Early experience of Duodenal Mucosal Resurfacing treatment for Type 2 Diabetes when expanding from single to multiple sites

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Disclosures

Annieke van Baar	No conflicts of interest
Jacques Deviere	No conflicts of interest
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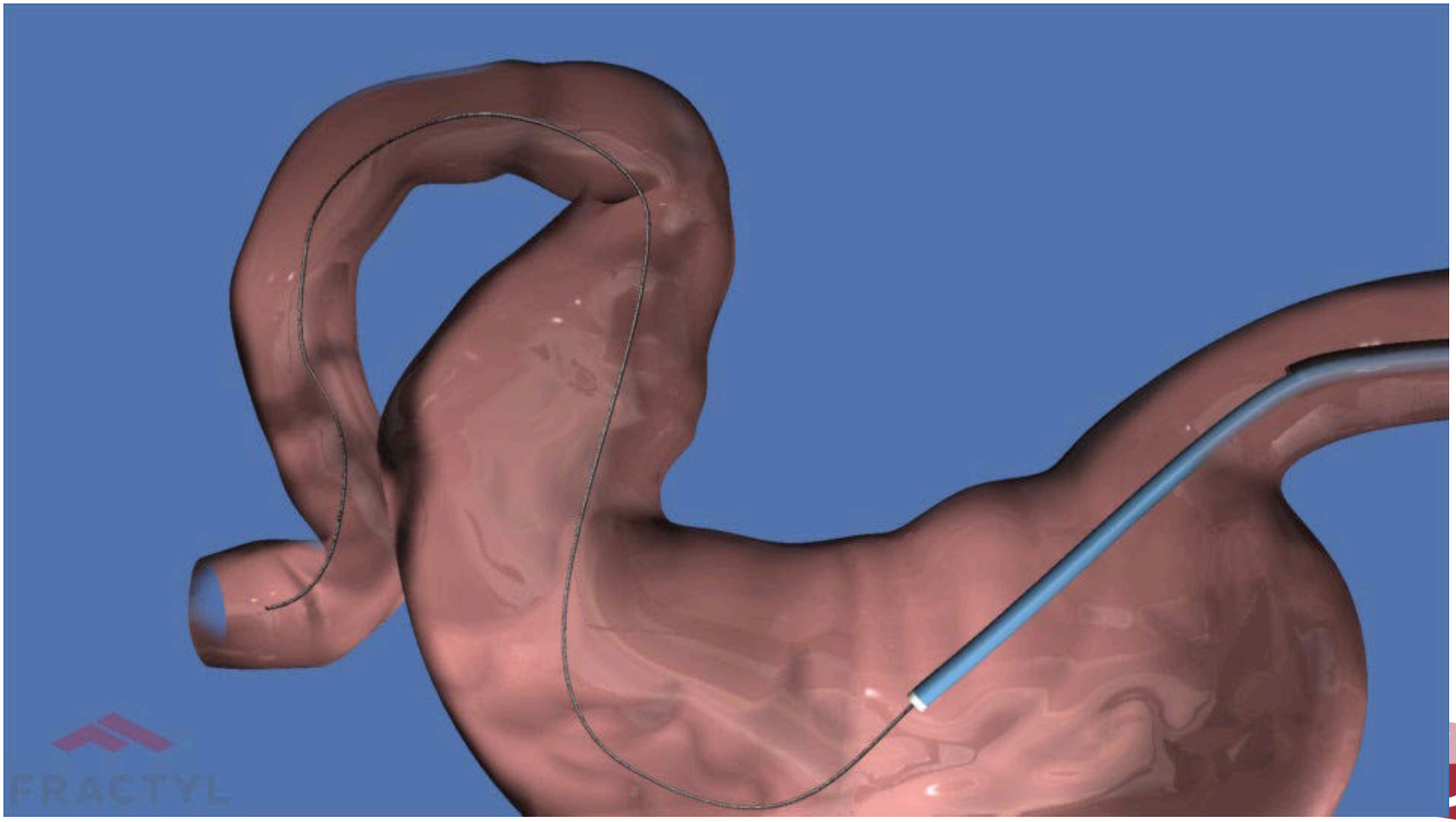
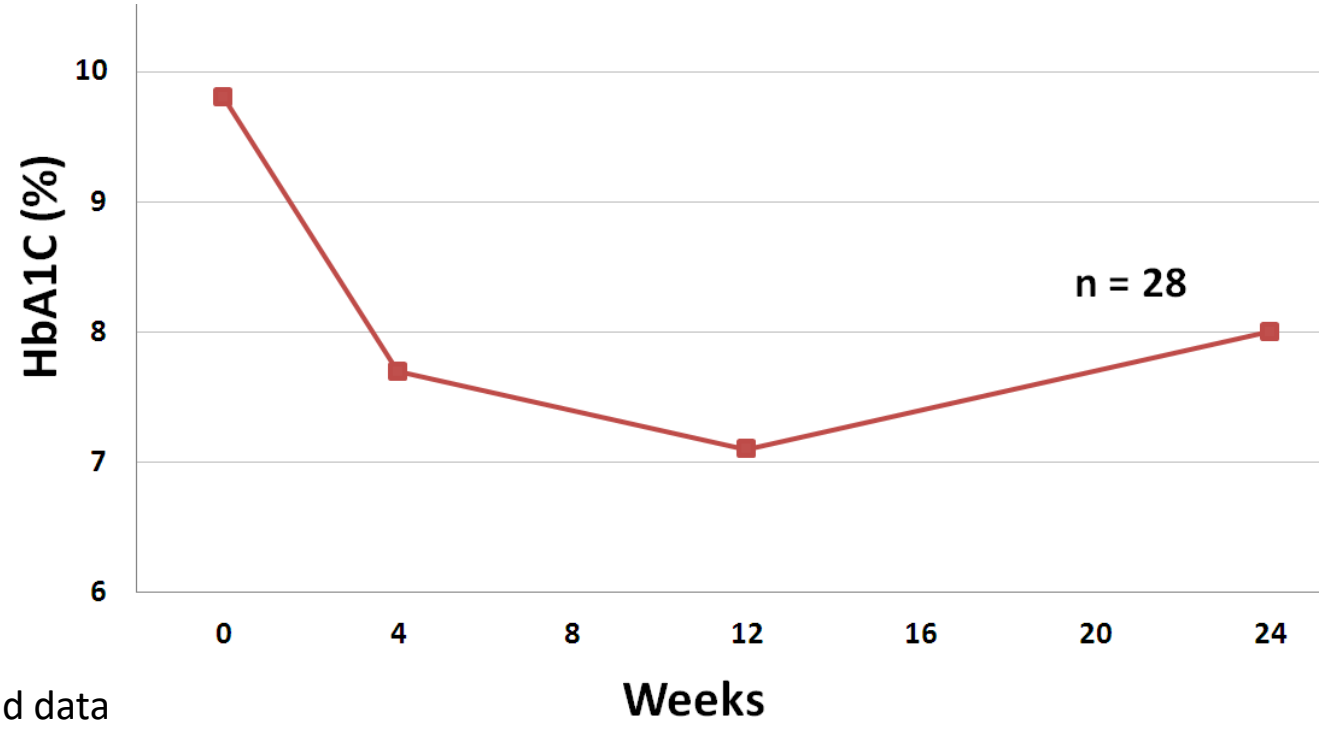
- Bariatric surgery improves glycemia in type 2 diabetes (T2D) independent of weight loss
- Bypass of duodenum assumed key factor
- Bariatric surgery too invasive for managing T2D

