Pelvic Floor Center – Montecchio Emilia

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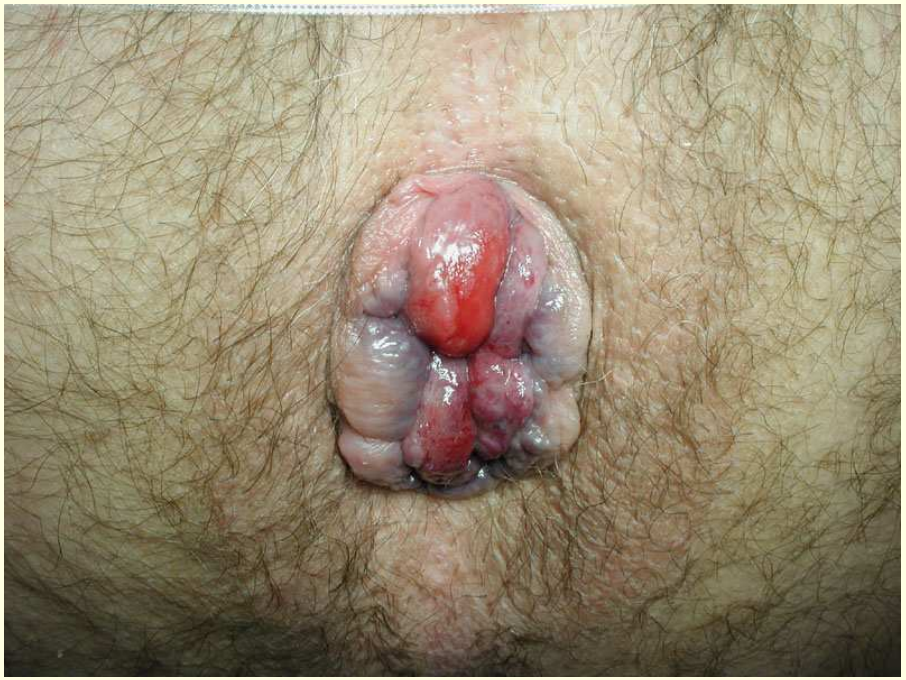
The Quest for Painless Surgical Treatment of Hemorrhoids Continues

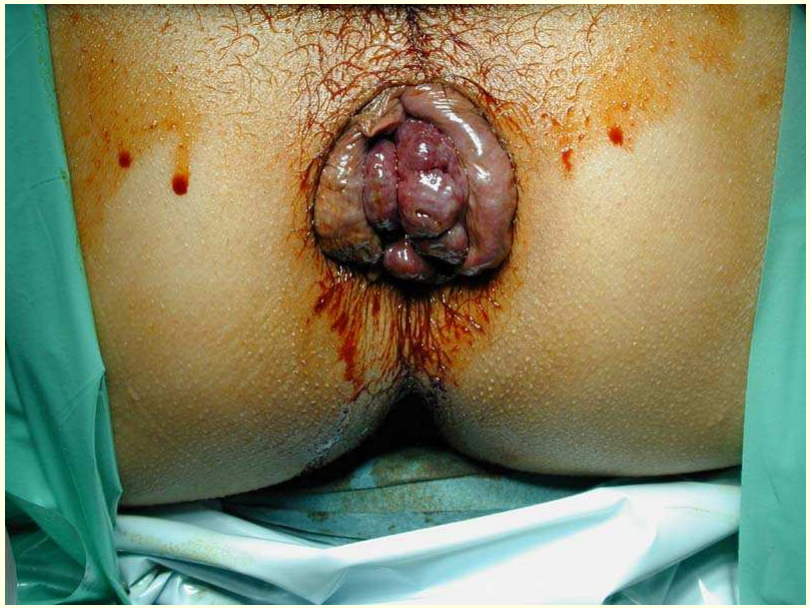
“ ....the available body of prospective randomised and large prospective series.

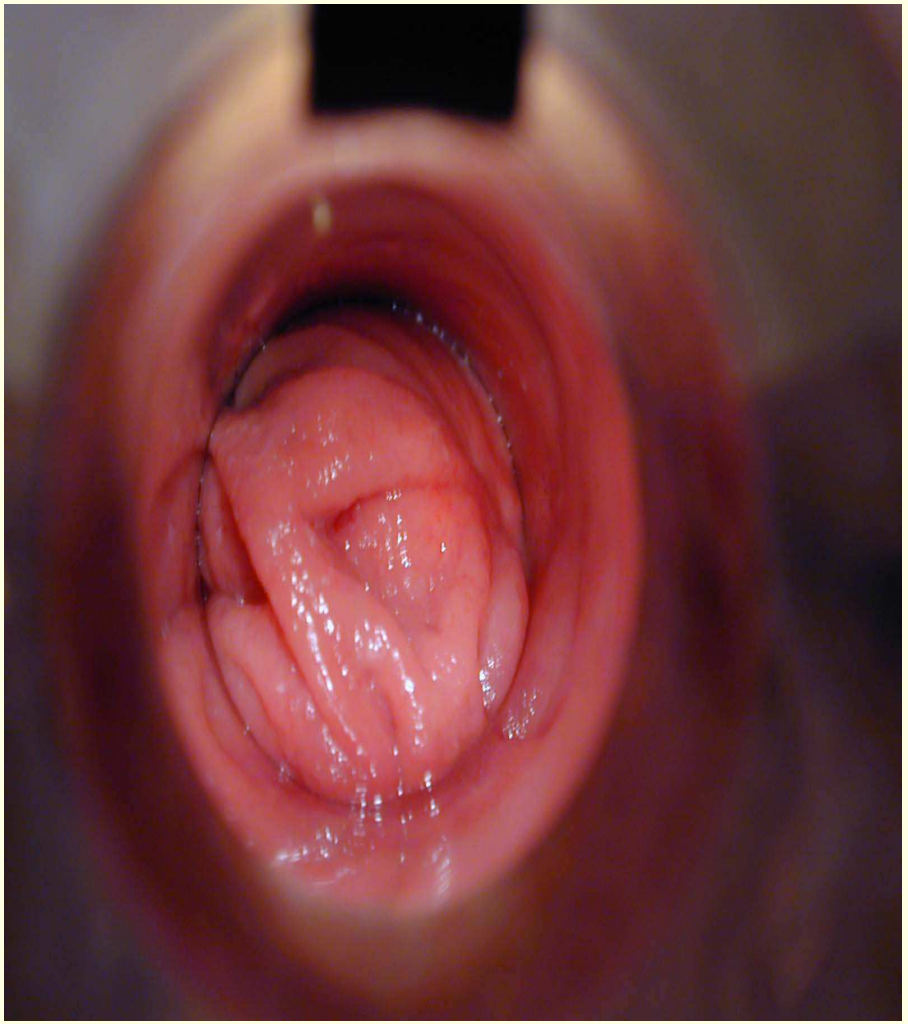
In the meantime, although the quest for painless surgical treatment of hemorrhoids continues,

I am hopeful that there will be an end to the pain in the end....”

