Ian D Michell FRACS,
Surgical Weight Loss Solutions, Melbourne, Australia

Can the surgeon pick fatty liver at operation?

Comparing macroscopic appearance and histology

Background

Metabolic Associated Fatty Liver Disease is associated with Obesity

There is concern about the disease load due to the obesity epidemic

Routine liver biopsy is not commonplace in bariatric surgery.

Can simple examination of the liver at operation select patients for biopsy?

[X] I have no potential conflict of interest to report

AIMS and Methods

- Metabolic associated fatty liver disease is commonly present in patients undergoing metabolic bariatric surgery.
- Benign steatosis is common. Steatohepatitis with fibrosis is not common
- Most surgeons do not perform routine biopsy but would do this according to the macroscopic appearance at surgery.
- We have reviewed 328 sequential liver biopsies (2019-2024) performed by 1 surgeon.
- Core liver biopsies of segment 2-3 were performed on all patients undergoing MBS (excluding removal of gastric band)
- Operative Findings were recorded with the liver assessed for size, colour and edge
  - Size - 1-5 from very small(1) to major incursion into operative field (5) - most cases 2-3
  - Colour – Dark, Mid, Nutmeg, Yellow
  - Edge – Sharp, Blunt**,** Fibrotic
- These were sent to one pathology service.
  - A descriptive report was issued and additionally the biopsy was scored for MAFLD using the NAS system.
  - Results were tabulated using a bespoke database (Paradox for Windows).
  - Direct Results are Reported - Statistical analysis was not performed.
  - Institutional approval sought on the basis of surgical audit

FINDINGS

- Demographics
  - N=328
  - Age 43.8 (16- 76)
  - M:F 23:77%
  - BMI
    - 45.1 (29 -81) reference
    - 40.1 (23 – 72) operative
  - Operation: Primary 73%
    - Sleeve Gastrectomy 145 44%
    - One Anast. Gastric Bypass 83 25
    - Roux Y Gastric Bypass 67 20
    - Lap Gastric Banding 33 10

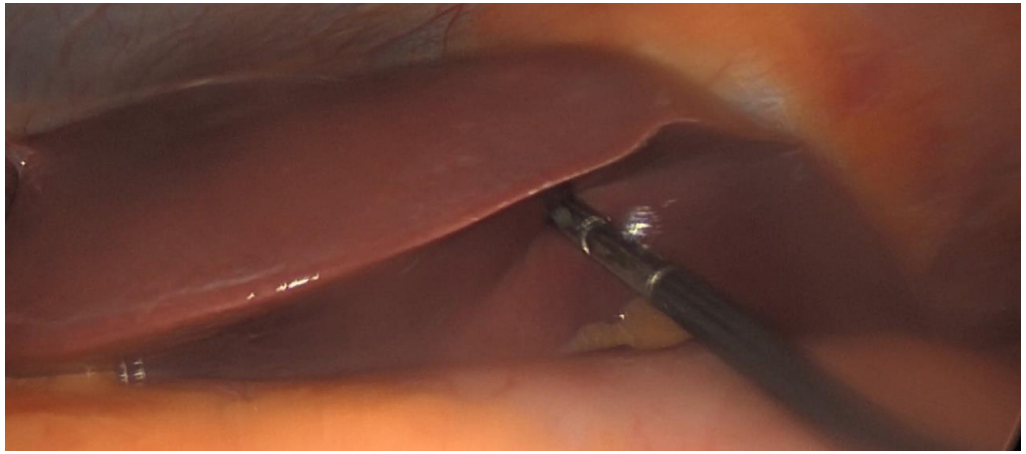
Results

- Normal Liver – 1-2 size, dark, sharp margin 168 (51%)
  - Visually abnormal 49%
- MAFLD on histology (NAS score >2)total 127(39%)
  - Steatosis >20% total 126(39%)
  - Fibrosis total 93(28.5%)

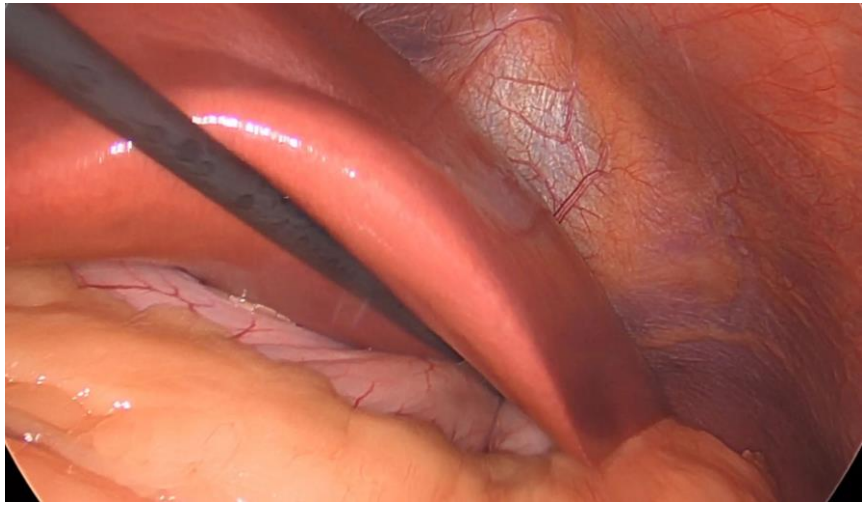
- Steatosis in “normal” liver (false negative) 30
- Fibrosis in “normal” liver (false negative) 25

