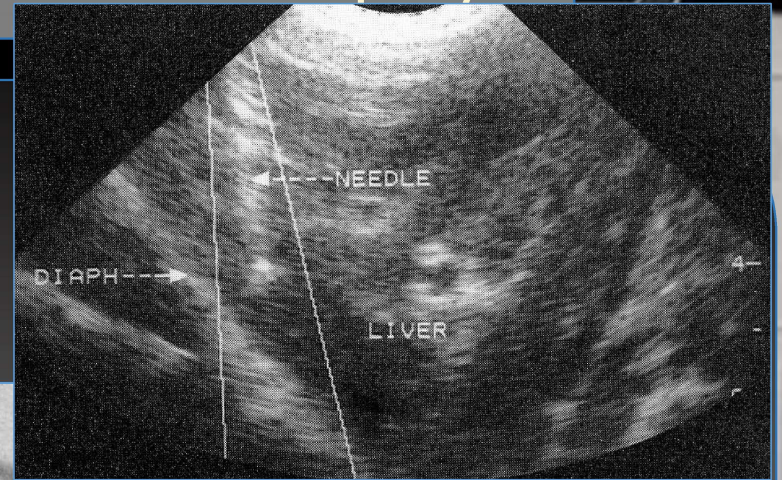
Wendy Blount, DVM



Indications for Percutaneous Liver Biopsy

- Solid soft tissue masses visible by ultrasound
 - If mixed echo pattern, go for a solid spot
- *Take care aspirating fluid filled structures in body cavities*
- Aspirate the gall bladder only if you are prepared to do interventional surgery onsite
 - Aspirate GB only under sedation & with informed consent
- Be prepared for interventional surgery for hypoechoic lesions in liver, spleen & other internal organs

Indications for US Guided Biopsy



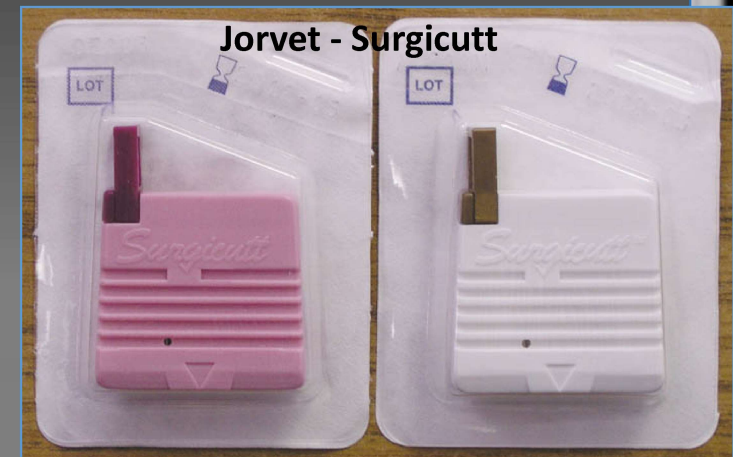
Patient & Equipment Preparation

- Clip fur and do alcohol prep (no gel!)
- If you are going to touch the entry site with your fingers, don sterile gloves for FNA
- Don sterile gloves for core biopsies, and place a sterile glove or probe cover over the probe
 - Use sterile surgical lube under the probe cover as well as on the patient
- May or may not need sedation for FNA
- Sedation required for core biopsy
- Consider scheduling all FNA/biopsies in the AM

Patient & Equipment Preparation

Pre-Sampling Lab work – within 24 hours

- CBC confirming platelets $>50,000/\mu\text{l}$
- HCT $>30\%$ for dogs, HCT $>25\%$ for cats being sedated
- Buccal Mucosal Bleeding Time (BMBT) <2 minutes



Patient & Equipment Preparation

Pre-Sampling Lab work

- Buccal Mucosal Bleeding Time (BMBT) <2 minutes
 1. Lift the upper lip (gauze muzzle)
 2. Remove the device safety tab
 3. Place the device on the mucosa
 4. Push the device trigger button
 5. Dab dripping blood every 15 seconds, but don't touch the clot
 6. **BMBT = when bleeding stops**



