

# Surgery for NASH ?

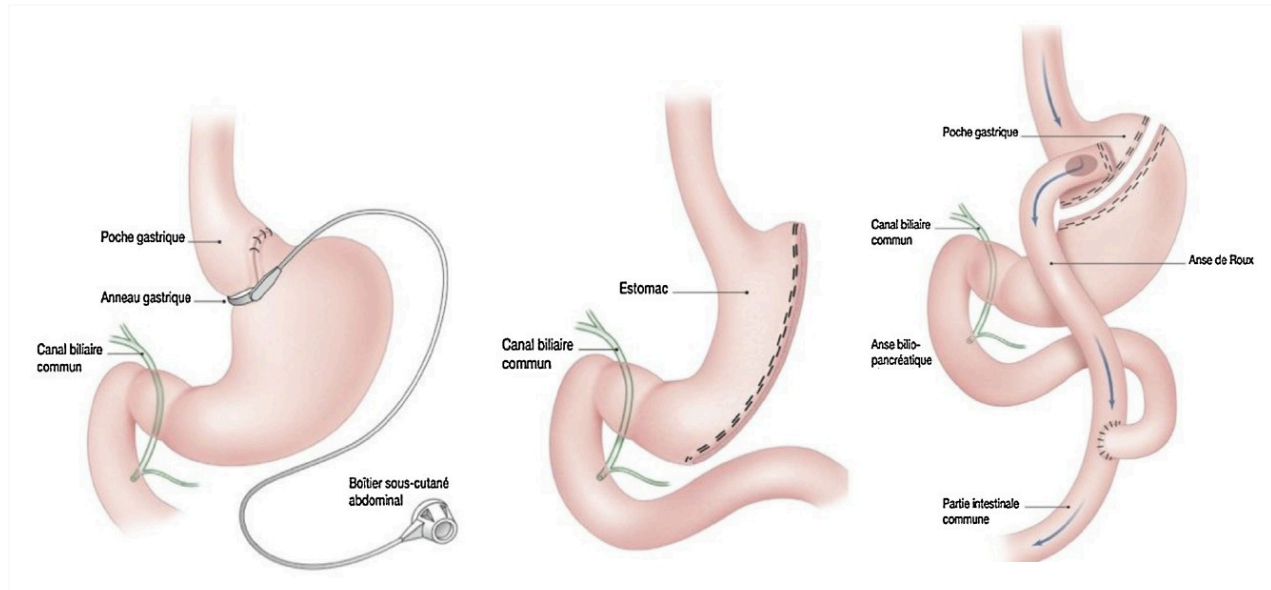
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European Genomic Institute for Diabetes, Lille, France



# Metabolic surgery

An **unexpected treatment** for metabolic diseases ...



