



QUALITY IN ENDOSCOPY

ESGE / ESPEN SYMPOSIUM

IBD & NUTRITION

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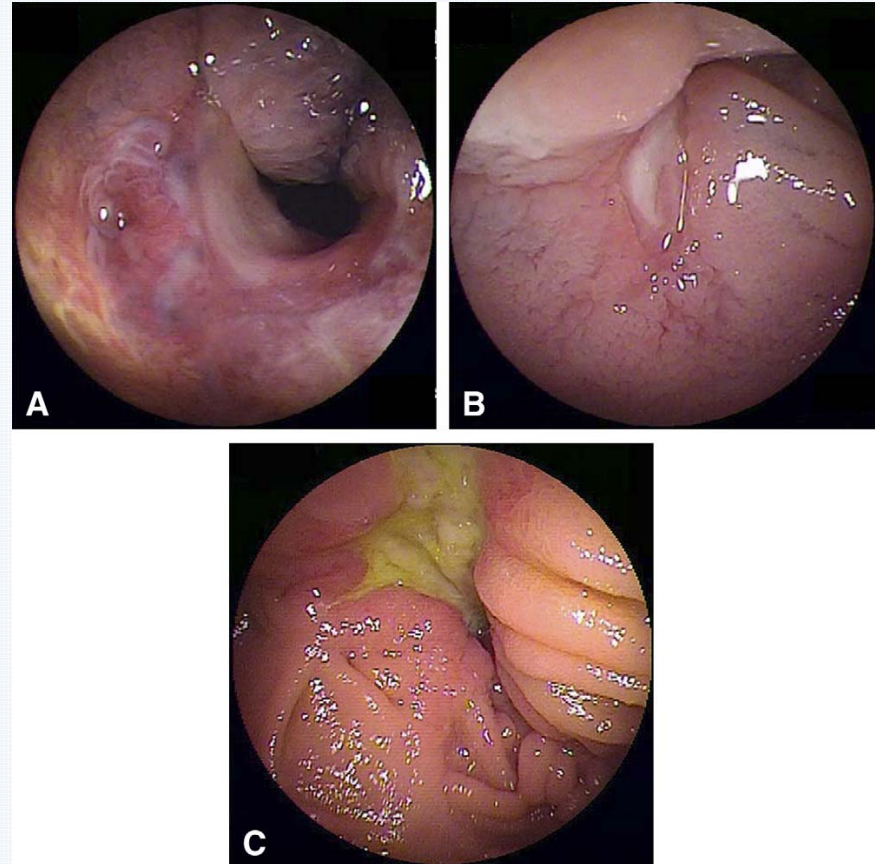
Endoscopic diagnosis and treatment of small bowel strictures

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Introduction

- **Small bowel strictures** are caused by many diseases
 - Neoplasms
 - Chronic hemorrhagic ulcers
 - Enteric tuberculosis
 - NSAID induced
 - **Crohn's disease**
- Result in obstruction, leading to hospitalization and surgery (*stricturoplasty or resection*)
 - 30-day postoperative mortality of 3.2%
 - Short-bowel syndrome
 - Intraabdominal adhesions -> further obstruction



Small bowel strictures – Where are they mostly located ?

