



Clinical Case

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Disclosures

Partner of HEPATOSCAN Medical Services® -
Commercial interest in transient liver elastography
using FibroScan®.



Meet the patient

Patient details	Examination	Laboratory investigations	Additional investigations
<ul style="list-style-type: none">• Mrs B• 56 yr; female• Professional lifestyle• Recently moved into the area - visits GP for fatigue on walking 2-3 blocks, feels depressed and anxious, now referred for abnormal LFTs• Non smoker, does not drink alcohol• T2DM x 5 yrs• Hypertension x 10 yr	<ul style="list-style-type: none">• BMI 38 kg/m²• BP 144/92• Heart- normal heart sounds,• Chest- clear• Anterior liver span 5 cm by percussion• No ascites	<ul style="list-style-type: none">• Hgb: 13 gm/dl• Platelets: 180000/mm³• ALT: 24 IU/L; AST: 20 IU/L• LDL-Cholesterol 160 mg/dl, TG 180 mg/dl, HDL-c 38 mg/dl• GGT- 320 IU/l• Creatinine 1.02 mg/dl• Hgb A1C 9.9	<ul style="list-style-type: none">• Fibroscan-<ul style="list-style-type: none">- TE 12 kPa- CAP 350 db/m Echo: Increased E/E'Biventricular hypertrophy O₂ sat 90% room air



- Evaluation

FIB-4: 1.27 - < F3

NAFLD Fibrosis Score: - 1.4 - < F2



- A) Should I perform liver biopsy? Patient with the possibility of steatohepatitis (NASH).
- B) Lifestyle-modifying measures and repeat ultrasound in 6 months?
- C) Initiation of liraglutide? Obese and diabetic patient probable with steatohepatitis. Another drug for weight loss or NAH?



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- 6 months later...

Physical exam: BMI = 37 Kg/m²

Abdominal ultrasound - severe steatosis and hepatomegaly.

- Lab Results

Platelets: 158.000

A1C: 7.2%

ALT: 48 IU/l (5-40 IU/l)

AST: 50 IU/l (5-40 IU/l)

Albumin 3,8 g/L



- Evaluation

NAFLD Fibrosis Score: 2.6 - F3-F4

FIB - 4: 2.56 - gray zone

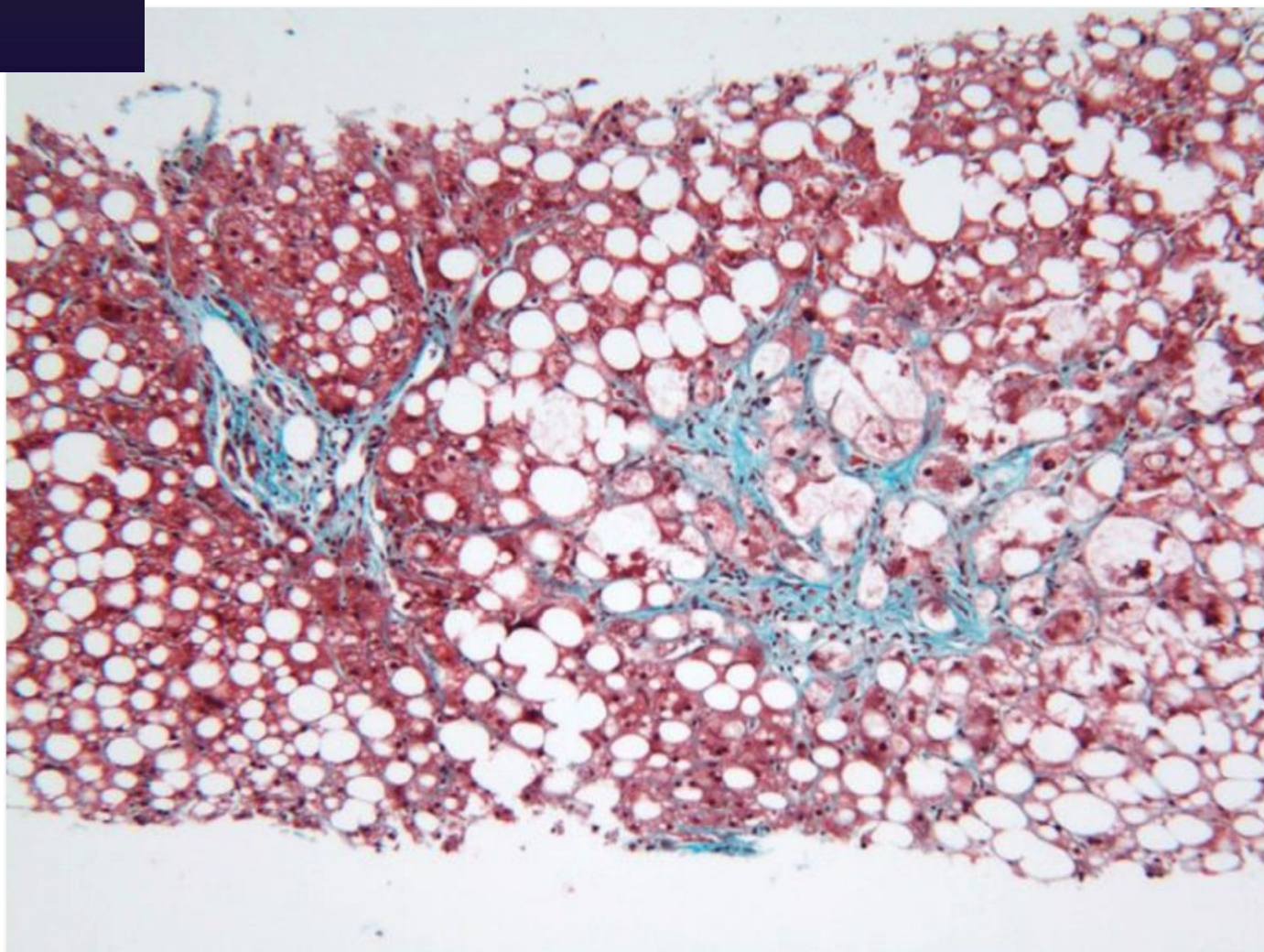
TE (XL): 10,3 kPa/ IQR 18%/ SR 100%/ CAP 350 dB/m/ IQR 40 - F3