Patient & Equipment Preparation

Pre-Sampling Lab work

- Buccal Mucosal Bleeding Time (BMBT) <2 minutes
- If liver disease, PT/PTT
- Any preanesthetic lab work or other diagnostics indicated for safe anesthesia

Sterilize Needle Guide, if used

- Some are disposable
- Some gas sterilized, autoclaved or gluteraldehyde

Patient & Equipment Preparation

Supplies

- FNA needles – 22-25g for internals, any size for peripherals
- 1-1/2 inch, 3 inch spinal needles
- 5-12cc syringes for aspiration
- Glass slides
- Fresh stains
- Decent cytology microscope

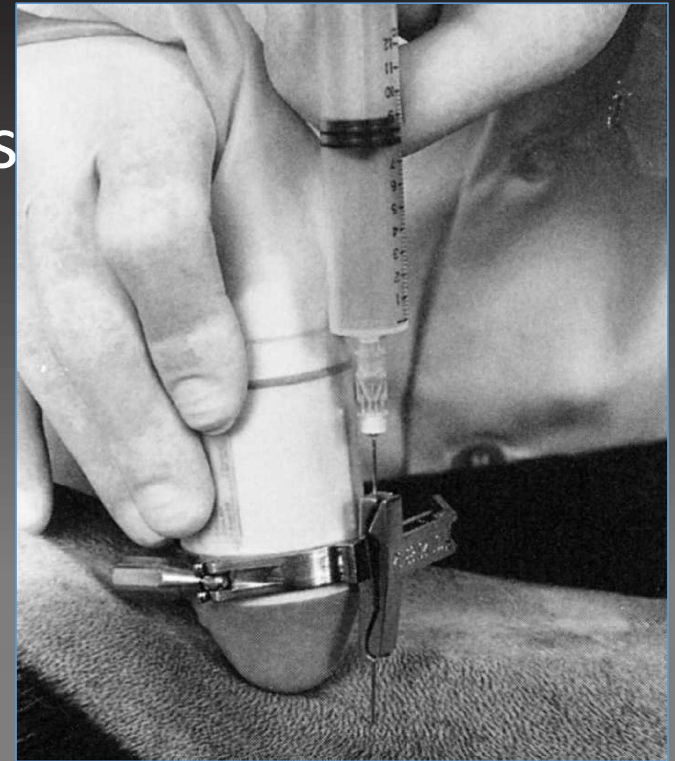
Tips for FNA

1. Try a “core” FNA first with no attached syringe
 - Less hemodilution
 - Attach air filled 10cc syringe and propel needle contents onto a slide
 - Prep, dry and stain as usual



Tips for FNA

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2. If that fails, add aspiration with s
 - 2cc saline in syringe for better recovery on firm lesions that produce scant samples
 - Spin down & prep slides from sediment



Tips for FNA

1. Try a “core” FNA first with no attached syringe
 - Less hemodilution
2. If that fails, add aspiration with syringe
 - 2cc saline in syringe for better recovery on firm samples that produce scant samples
 - Spin down & prep slides from sediment
3. If that fails try a larger needle if deemed safe
 - Or a needle with stylet (spinal needle), followed by aspiration