Duodenal Mucosal Resurfacing for T2D



DMR appears to improve glycemia in First-in-Human (FIH) study in Chile*



*Unpublished data

Potential use of DMR for T2D

- Patients with insufficient glucose regulation on oral medication
- May prevent the need for insulin therapy

Many “unknowns” still remain

- What is the underlying mechanism of the improved glycemic control?
- How long does this effect remain?
- How safe is the procedure?

Duodenal stenosis (n=3) in Chile FIH study

- All developed < 6 weeks post-DMR
- Resolved by endoscopic dilatation

Underlying causes

- Overlapping ablation zones
- Ablation of non-lifted mucosa

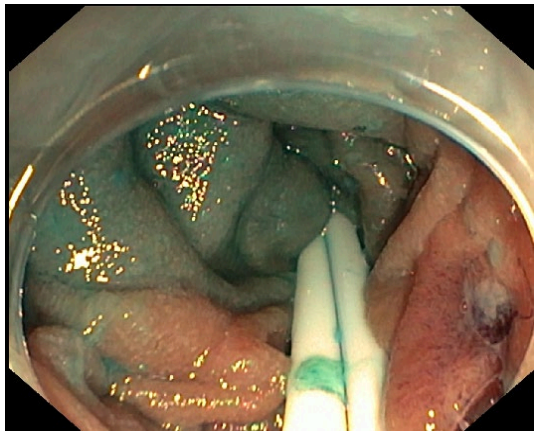
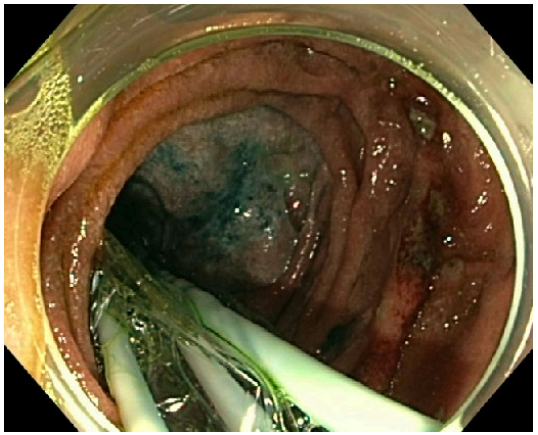
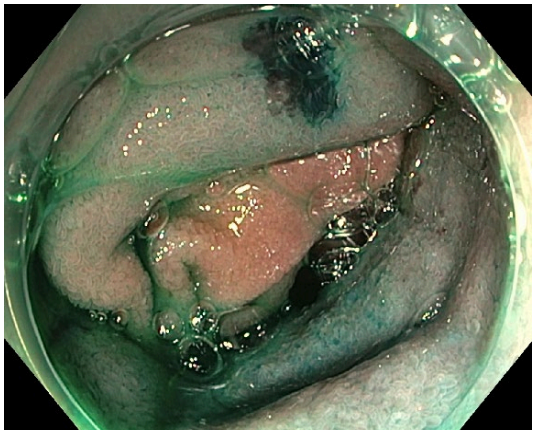
European multicentre study initiated