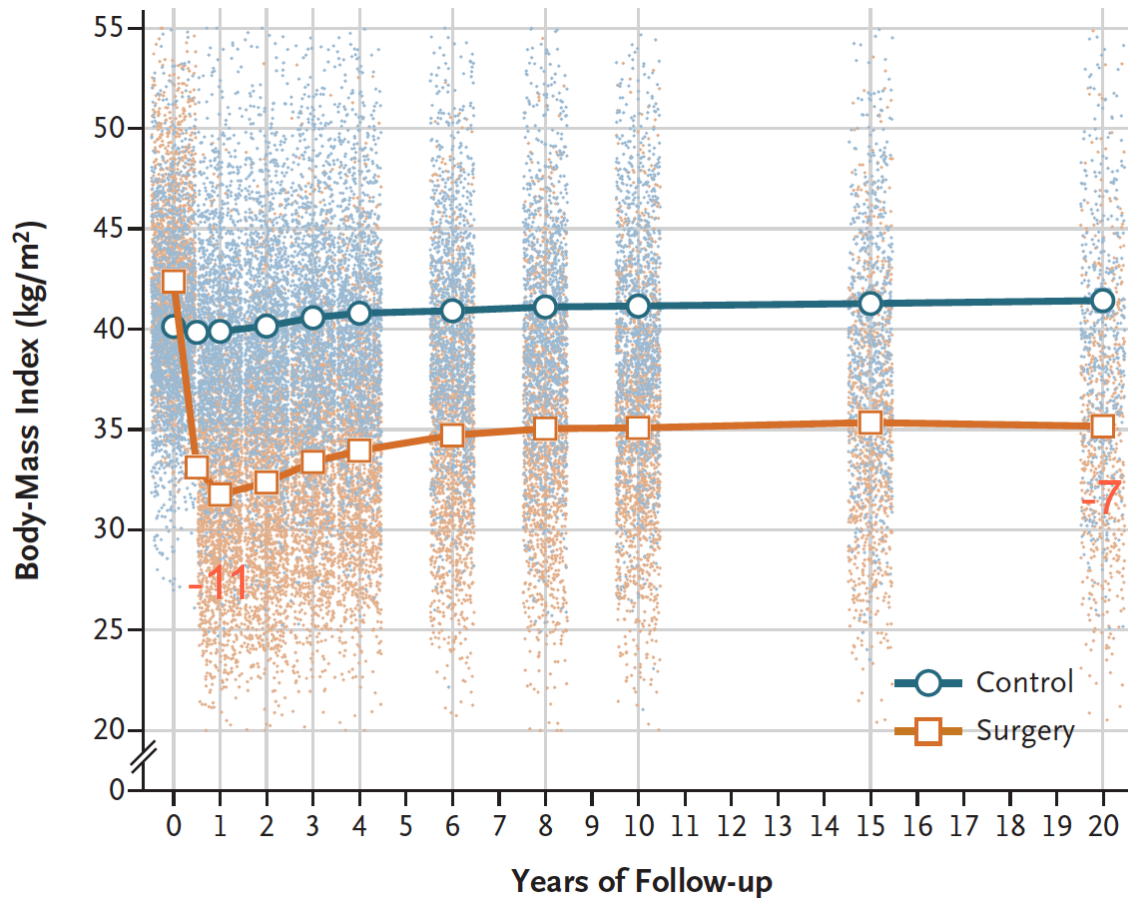
Gastric band

Sleeve  
gastrectomy

Gastric bypass

50 000 patients per year in France -> **1 percent of adults** have been operated

# Durable surgical weight loss

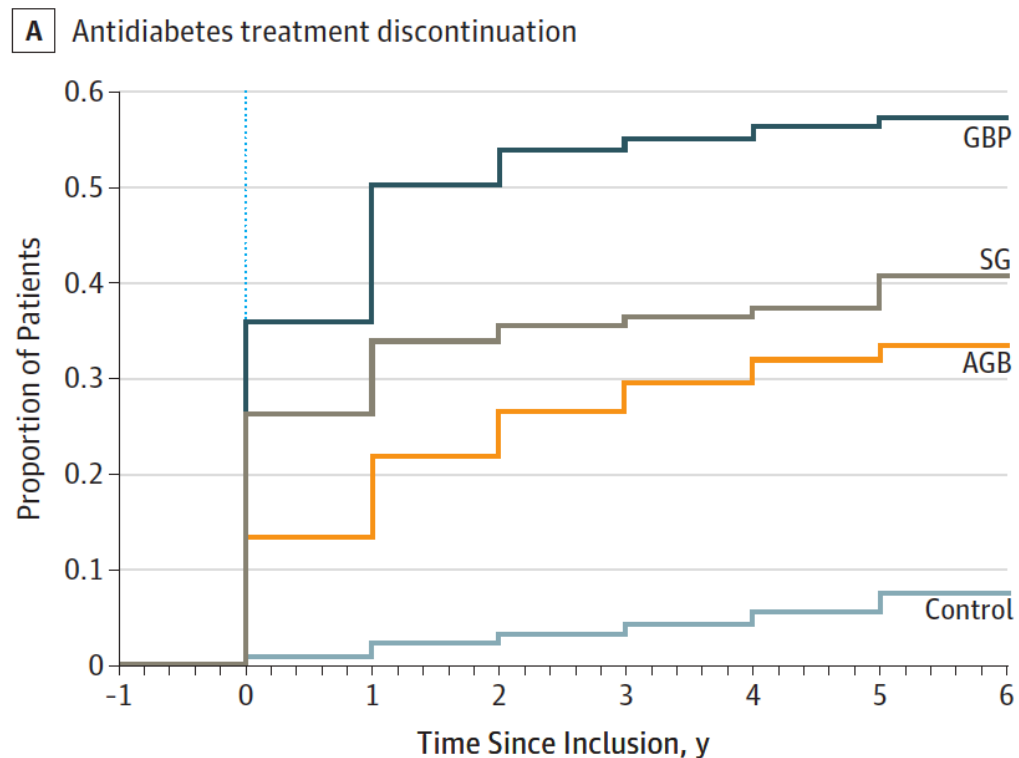


2007 patients operated  
vs 2040 controls  
(median follow-up 24y)