Wexner S. JACS 2001; 193:174-78







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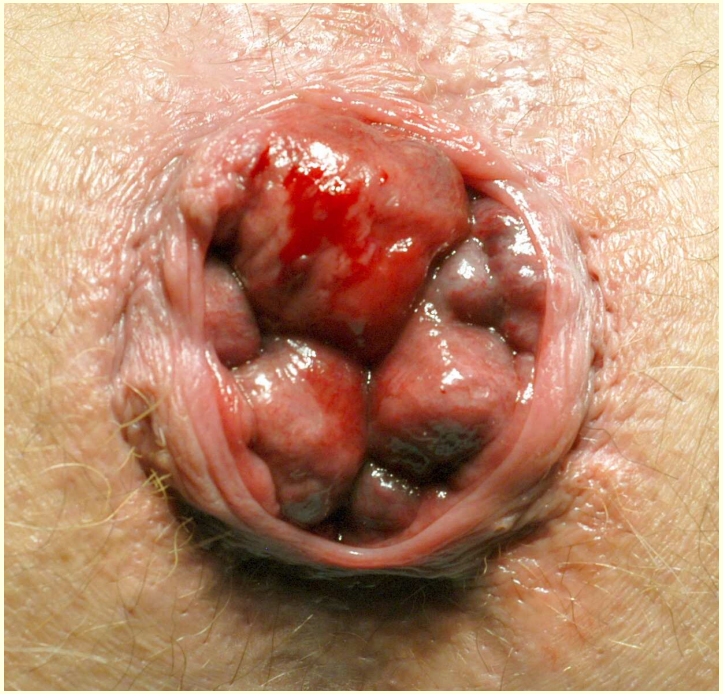
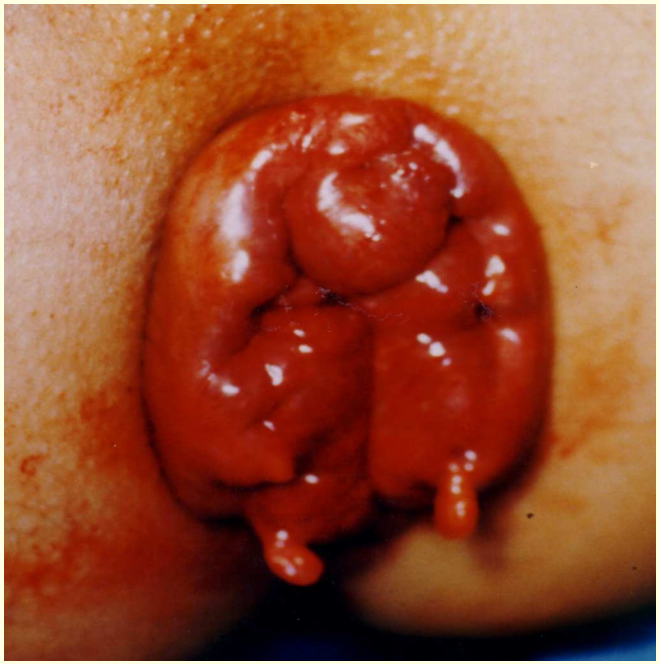
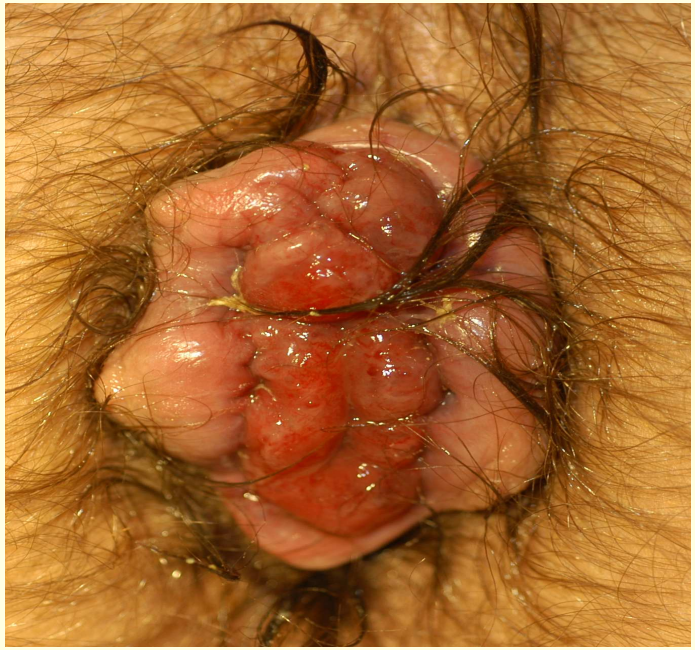
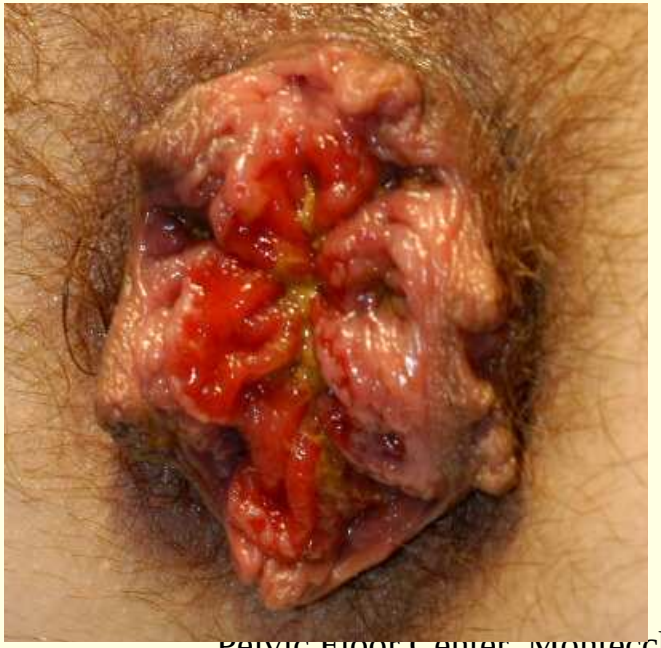
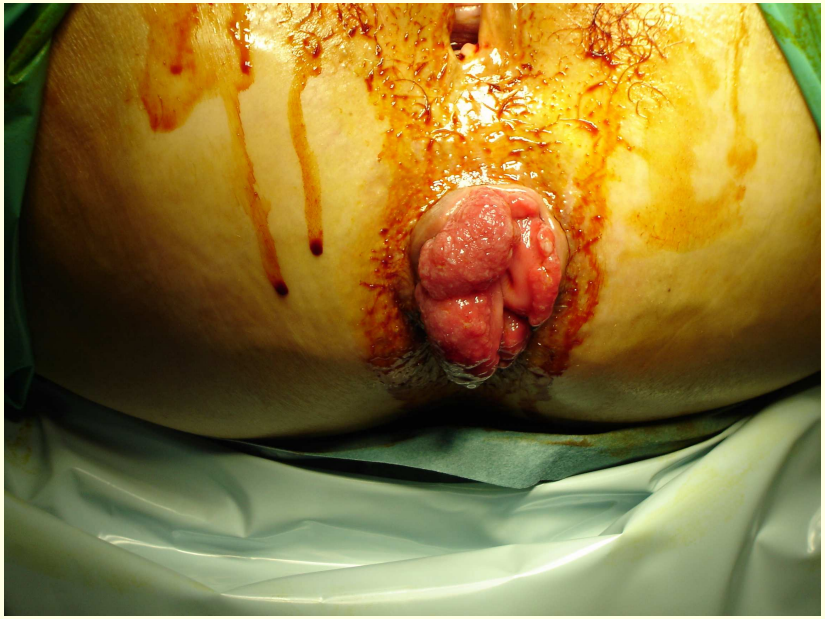
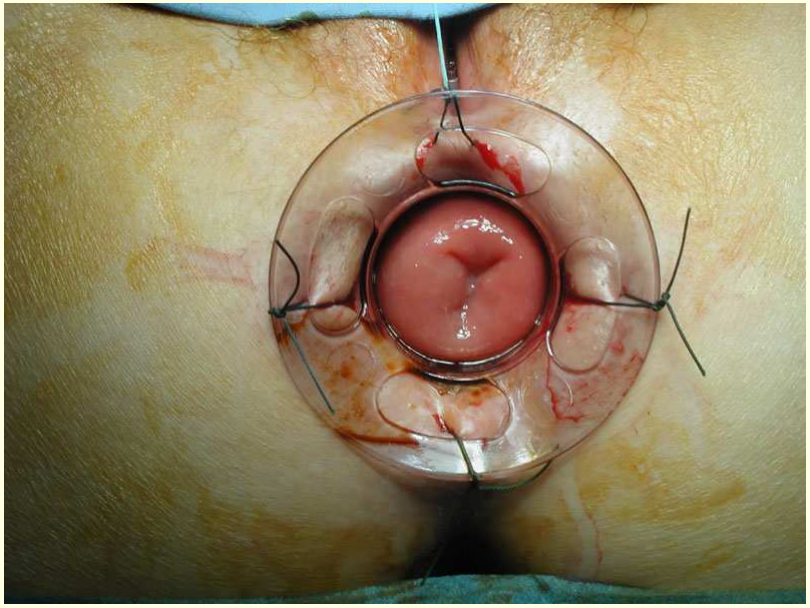