- 179 patients at 7 institutions

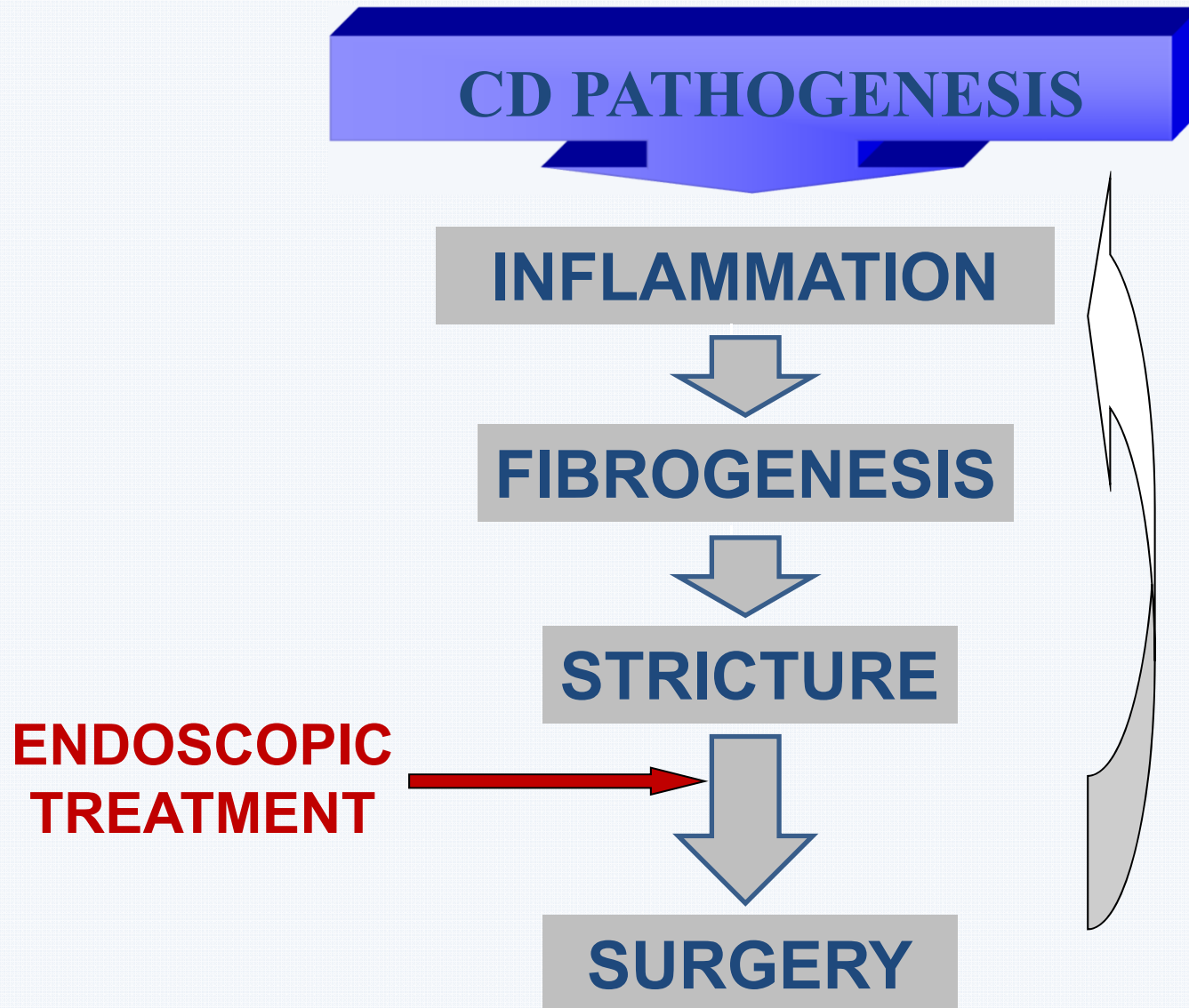
	Duodenum	Jejunum	Between*	Ileum	Total
Inflammatory disease	1 (0.9)	16 (14.0)	4 (3.5)	93 (81.6)	114 (100)
Neoplasm	6 (19.4)	16 (51.6)	0 (0)	9 (29.0)	31 (100)
Other	0 (0)	13 (34.2)	1 (2.6)	24 (63.2)	38 (100)
Total	7 (3.8)	45 (24.6)	5 (2.7)	126 (68.9)	183 (100)

Values presented as number of lesions (%).

*Between the jejunum and ileum.

- **If possible strictures should be first localized by BFT or CTE, CE**
- **Oral DAE for jejunal or rectal DAE for ileal strictures**