A) Should I perform liver biopsy?

B) Reinforce lifestyle-modifying measures and repeat ultrasound/ NITs
in 6 months?

C) Initiate liraglutide? Another drug?





- A) Continue to follow US/NITs and lifestyle modification?
- B) Start vitamin E and new evaluation at 6 months?
- C) Start pioglitazone and new evaluation at 6 months?

Liver and diabetes

Cause or consequence?



NAFLD - Nonalcoholic Fatty Liver Disease

N = 132,377
35-79y
FU = 8y
Non diabetic individuals

- ✓ A total of 6,555 incident diabetes (3,734 men and 2,821 women) were identified, on average, over 5.8 years of follow-up.
- ✓ The risk of incident diabetes was significantly associated with NAFLD [HR=2.08 (men) and 2.65 (women)].
- ✓ Elevated ALT, AST, GGT and ALP were also significantly associated with the increased risk of diabetes.

NAFLD - Nonalcoholic Fatty Liver Disease and diabetes

- ✓ In longitudinal studies with histological assessment, diabetes was a risk factor for NAFLD fibrosis progression.
- ✓ Higher mortality from cardiovascular events and complications related to chronic liver disease have been reported in patients with NAFLD and diabetes.

*Adams, et al. Gastroenterology 2005;
Ekstedt, et al. Hepatology 2006*

*Rafiq, et al. Clin Gastroenterol Hepatol 2009
Targer, et al. Diabetes Care 2007
Stepanova, et al. Dig Dis Sci 2013*

What is the role of ALT and/or AST in the diagnosis of NASH and fibrosis in DM2 patients?

- ✓ In patients with DM2 and steatohepatitis aminotransferases were elevated only in 15-38%.

Leite et al. Liver Int 2011

Prashanth et al. J Assoc Physicians India 2009.