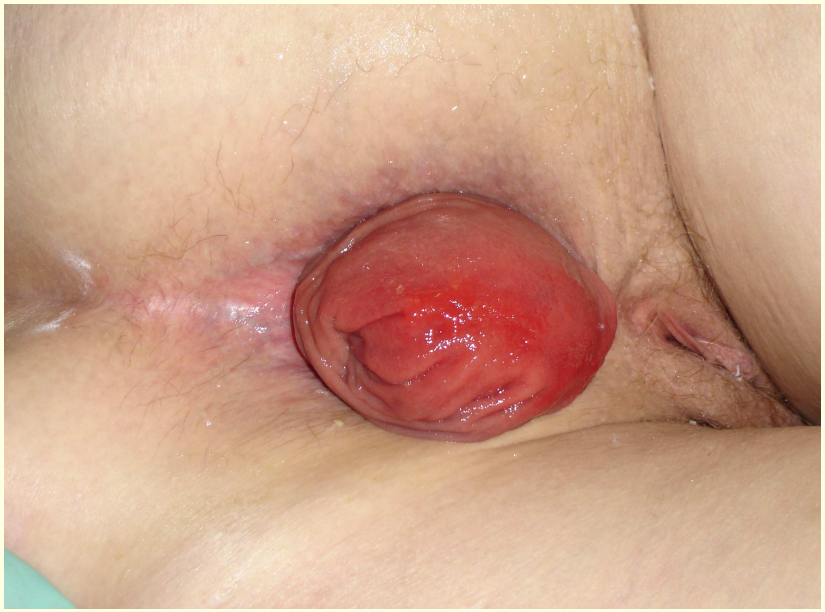


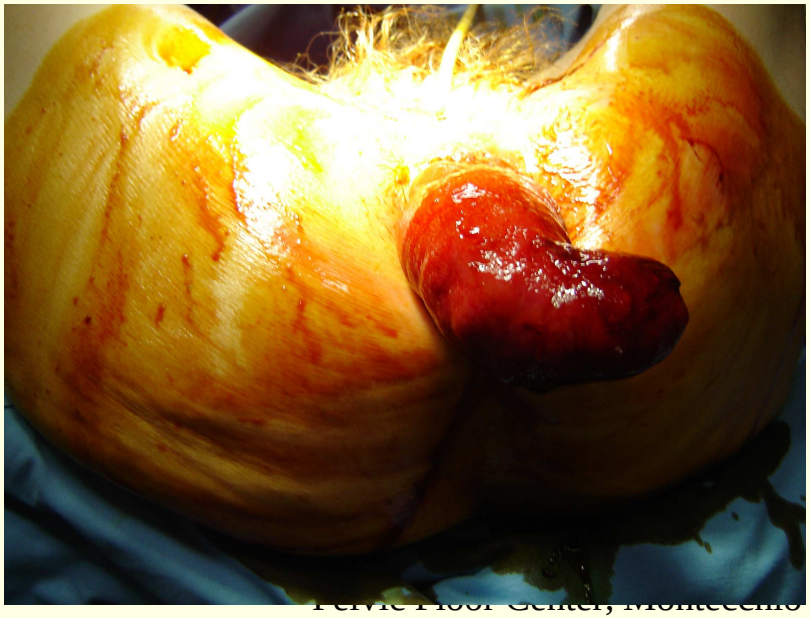






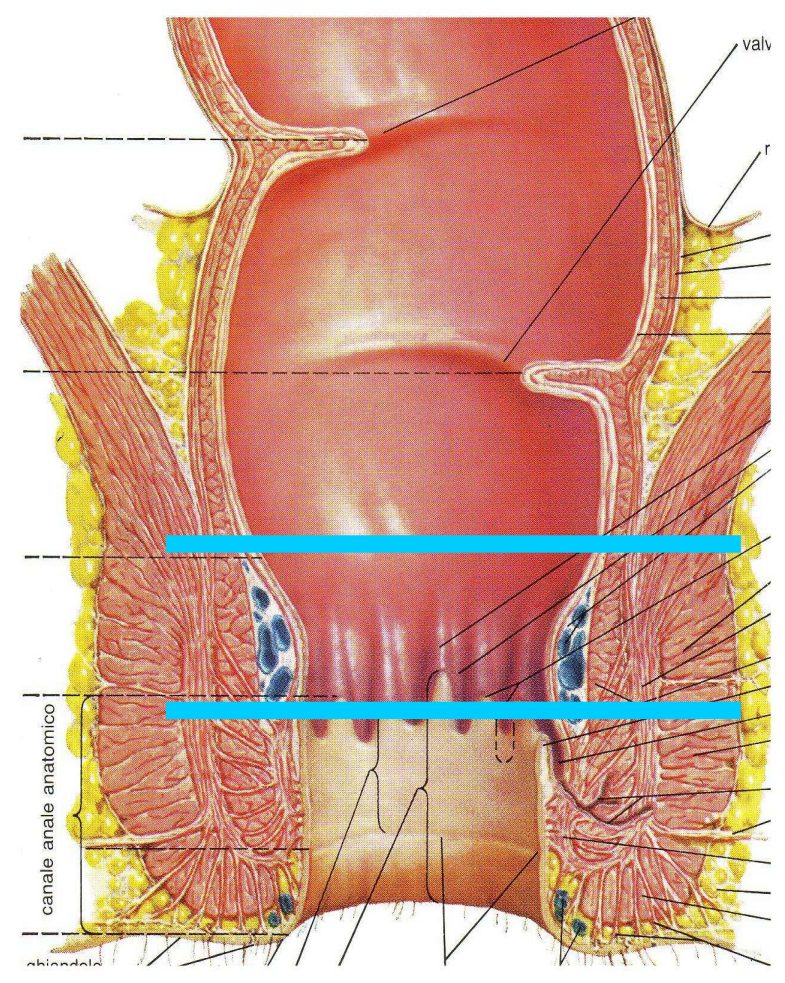






The anus and the rectum are anatomically composed of three segments: **Anoderm, anal canal and rectum.**

The embryological origin is different **but functionally they represent one organ.**



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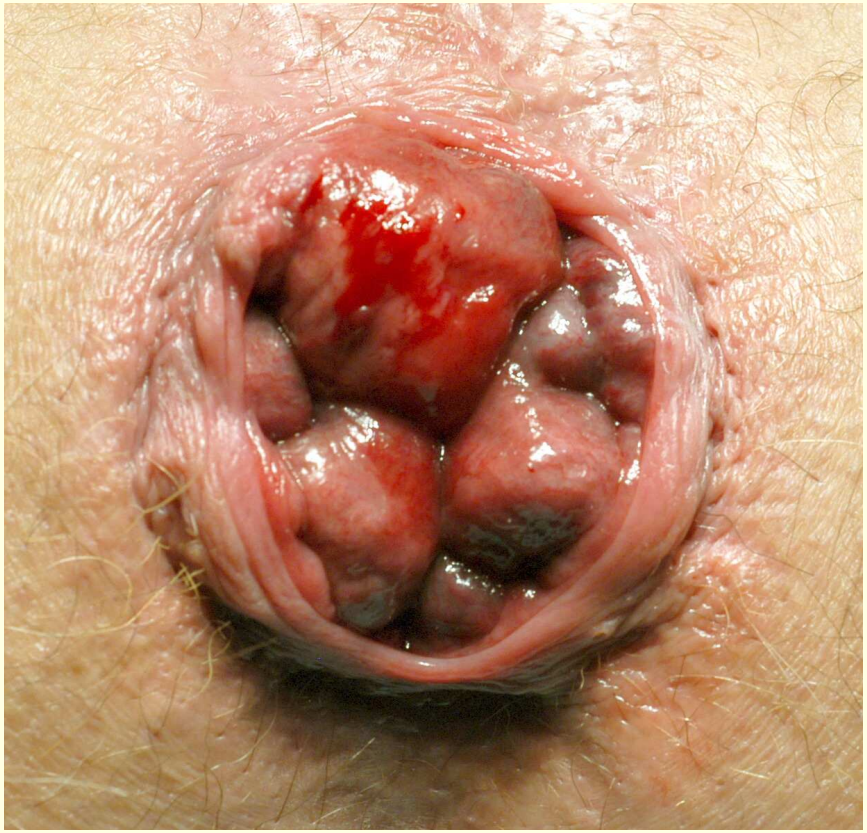