Small bowel strictures – Pathogenesis

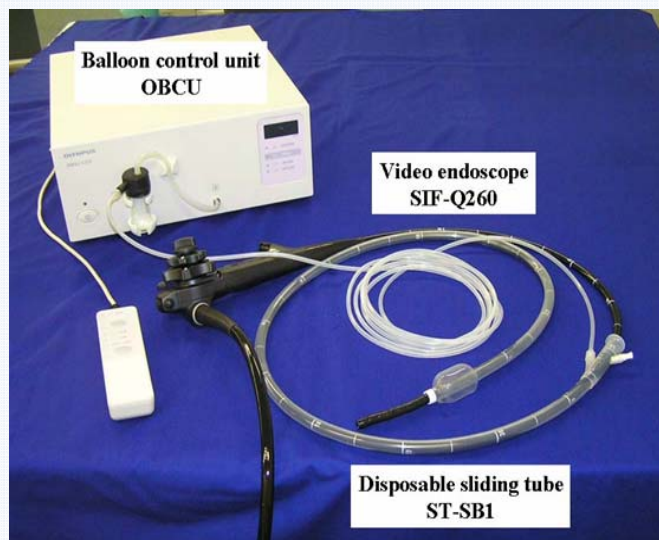


Endoscopic therapy – how to reach the small-bowel

Device assisted enteroscopy



Double-balloon



Single-balloon



Spiral Enteroscopy



NaviAid AB

Endoscopic therapy – different options

- **TTS BALLOON**
- **SAVARY**
- **STEROID INJECTION**
- **SELF - EXPANDING STENT**
- **NEEDLE-KNIFE**

Endoscopic therapy – Balloon vs. Bougie

**MECHANICAL
BOUGIE**

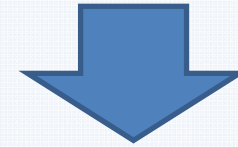


**RADIAL + LONGITUDINAL
FORCE**

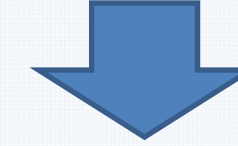


**ANO-RECTAL
STRICTURE**

**PNEUMATIC
BALLOON**



**RADIAL
FORCE**



**SMALL BOWEL
STRICTURE**

Endoscopic therapy – Types of strictures

NAIVE

> 10 cm

ANGULATED

**LIKELY
TO PROGRESS TO
SURGERY**

ANASTOMOTIC

< 5-10 cm

NOT ANGULATED

**LIKELY
TO PROGRESS TO
BALLOON DILATION**

Endoscopic therapy – Type of sedation

- **SEDATION** (10 STUDIES)

- PAIN RELATED TO PERFORATION RISK
- LESS COMPLIANCE TO PROLONGED TX

- **GENERAL ANESTHESIA** (3 STUDIES)

- MORE TOLERATED EVEN WHEN PROLONGED
- HIGHER RISK OF PERFORATION
- OVERNIGHT HOSPITALIZATION

Endoscopic therapy – Type of Balloon?

BALLOON (RIGIFLEX TTS)

LENGTH

-	5.5 cm	10 STUDIES
-	8 cm	3 STUDIES

CALIBER MAX.

-	18 mm	6 STUDIES
-	20 mm	4 STUDIES
-	25 mm	2 STUDIES

CALIBER MIN.

-	6 mm	1 STUDIES
-	10 mm	2 STUDIES
-	12 mm	3 STUDIES

Endoscopic therapy – Duration and How often?

- **DURATION** (13 STUDIES)

- **≤ 2 MINUTES** 7 STUDIES
- **3 MINUTES** 4 STUDIES
- **> 3 MINUTES** 2 STUDIES

- **N° DILATIONS** (12 STUDIES)

- **1 DILATION** 6 STUDIES
- **2 DILATIONS** 3 STUDIES
- **>2 DILATONS** 3 STUDIES

Endoscopic therapy – Number of sessions needed

- NO NEED > 1 SESSION IN ASYMPTOMATIC PATIENTS
- > 1 SESSION:
 - TECHNICAL FAILURE
 - CLINICAL FAILURE
 - CLINICAL RECURRENCE

**Only 1 session
mean session
>1 session t
Range 2-18**

**49%
3
(s 51%.)**

Endoscopic therapy – Efficacy ?

- SHORT-TERM SYMPTOMATIC IMPROVEMENT
 - LONG-TERM SYMPTOMATIC IMPROVEMENT
 - SYMPTOM FREE PERIOD
 - AVOIDANCE OF SURGERY
 - SURGERY FREE PERIOD
-

Endoscopic therapy – Efficacy ?

Long-term Outcomes in Patients with Small Intestinal Strictures Secondary to Crohn's Disease After Double-balloon Endoscopy-assisted Balloon Dilation.