- Adjusted DMR procedure
  - Ablation proximal → distal
  - More extensive mucosal lifting
  - Modified procedure tested in animal lab
- Aim
  - Assess safety and feasibility

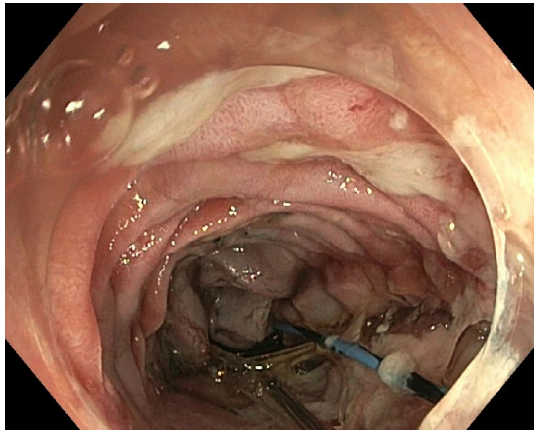
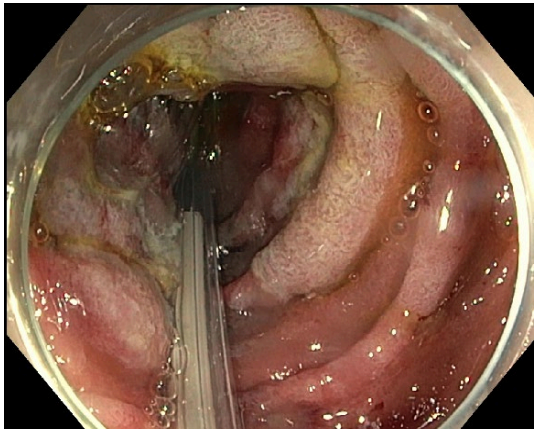
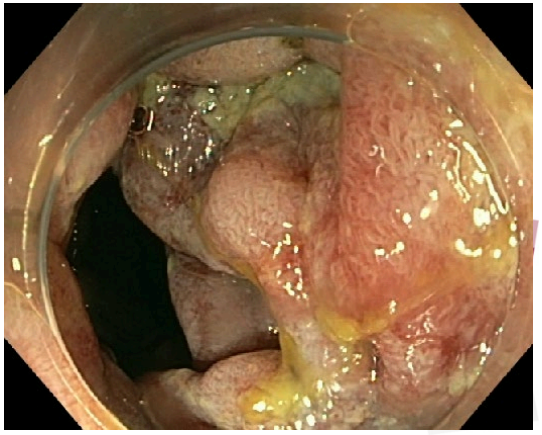
Patients

- Age 28-75 years
- T2D ≤ 10 years
- HbA1c 7.5-11.0%
- On oral glucose lowering medication
- BMI 24-40 kg/m^2

Step 1: Mucosal lifting

Step 2: Mucosal thermal ablation

After DMR procedure

- Discharge same day or after overnight stay
- Proton Pump Inhibitor from -1 to +4 weeks
- Step-up diet for 2 weeks