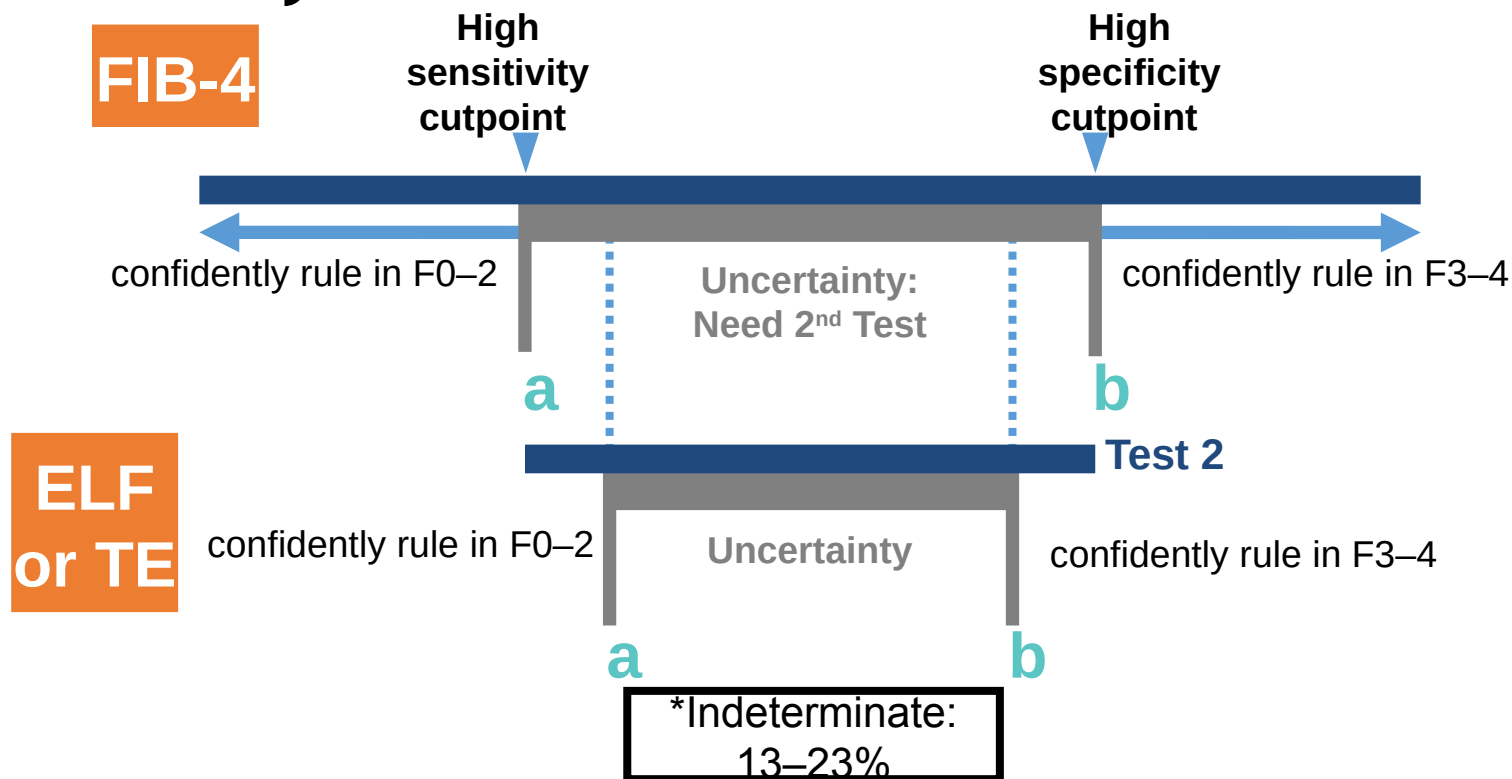
- ✓ Repeatedly normal ALT and/or AST do not exclude higher degrees of inflammatory activity or advanced stages of fibrosis.

Leite et al. Liver Int 2011

Williamson RM. QJM 2012

Portillo Sanchez et al. J Clin Endocrinol Metab 2015

Combination of two NITs to discriminate advanced fibrosis due to NASH increases accuracy

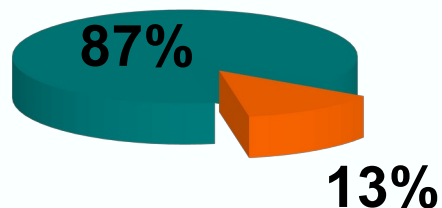


Reduces the indeterminate zone by mimicking clinical practice with initial use of a simple test (e.g. FIB-4), followed by a specialty test (e.g. ELF or LS by TE)

Evaluation of fibrosis in our cohort of diabetics with NAFLD

- 303 exams
- 61% female; 59 ± 9 years.
- BMI: 31 ±5 Kg/m²

Advanced fibrosis (TE ≥9.6 kPa)



Studies with TE: prevalences 7.3-18.8% of advanced fibrosis

Sporea I et al. J Gastrointestin Liver Dis. 2016;
Kwok et al. Gut 2015;
Roulot et al. Liver Int 2017