Carlson et al.  
*N Engl J Med* 2020

# Remission of type 2 diabetes

Interruption of all diabetes treatments following surgery among 15 650 patients operated in 2009 (SNIIRAM)

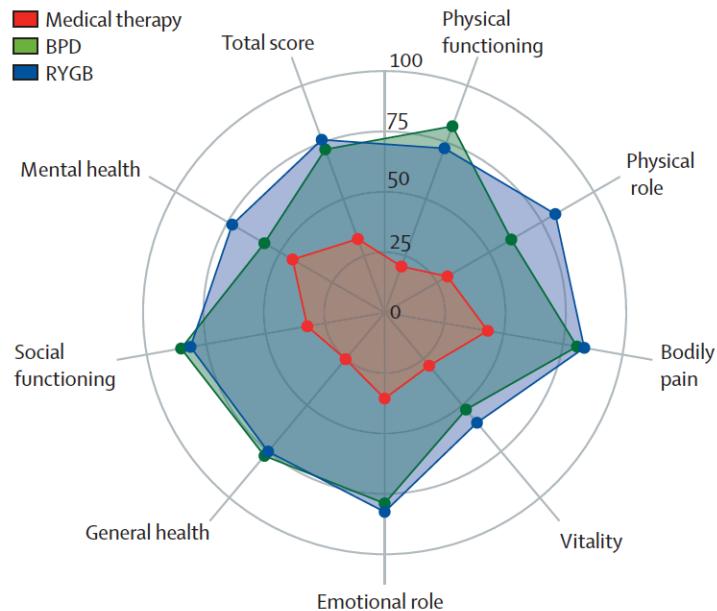




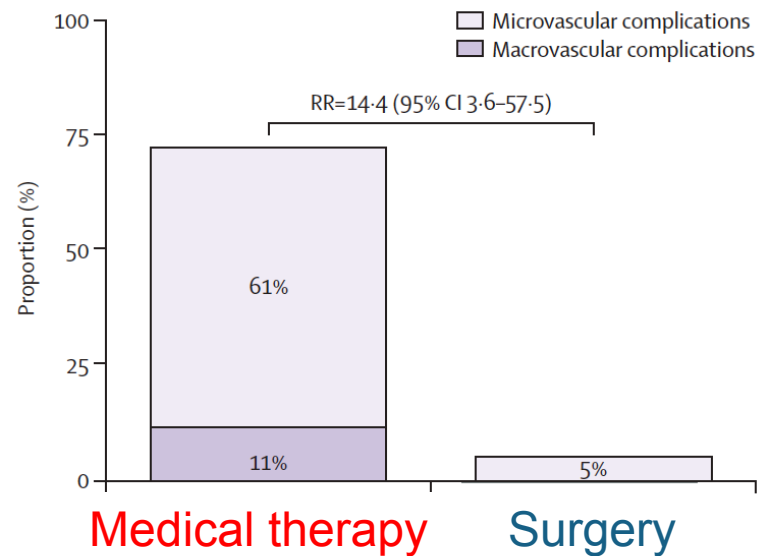
# Long term diabetes outcomes

10-year Randomized Controlled Trial  
**Medical therapy** (n=20) vs **Surgery** (RYGB n=20 ; BPD n=20)

