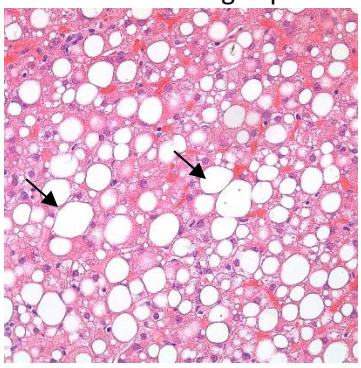
Frozen section reporting for liver allograft (donor) evaluation: 3/17/20

The majority of the time, the question asked and what needs to be reported is the amount of steatosis:

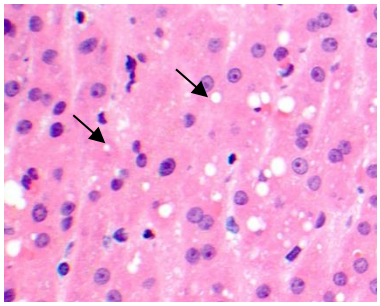
1. **Provide percentage of steatosis**

- Evaluate and report % of **Large** droplet **Macrovesicular** steatosis (see definitions below and see attached picture guideline for estimating percentages):
    - An estimated large droplet macrovesicular steatosis of ≥30% has been shown to be an independent risk factor for reduced short term graft survival.

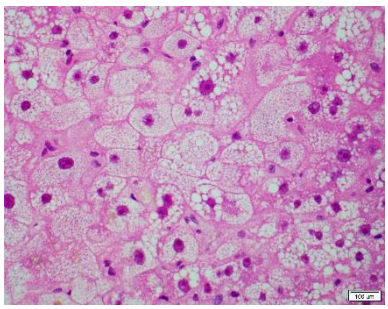
- Macrovesicular steatosis
    - **Large droplet**
        - One or a few large lipid vacuoles which occupy >50% of the cell volume and displace the nucleus.



    - Small droplet (does not need to be reported unless it is very extensive, >70% of parenchyma)
        - Small vacuoles that occupy <1/2 of the cytoplasm of a cell and do not displace nuclei



- Micovesicular steatosis (rare finding, does not need to be reported unless it is very extensive, >70% of parenchyma)
    - Numerous fat vesicles (no discrete vacuoles) giving the cytoplasm a foamy appearance. The nuclei are not displaced.



2. **Other findings that may be asked and/or should be noted if present**

- Necrosis. If there is significant necrosis (>20% or so), then report. Focal subcapsular necrosis and neutrophilic infiltration is common and need not to be included.
- Extensive fibrosis: In general, fibrosis does not need to be reported, as it is difficult to stage fibrosis based on H&E alone and special stains are needed. If asked to report the stage of fibrosis, then only need to report if there is extensive fibrosis (i.e. bridging bands of fibrosis or cirrhosis that can confidently be evaluated by H&E alone). Defer the accurate staging of fibrosis to permanents and special stain evaluation.

3. Pitfall regarding specimen preparation

- DO NOT USE: saline, air dry, absorbent substrate. These will alter morphology

4. Please also note that sometimes the FS slide is already made and the read is provided by the pathologist at the original hospital where the organ was retrieved, and UCLA surgeon asks the FS attending at UCLA to review that slide to confirm the original pathologist's diagnosis.