- Retrospective cohort study
- 85 patients
- Mean follow-up 42 months

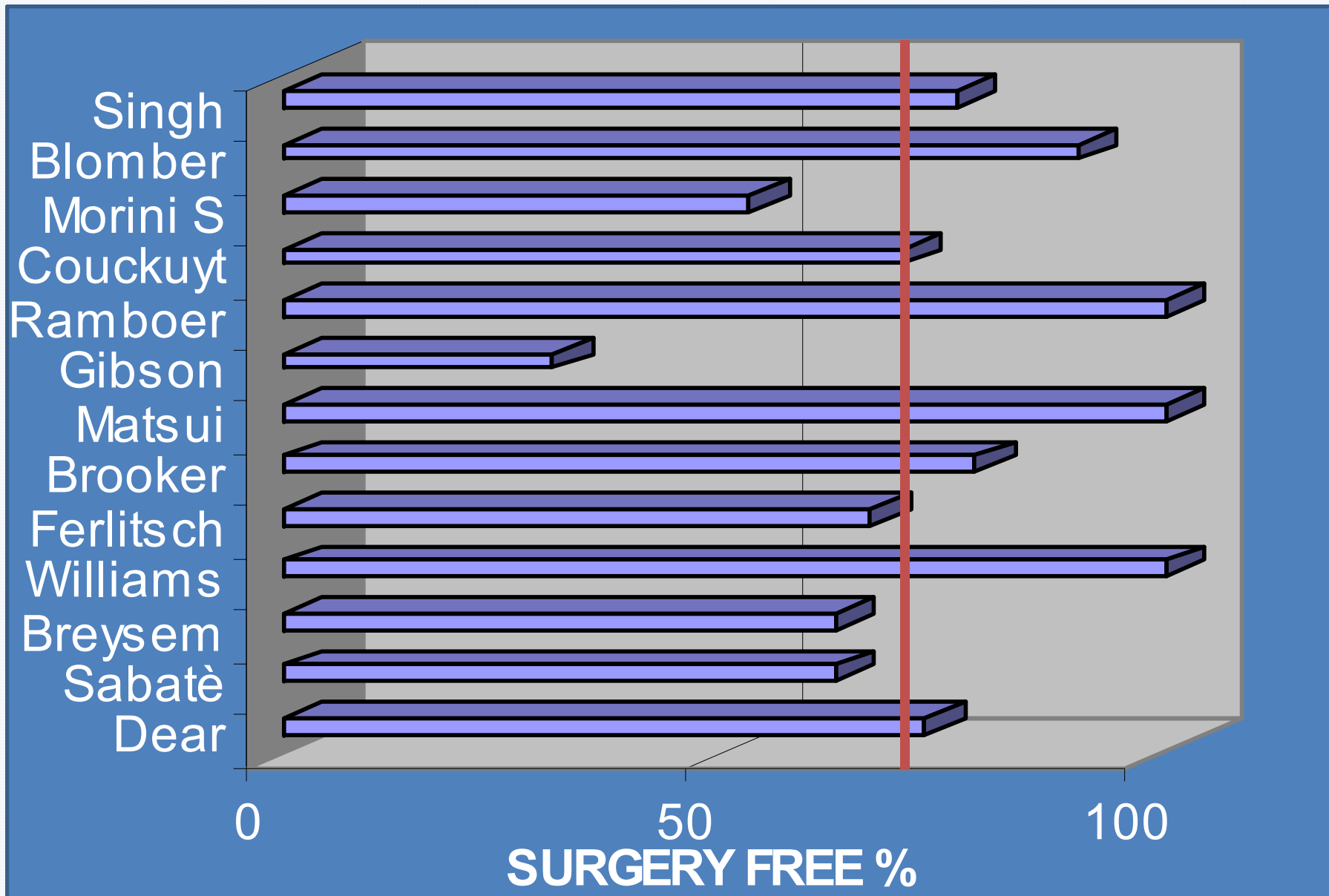
Surgery free rate	after 1 year	87.3%
	after 3 years	78.1%

Presence of a fistula was significantly associated

- with the need for surgery ($P < 0.01$)
- With a shorter surgery-free interval ($P < 0.01$)