## Quality of life (SF36)



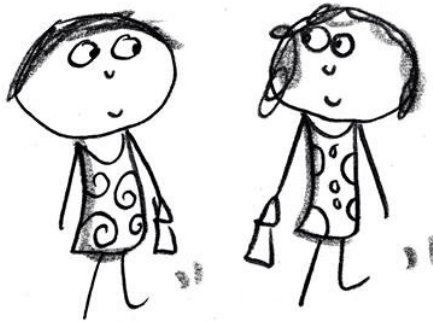
## Diabetes related complications



# **NASH after bariatric surgery !**

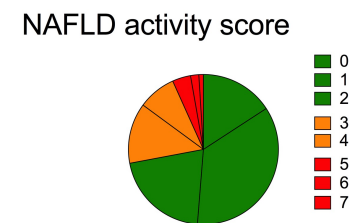
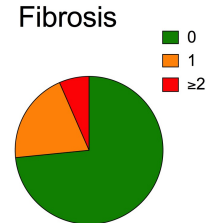
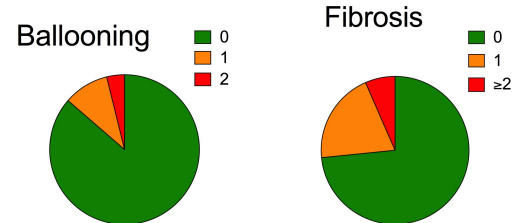
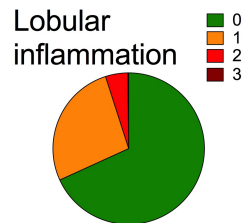
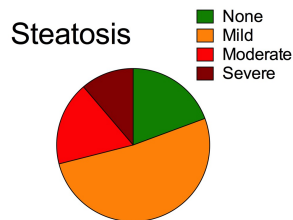
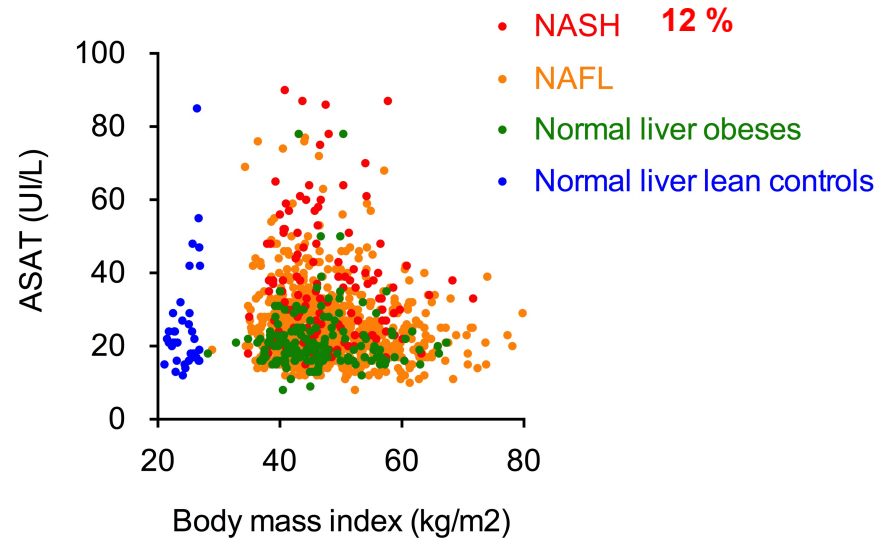
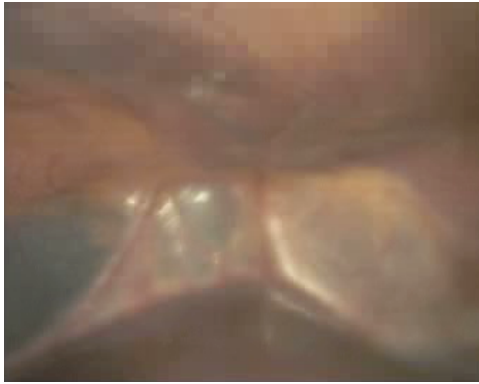


# Lille NAFLD cohort



*...knowing each other*

# NAFLD at the time of surgery



Histology NAFLD activity score (N=1118)