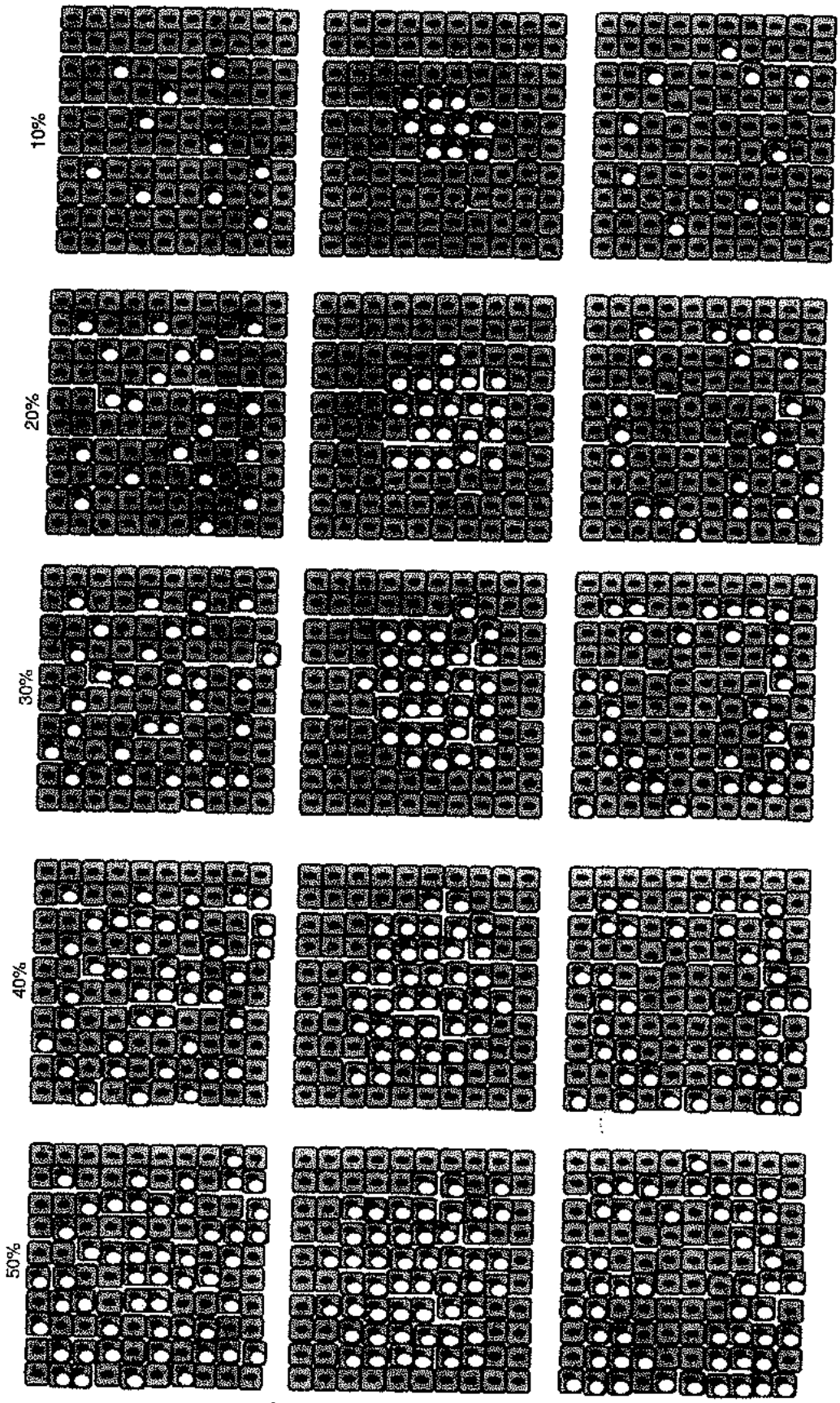
Please contact liver attending on service if need more assistance (the attending may not be available after hours). Please note that the liver attending is not expected to carry a pager off-hours; if there is a true emergency and they do not answer their pager, call their cell phone number. If not an emergency and they do not answer their pager, please send an email.

References:

Yersiz H, Lee C, Kaldas FM, Hong JC, Rana A, Schnickel GT, Wertheim JA, Zarrinpar A, Agopian VG, Gornbein J, Naini BV, Lassman CR, Busuttil RW, Petrowsky H. Assessment of hepatic steatosis by transplant surgeon and expert pathologist: a prospective, double-blind evaluation of 201 donor livers. Liver Transpl. 2013 Apr;19(4):437-49

Brunt EM. Surgical assessment of significant steatosis in donor livers: the beginning of the end for frozen-section analysis? Liver Transpl. 2013 Apr;19(4):360-1.

Demetris AJ, et al. Histopathology of liver transplantation. In: Transplantation of the Liver. (Eds.) Busuttil RW, Klintmalm GB. Philadelphia, Elsevier, 3rd Edition; 2015, Chapter 84.



E 84-1 Picture matching a diagram that precisely illustrates the severity of macrovesicular steatosis can be used to improve ccuracy of estimating the percentage of donor macrovesicular steatosis. We have this diagram posted near the microscope used valuate donor livers.