Centres and endoscopists

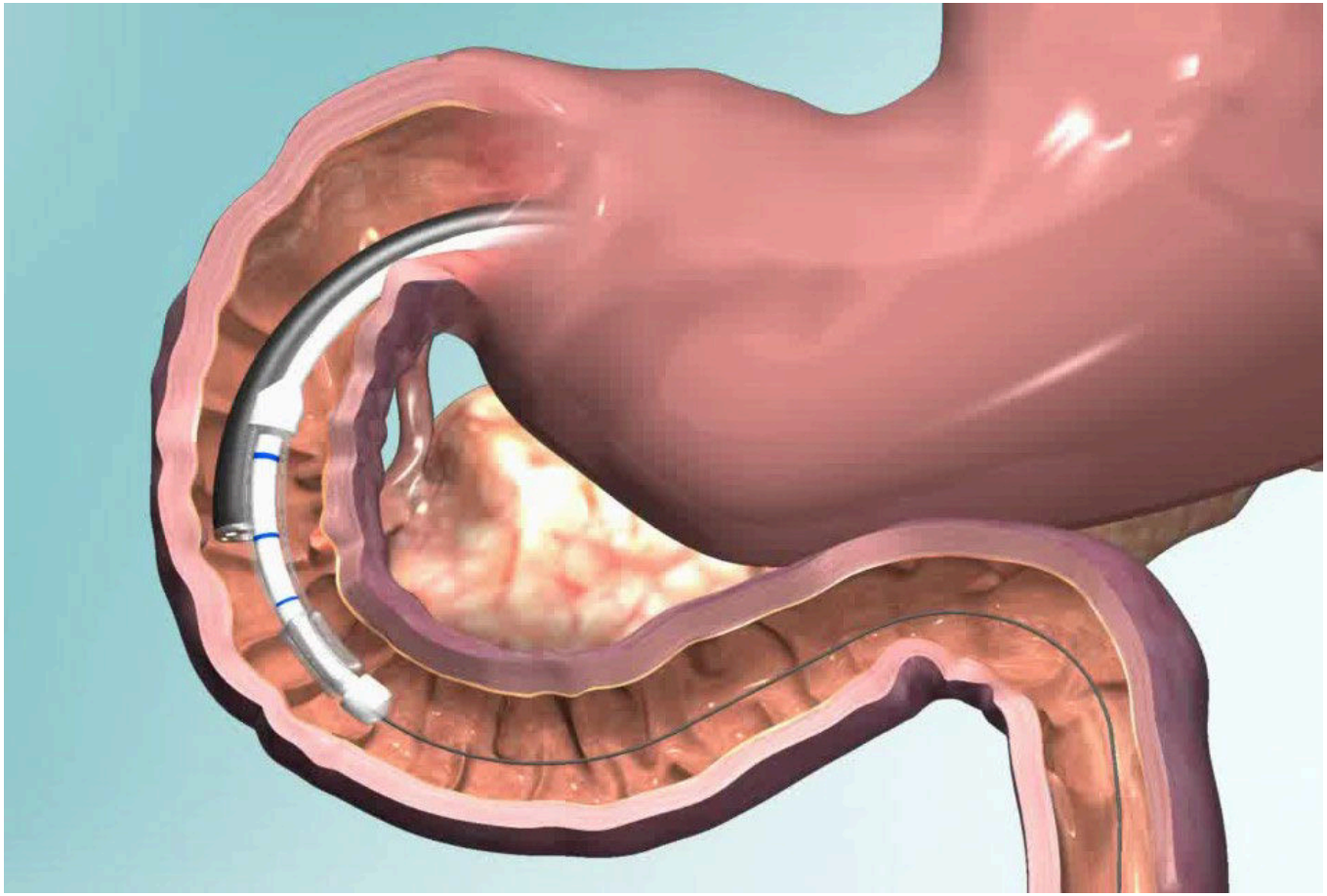
- Single centre study
  - First-in-Human in Chile
  - 39 patients
  - Single endoscopist
- Multi-centre study
  - Amsterdam, Chile, Rome, Brussels, London
  - 27 patients
  - In each centre single endoscopist

	Multi-centre study	Single centre study
Patients (n)	27	39
Age (years) mean & 95% ci	55±9	54±7
HbA1c (%) mean & 95% ci	8.7±1.0	9.5±1.3
Minimal follow-up (months)	5	10
Adverse Events (patients)	52%	82%
Adverse Events (episodes)	36	85
Mild / Moderate / Severe (n) Severe: Duodenal stenosis	29 / 7 / 0	65 / 17 / 3
Procedure related / unrelated Related: Mild abdominal pain, nausea, diarrhea, throat pain	36% / 64%	39 % / 61%
Procedure time (min) median & IQR	86 (69–118)	91 (78.5–110)

- The DMR procedure proved feasible in a multi-centre setting
- Adverse events were generally mild and as expected
- The modified DMR procedure was not associated with duodenal stenosis in 27 patients
- No serious adverse events observed after the DMR procedure

- Procedure time leaves room for improvement
- Complexity of the procedure needs to be reduced

New single-step catheter on its way



Future plans

- Safety and feasibility study new catheter
- RCT comparing DMR procedure with sham
- Establishment durability of effect
- Elucidation of mechanism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