WHAT ARE HEMORRHOIDS?

Hemorrhoids are **not varicose veins**, and not every one has hemorrhoids. But **everybody has anal cushions**. The anal cushions are composed of **blood vessels**, **smooth muscle (Treitz's muscle),** and **elastic connective tissue in the submucosa**



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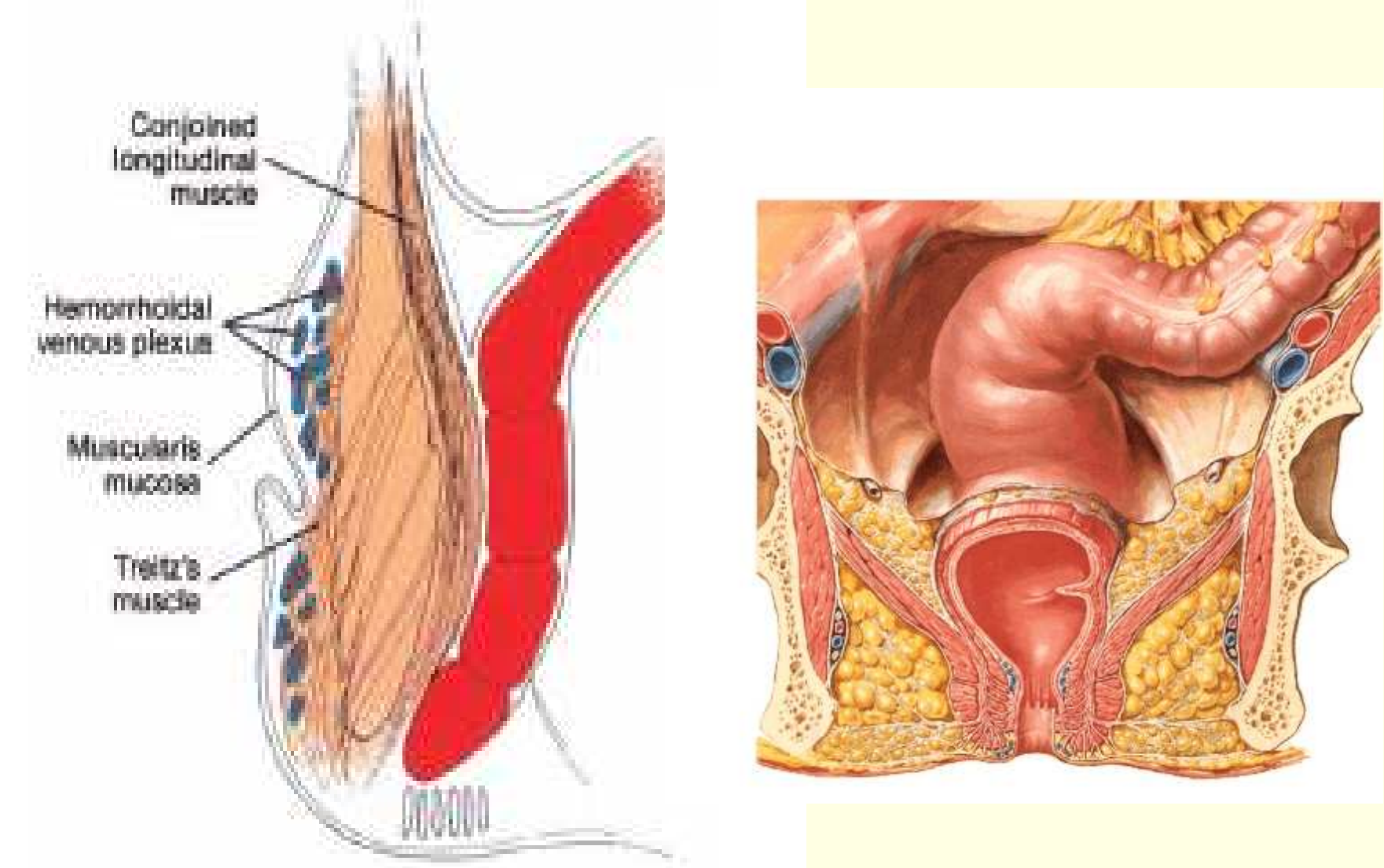