# NAFLD outcomes after surgery

Proof of concept / observational study

Kral et al *Surgery* 2004

Overall Benefit of surgical weight loss / meta-analysis

Chavez Tapia *Cochrane Review* 2010

-> **Longitudinal liver biopsies > 1000 patients / Lille bariatric cohort**

NAFLD improvement associated with insulin resistance

Mathurin ... Pattou. *Gastroenterology* 2006

NAFLD improvement is sustained at 5 years

Mathurin... Pattou. *Gastroenterology* 2009

NAFLD improvement is beyond weight loss

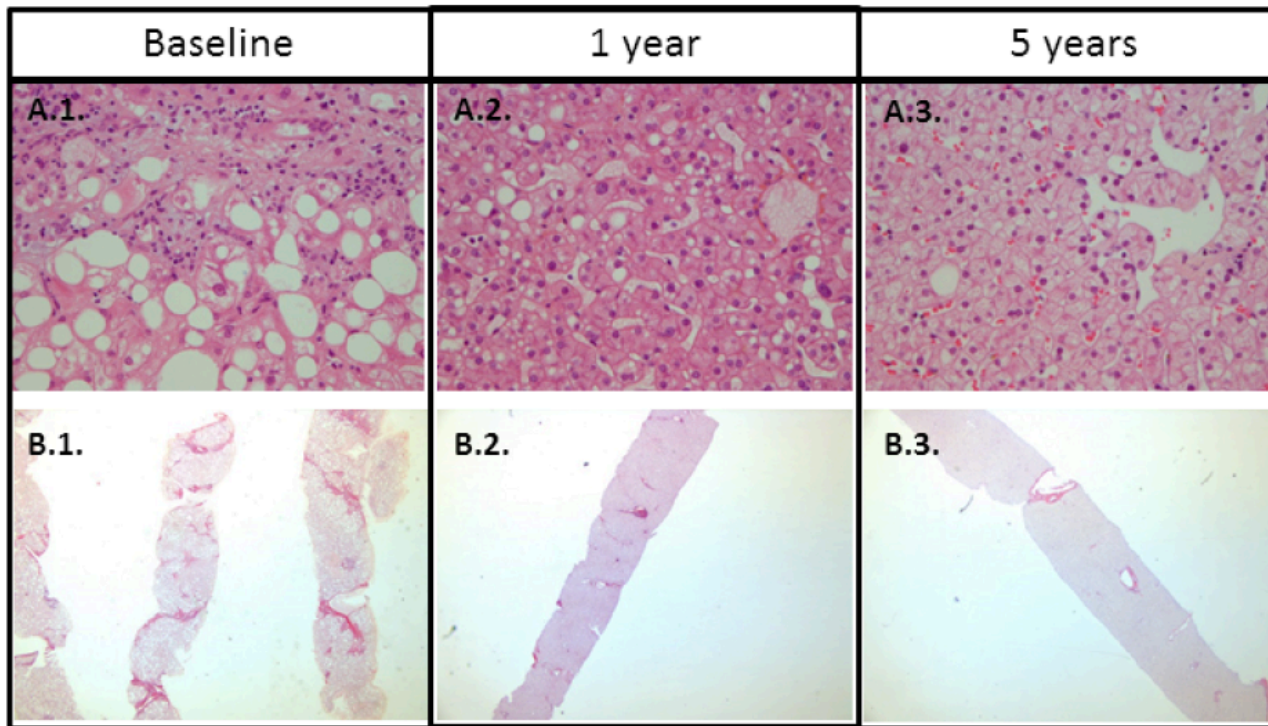
Caiazzao... Mathurin, Pattou. *Gastroenterology* 2009