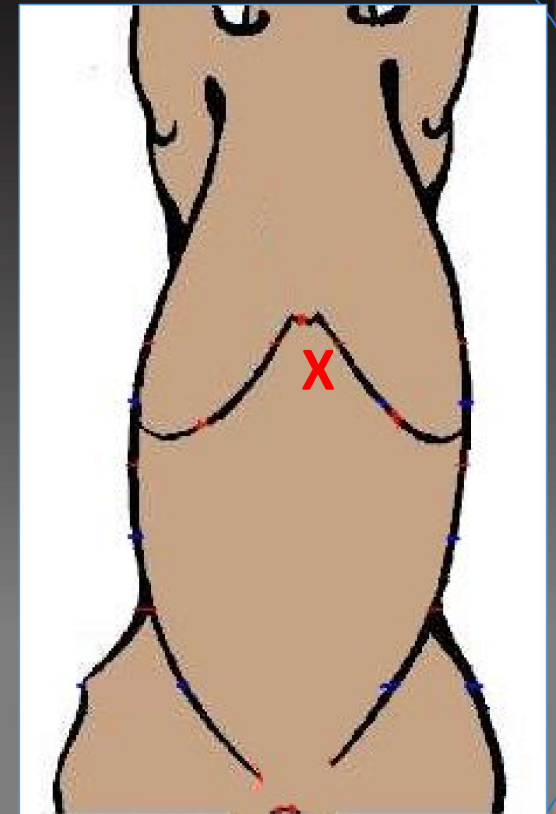
FNA of Liver

- Difficult to impossible in deep chested dogs with small livers
- Use the ultrasound to avoid pleural cavity when using intercostal approach
- Liver biopsy/FNA for diffuse disease – left lobe
- Use US to avoid GB and vessels

FNA/Biopsy of Liver

Indirect Ultrasound Guidance

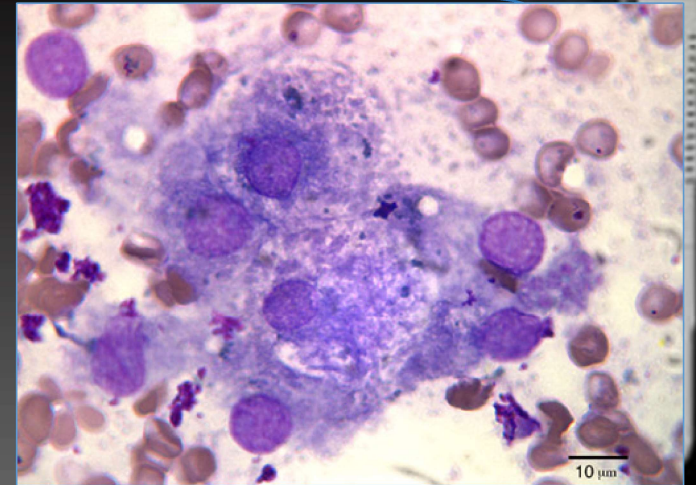
- Notch between xyphoid and costal arch
 - Choose needle length sufficient to penetrate falciform ligament (at least 1-1/2")
1. Check for liver presence with the US probe
 2. Clip & surgically prep the area
 3. Penetrate the skin and pause
 4. Pass needle to the hub into the liver
 - Direct needle 45° to table, toward head
 - Do not redirect – straight in, straight out
 - Core first, then add aspiration if needed



FNA/Biopsy of Liver

Indirect Ultrasound Guidance

- Notch between xyphoid and costal arch
- Choose needle length sufficient to penetrate falciform ligament (at least 1-1/2")
- 5. **Quickly** squirt needle contents onto a slide
- 6. Prep, dry and stain as usual
- 7. Confirm that you have hepatocytes on the slide
 - Big purple cells – granular cytoplasm



FNA/Biopsy of Spleen

- Very low risk of bleeding for diffuse disease and solid tumors
- Significant hemorrhage risk for cystic structures
- Indirect ultrasound guidance often sufficient for diffuse disease

FNA & Biopsy Complications

- **Bleeding** – watch for this with the US probe for 5 minutes after last stick (<1% hemorrhage risk)
 - If bleeding is a concern, stick to a smaller needle
 - Use Doppler to identify and avoid large vessels
 - Small amount of self limiting bleeding is no problem (5%)
 - Asymptomatic pneumothorax after lung FNA no problem
- **Rupture** of fluid filled structure - **problem**

Summary

- [PowerPoint](#) - Liver Sampling
- [.pdf of PowerPoint](#) - (1 and [6 slides](#) per page)
- Article - [Liver Cytology](#)
- Vet Handout - [Liver FNA](#)