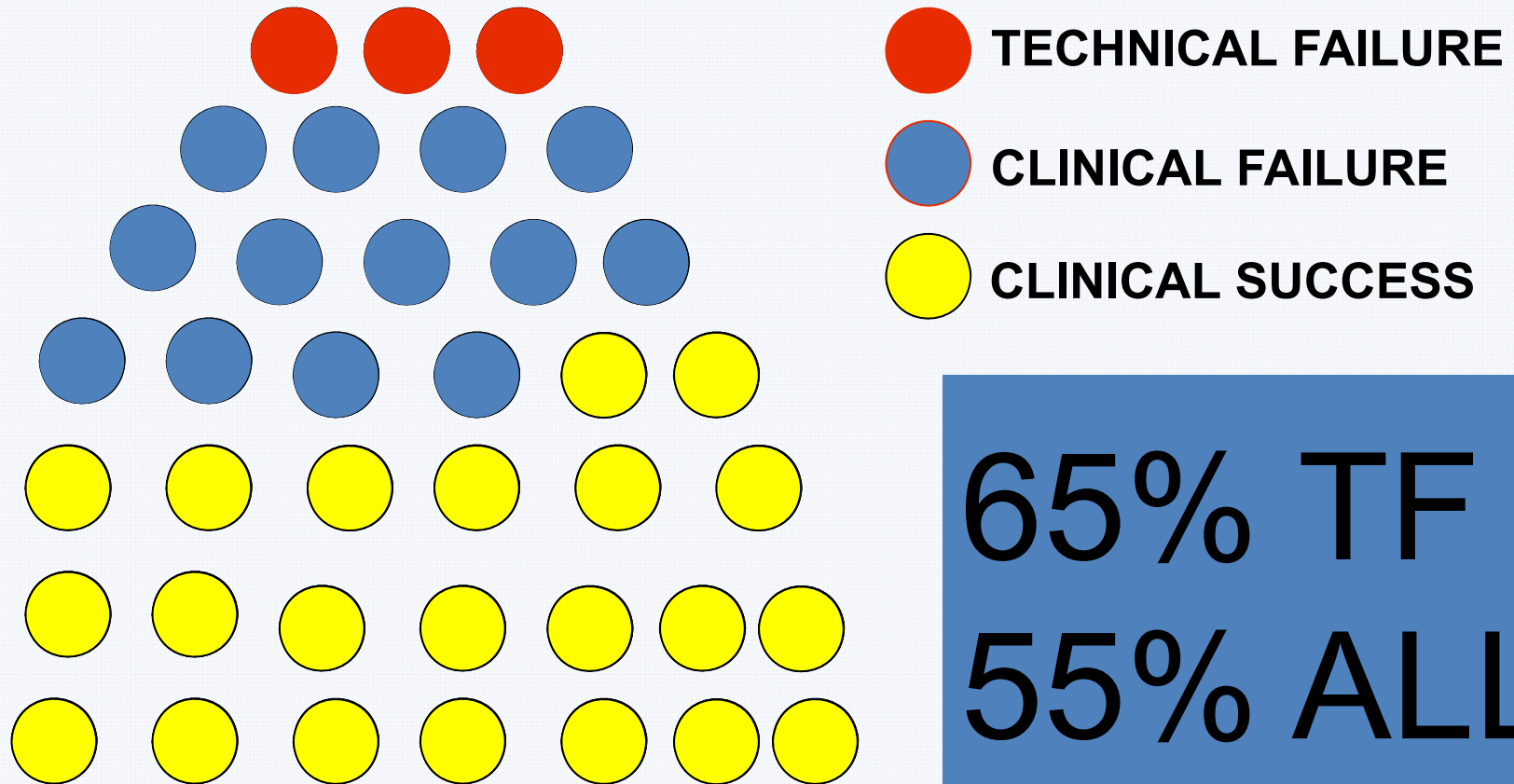
BAE dilation is a safe and effective treatment to avoid or postpone surgery over the long term

Endoscopic therapy – Long Term Efficacy



Endoscopic therapy – Efficacy

SUCCESS = NO SURGERY



Endoscopic therapy – Parameters of success

	Technical failure		<i>P</i> -value
	<i>n</i> (%)	<i>n</i> (%)	
Naïve vs. postsurgical stricture	1 (3)	12 (9)	0.29
CD active vs. CD inactive	4 (6)	9 (18)	0.08
Stricture length ≤ 4 cm vs. > 4 cm	12 (9)	1 (5)	0.87
Sedation vs. anaesthesia	11 (7)	2 (12)	0.79
Balloon calibre ≥20 mm vs. <20 mm	2 (20)	11 (9)	0.54

Endoscopic therapy – Parameters of success

Dilatation efficacy at individual case analysis

	Clinical success		P-value
	n (%)	n (%)	
Naïve vs. postsurgical stricture	27 (77)	85 (71)	0.5
Crohn's disease (CD) active vs. CD inactive	41 (68)	33 (82)	0.1
Stricture length ≤ 4 cm vs. >4 cm	84 (72)	9 (50)	0.055
Postdilatation scope passing (yes vs. no)	74 (71)	7 (54)	0.6
Sedation vs. anaesthesia	101 (73)	10 (71)	0.9
From lower to greater calibre (yes vs. no)	21 (78)	90 (71)	0.5
Balloon calibre ≥ 20 mm vs. <20 mm	7 (88)	86 (73)	0.6
Local steroid injection yes vs. no	30 (81)	82 (70)	0.2

Stricture length ≤ 4 cm
vs. >4 cm

OR
4
(1.1-14)