NASH reversal 1 year after surgery

Lasailly ... ... Pattou, Mathurin. *Gastroenterology* 2015

# Complete NASH remission ?

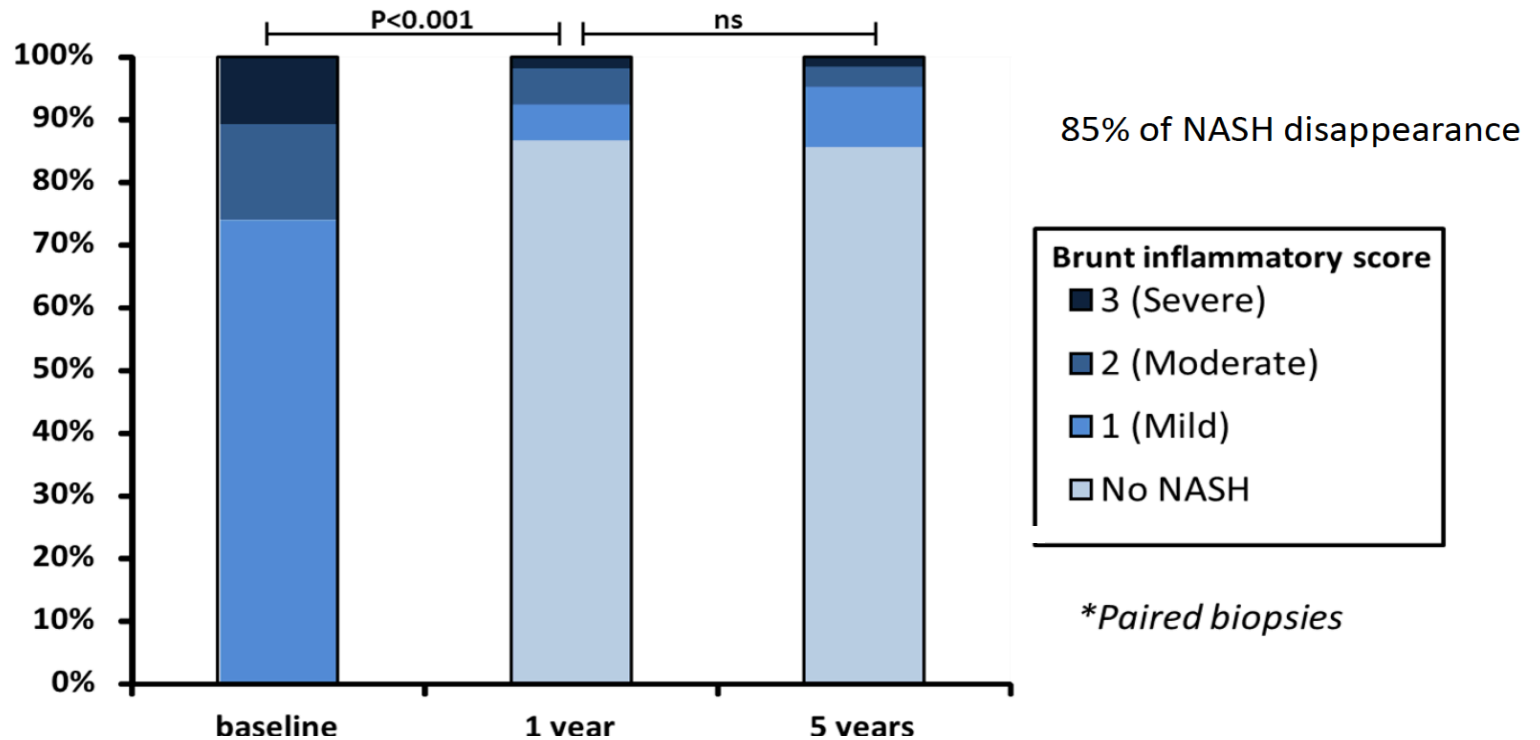
5-year prospective cohort study with longitudinal histological results  
in 180 patients with biopsy proven NASH



Lassailly Caiazzo Pattou, Mathurin et al. *Gastroenterology* 2020

# NASH remission after one year

5-year prospective cohort study with longitudinal histological results in 180 patients with biopsy proven NASH