- NAS 1-2 in abnormal liver (false positive) 59
- No fibrosis in abnormal liver (False Pos) 88
  - Sensitivity 72%, Specificity 62% for fibrosis

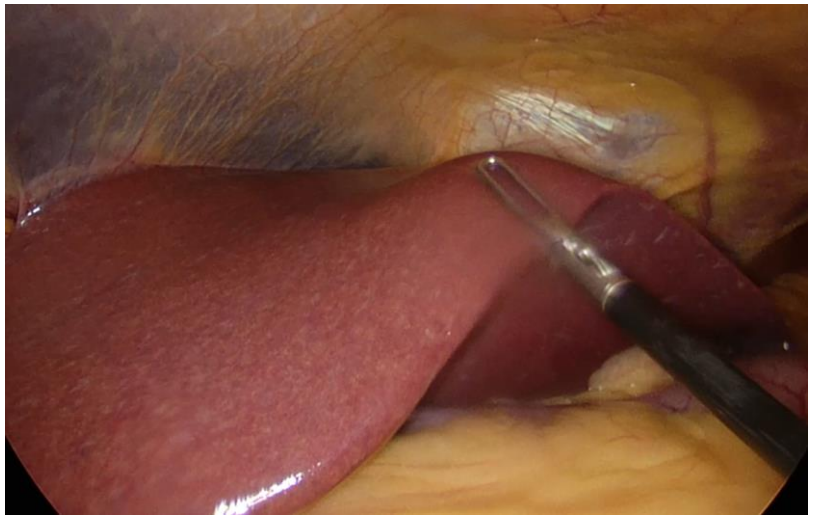
Macroscopically Normal Liver
Size 2/5, Dark, Sharp Margin



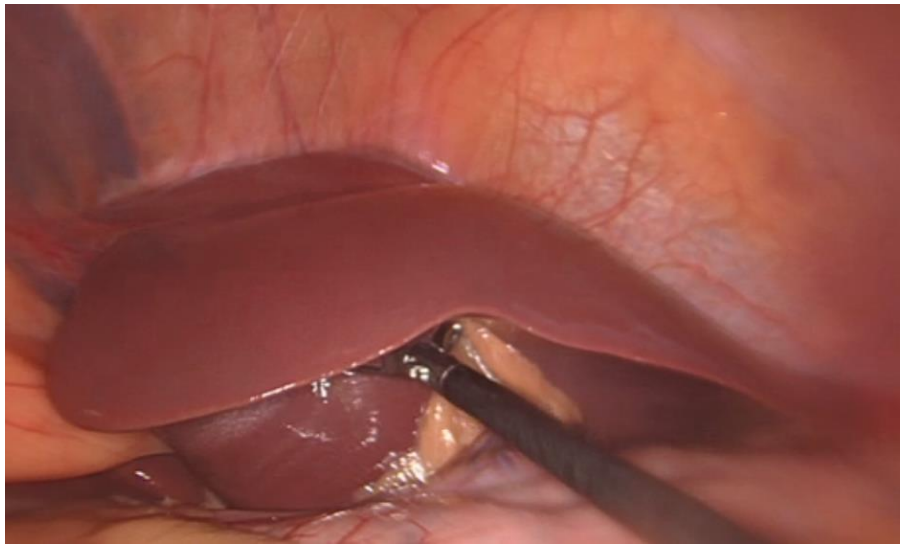
NAS = 2, Fibrosis 1,10% steatosis



NAS = 4, 40% steatosis



NAS = 4, 35% steatosis



NAS = 0, 5% steatosis

CONCLUSIONS

- Benign hepatic steatosis is common in bariatric population (39%)
- Significant fibrosis is uncommon (29%)
- It is incorrect to equate obesity alone with hepatic pathology

- The surgeon cannot macroscopically diagnose MAFLD with any certainty
  - However formal liver description in the operation note adds to the precision and quality of the report.
- Routine liver biopsy should be part of the surgical staging of obesity
- This dataset could be expanded to include non invasive blood markers.