Anal cushion showing Treitz’s muscle derived from conjoined longitudinal muscle of the anal canal

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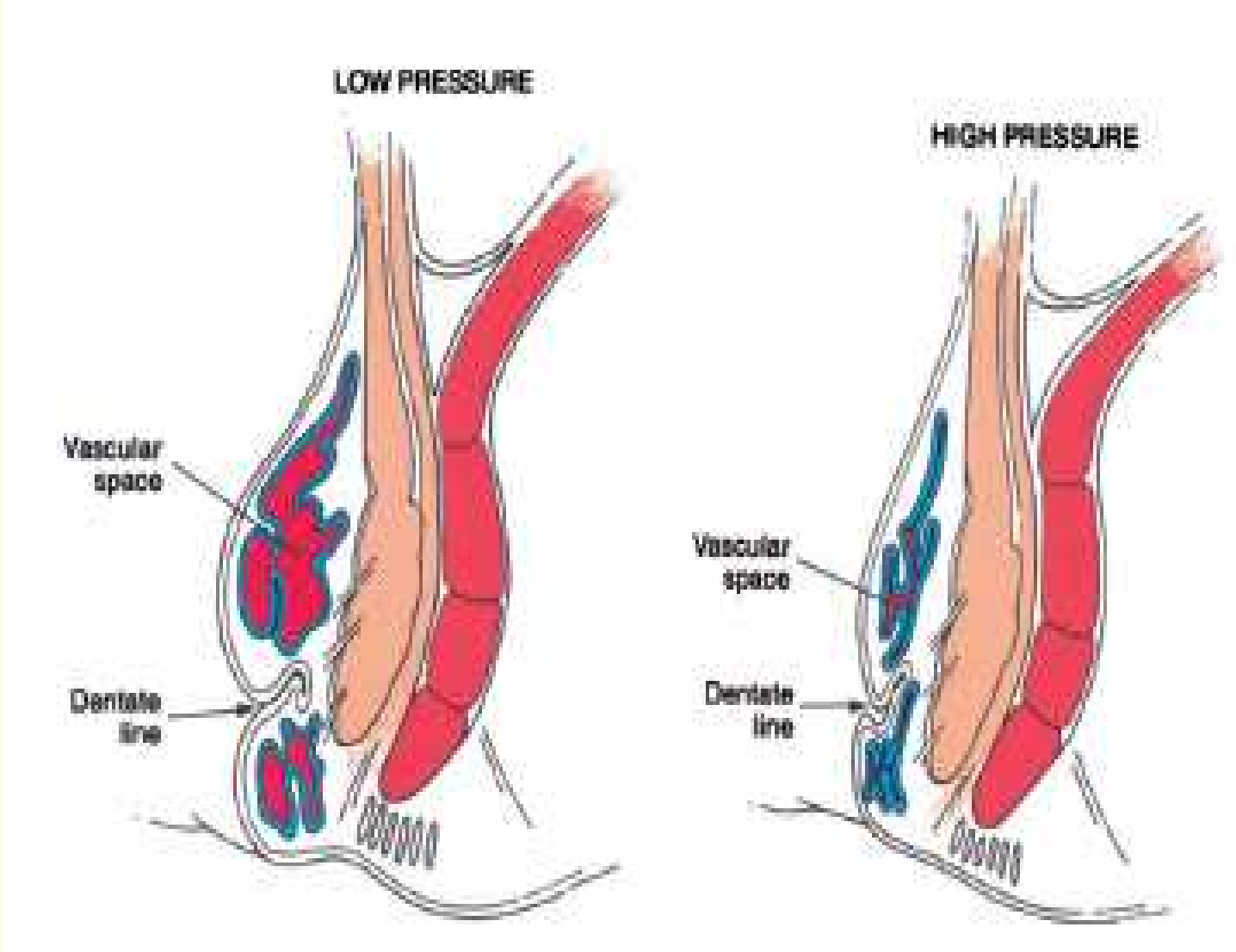

Proposed mechanism by which vascular spaces contribute to anal pressure and maintain continence when the sphincters relax and dilate.