Endoscopic therapy – Complications

Complication Rate

CD Dilation

1.5%

**Diagnostic
Colonoscopy**

0.1%

x 15

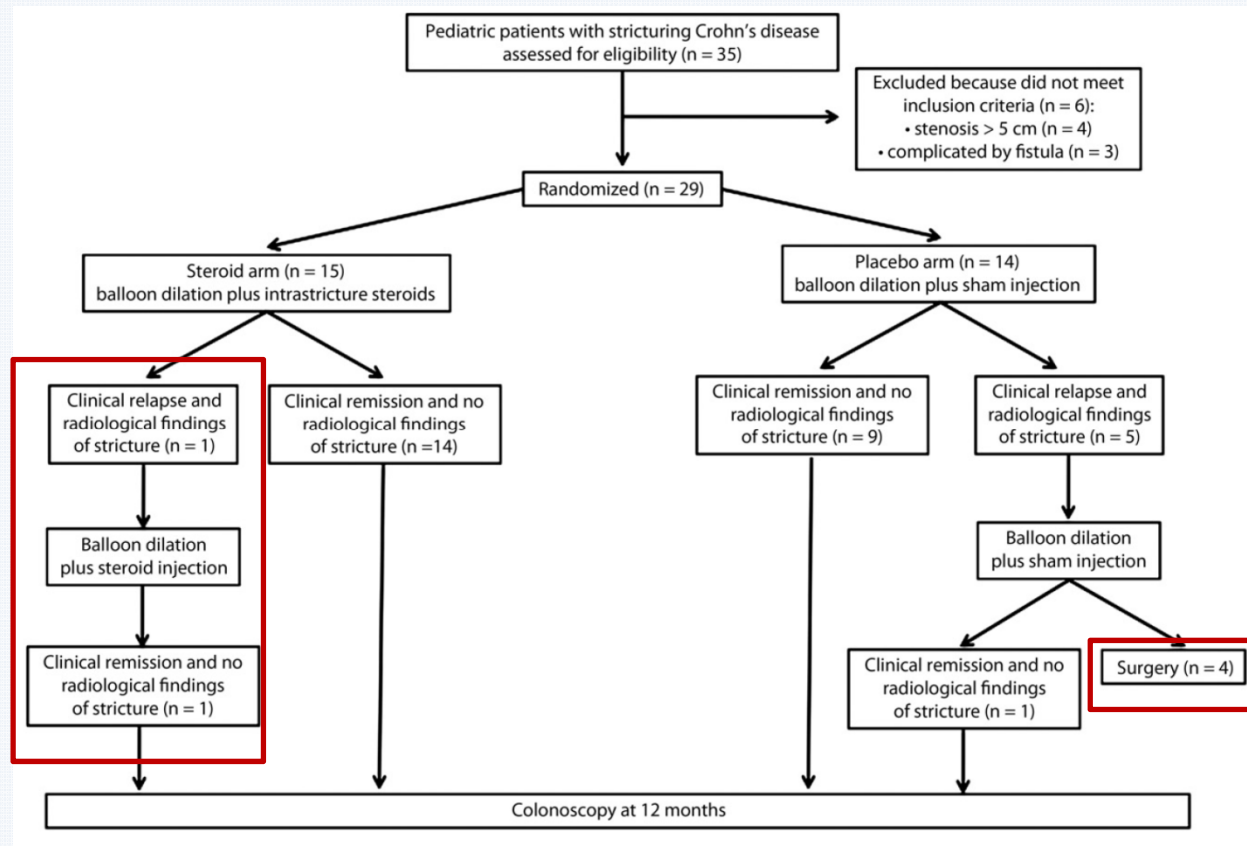
**Operative
Colonoscopy**

0.3%

x 5

Endoscopic therapy + Steroid injection ?

- Prospective, randomized, double-blind, controlled trial
- 40 mg triamcinolone in 5ml of saline; 4-quadrants at 2cm intervals



Intralesional steroid injection is effective in reducing the need for re-dilation and surgery

Conclusion

- **Small bowel strictures** are caused by **multiple diseases**.
 - **Surgery** has a high **mortality** rate and may cause additional **complications**.
 - **Inflammatory** strictures are mostly located in the **ileum**.
 - **DAE** allows for **safe and efficient** diagnosis and therapy of small bowel strictures.
 - **TTS-BD** should be performed with the patient under **adequate sedation** and can **avoid or postpone surgery over the long term**.
 - **Steroid injection** may help in **reducing the need for re-dilation and surgery**.
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