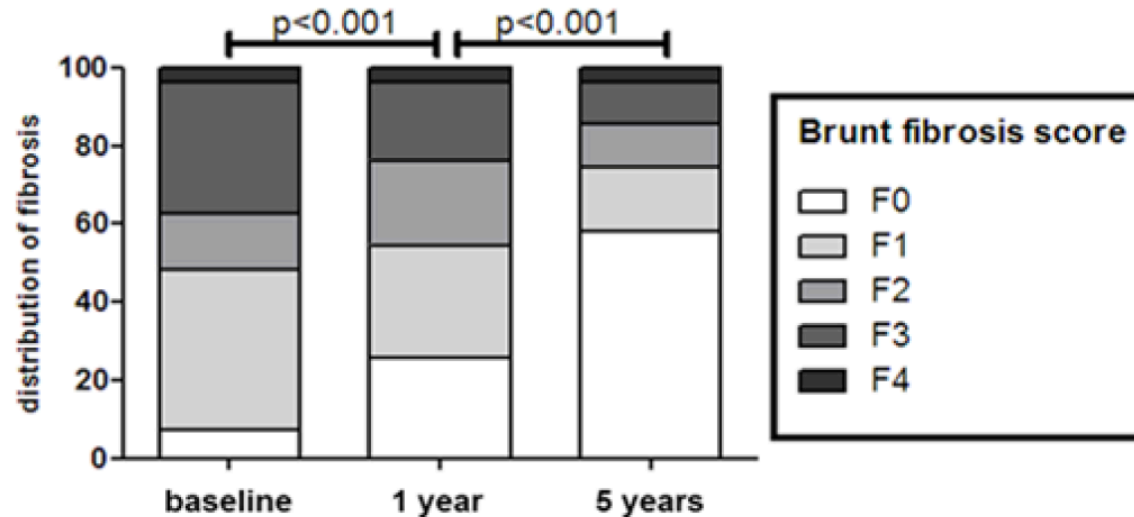
Lassailly Caiazzo Pattou, Mathurin et al. *Gastroenterology* 2020



# Liver fibrosis regression after 5 years

5-year prospective cohort study with longitudinal histological results  
in 180 patients with biopsy proven NASH

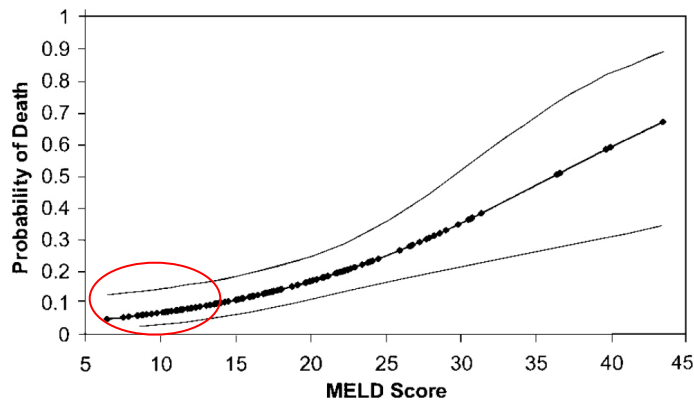
## Fibrosis evolution after surgery



Lassailly Caiazzo Pattou, Mathurin et al. *Gastroenterology* 2020

# Surgical mortality / liver disease

-> Severity of liver disease / MELD score (bilirubin - INR - creatinine)  
is associated with **increased risk of postoperative death**



Type of surgery	Mortality				
	Overall (%)	Child-Pugh class			MELD score
		A (%)	B (%)	C (%)	
Appendectomy	9	n.a.	n.a.	n.a.	n.a.
Cardiac	16-17	0-3	42-50	100	n.a.
Cholecystectomy	1-3	0.5	3	n.a.	<8 = 0% ≥8 = 6%
Colorectal cancer surgery	12.5	6	13	27	n.a.
Esophagectomy	17	n.a.	n.a.	n.a.	n.a.
Major abdominal surgery	26-30	10	30-31	76-82	n.a.

Nothup et al. *Ann Surg* 2005

Banghi et al. *J Hepatol* 2012

**Surgery for NASH ? -> Let's do it**

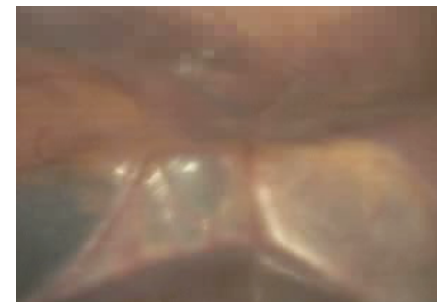


# Take home messages

1. **NAFLD regresses** after bariatric surgery with **insulin resistance**
2. **NASH disappears** after bariatric surgery in **> 80%** of cases
3. Liver **fibrosis can regress** 5 years after surgery
4. **Surgery for NASH** ( $\pm$  cirrhosis) still under evaluation / RCTs

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-> **Routine needle biopsy** during surgery



# Thank you all !

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Participants and researchers at  
the Lille open day in February

ANR