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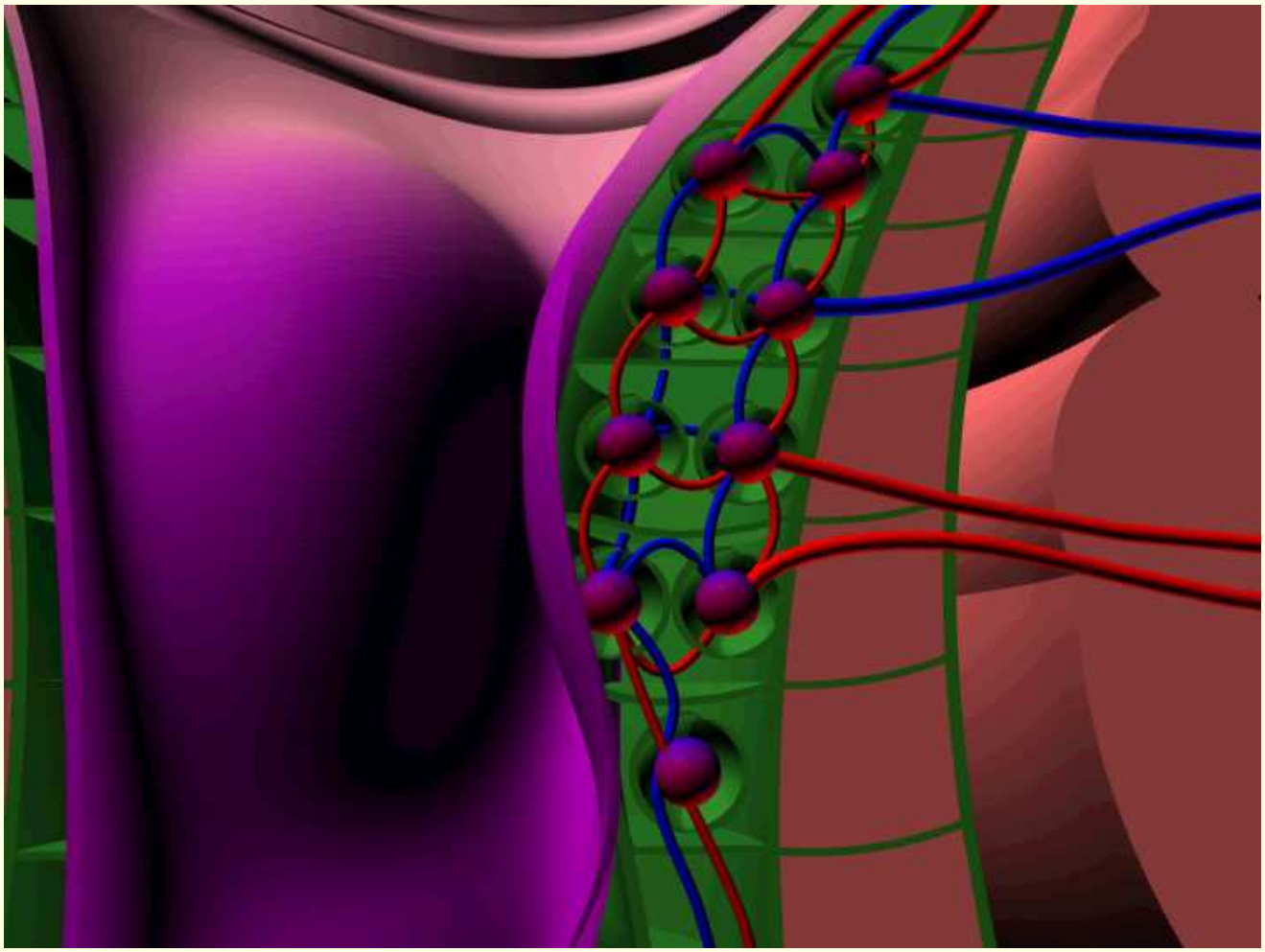

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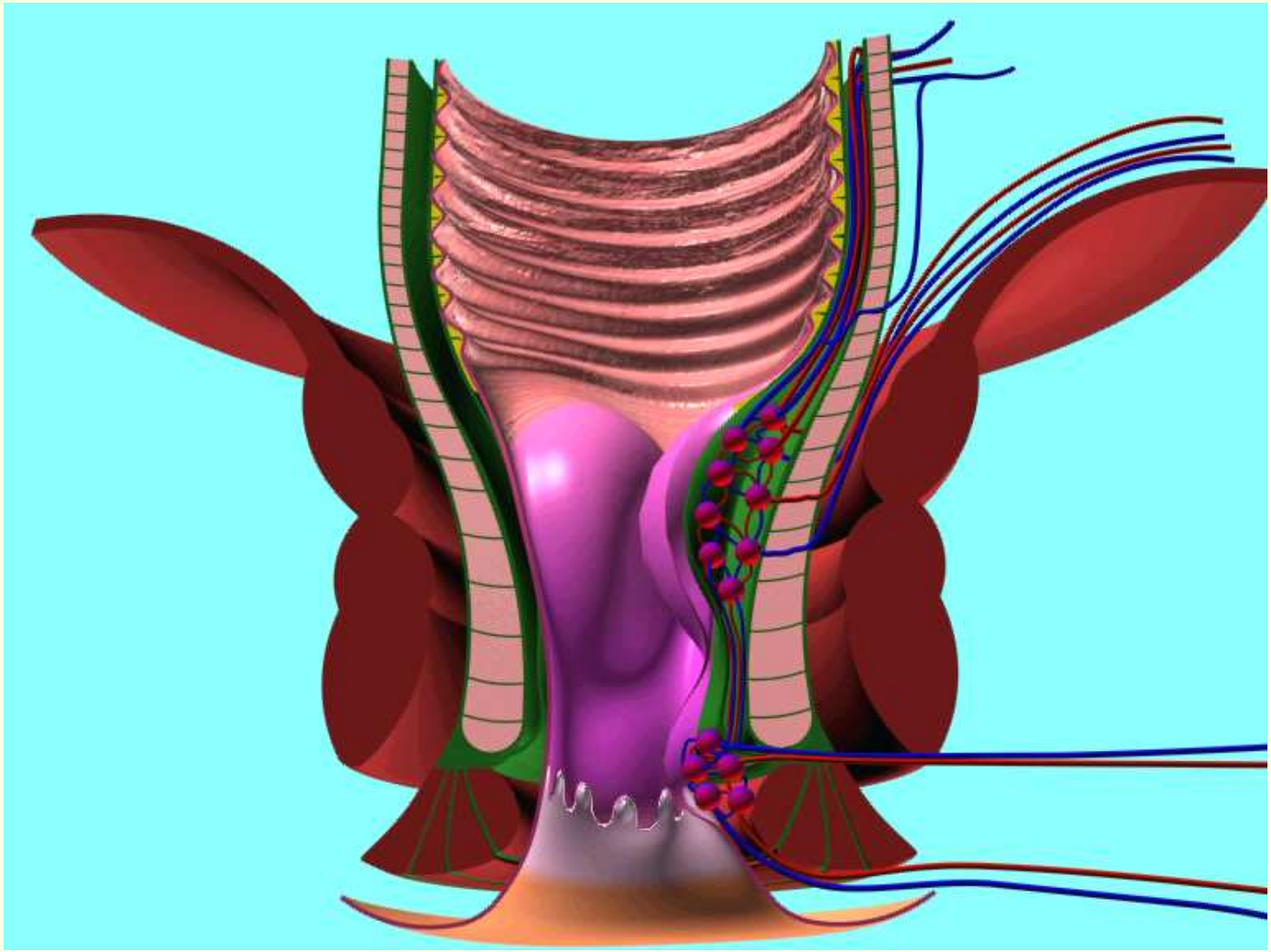
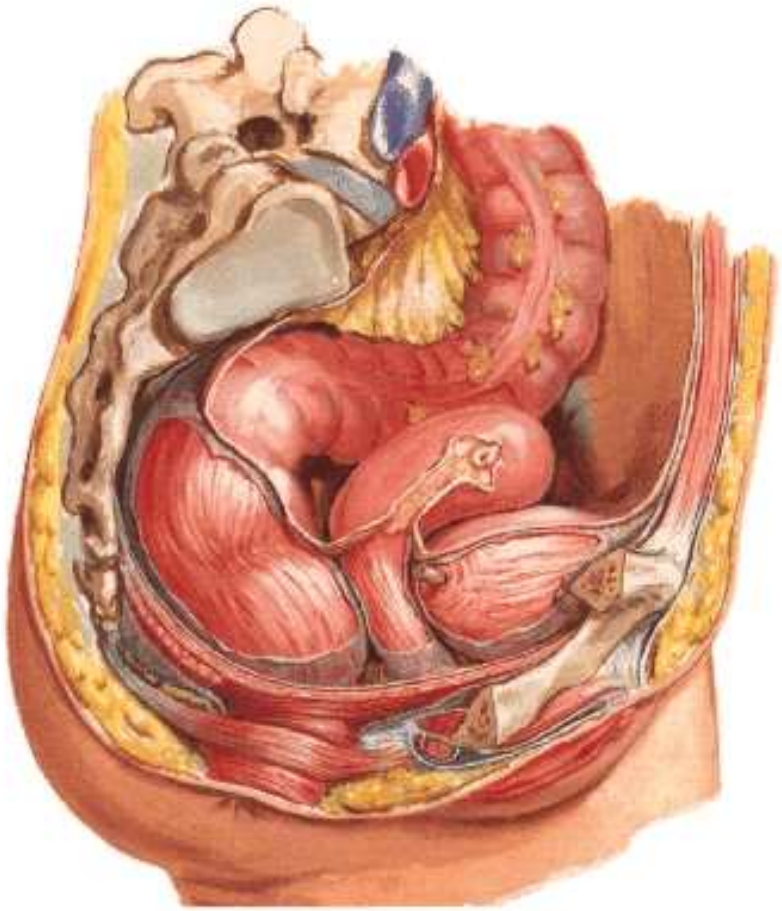
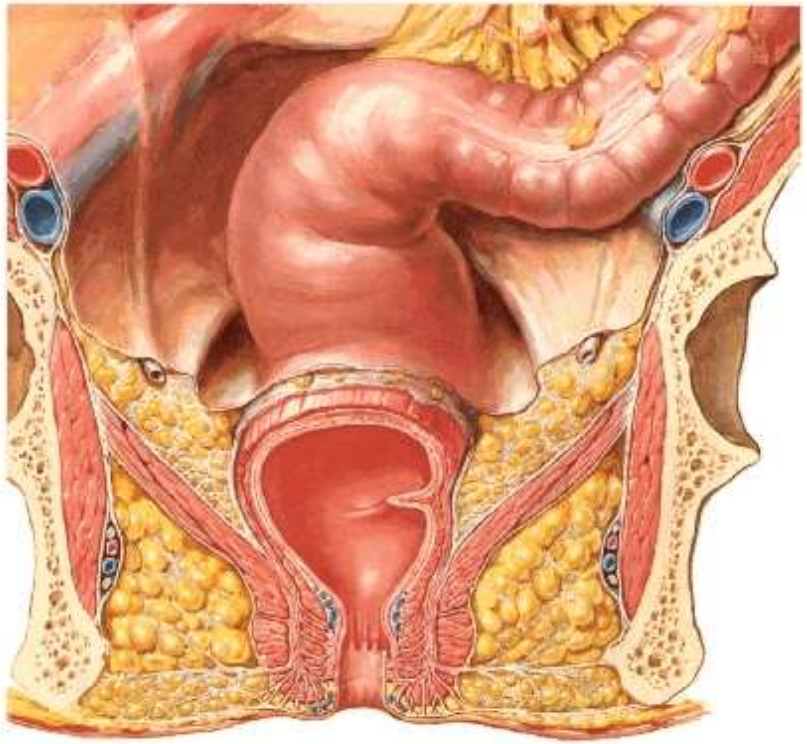


They are located in the upper anal canal, from the dentate line to the anorectal ring (puborectalis muscle)





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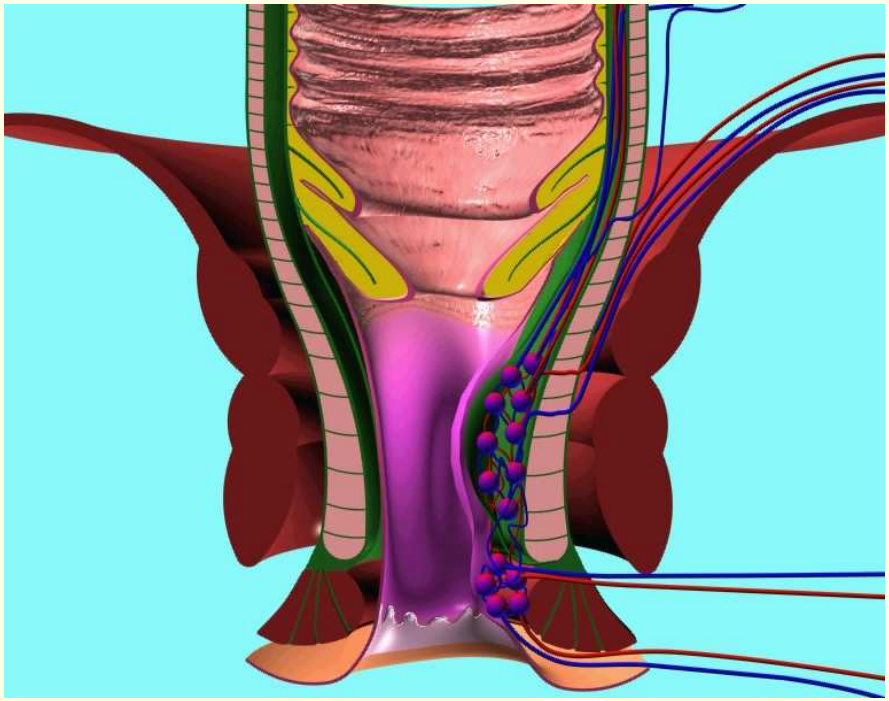
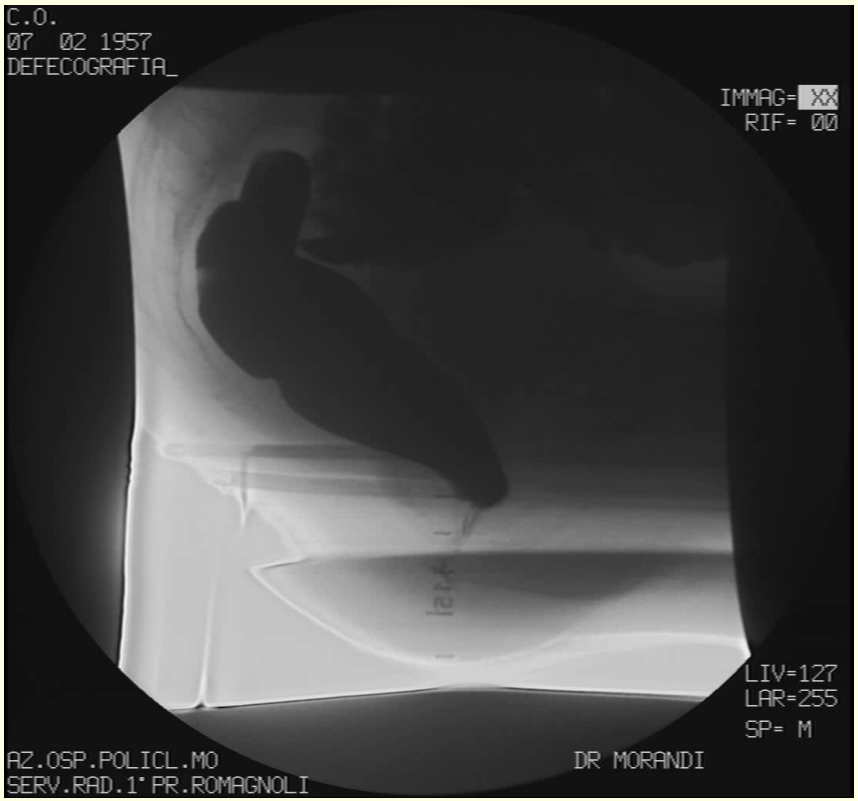
PHYSIOLOGY





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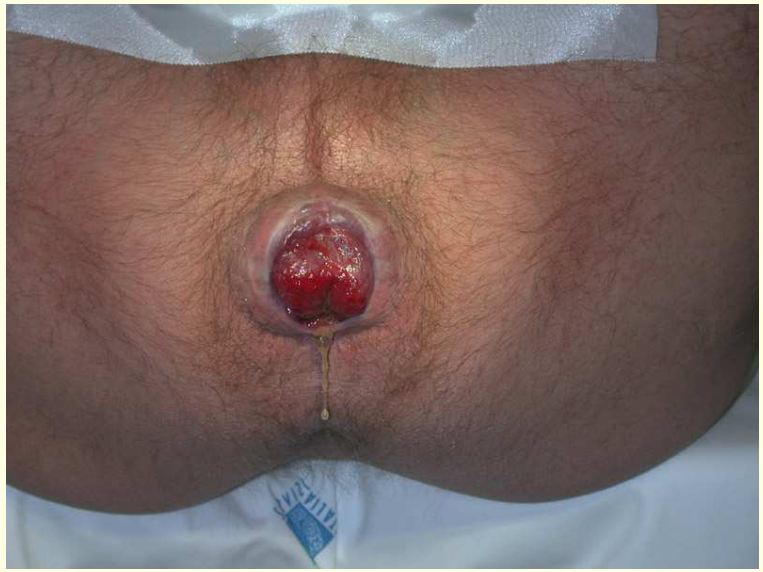

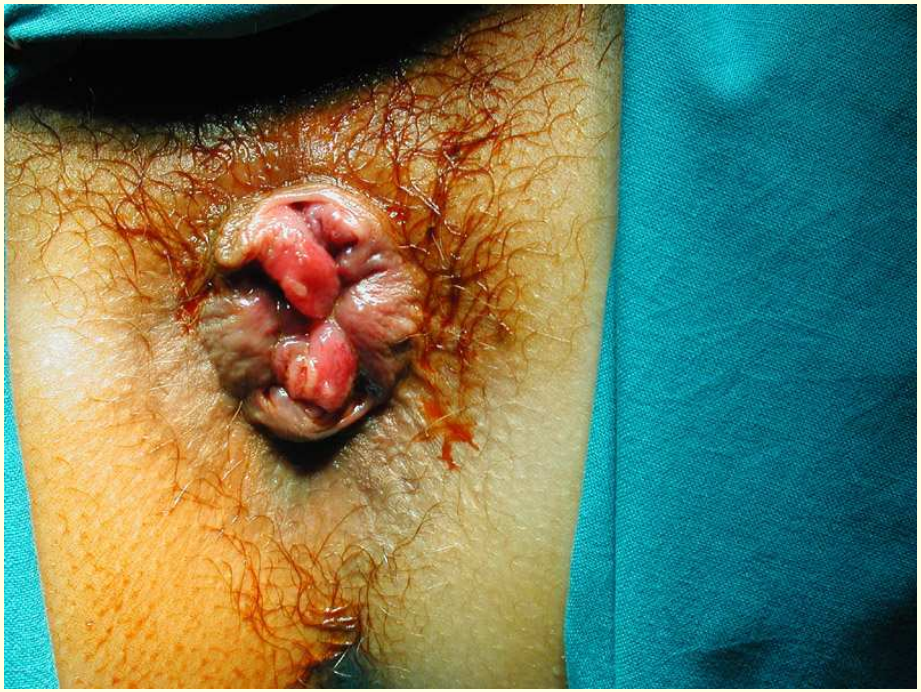

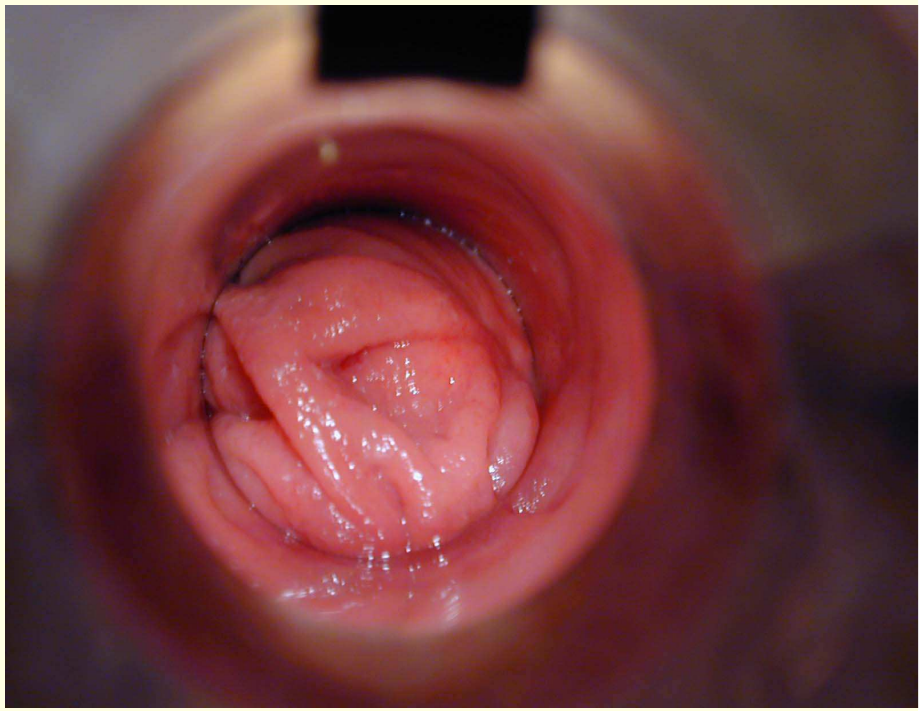

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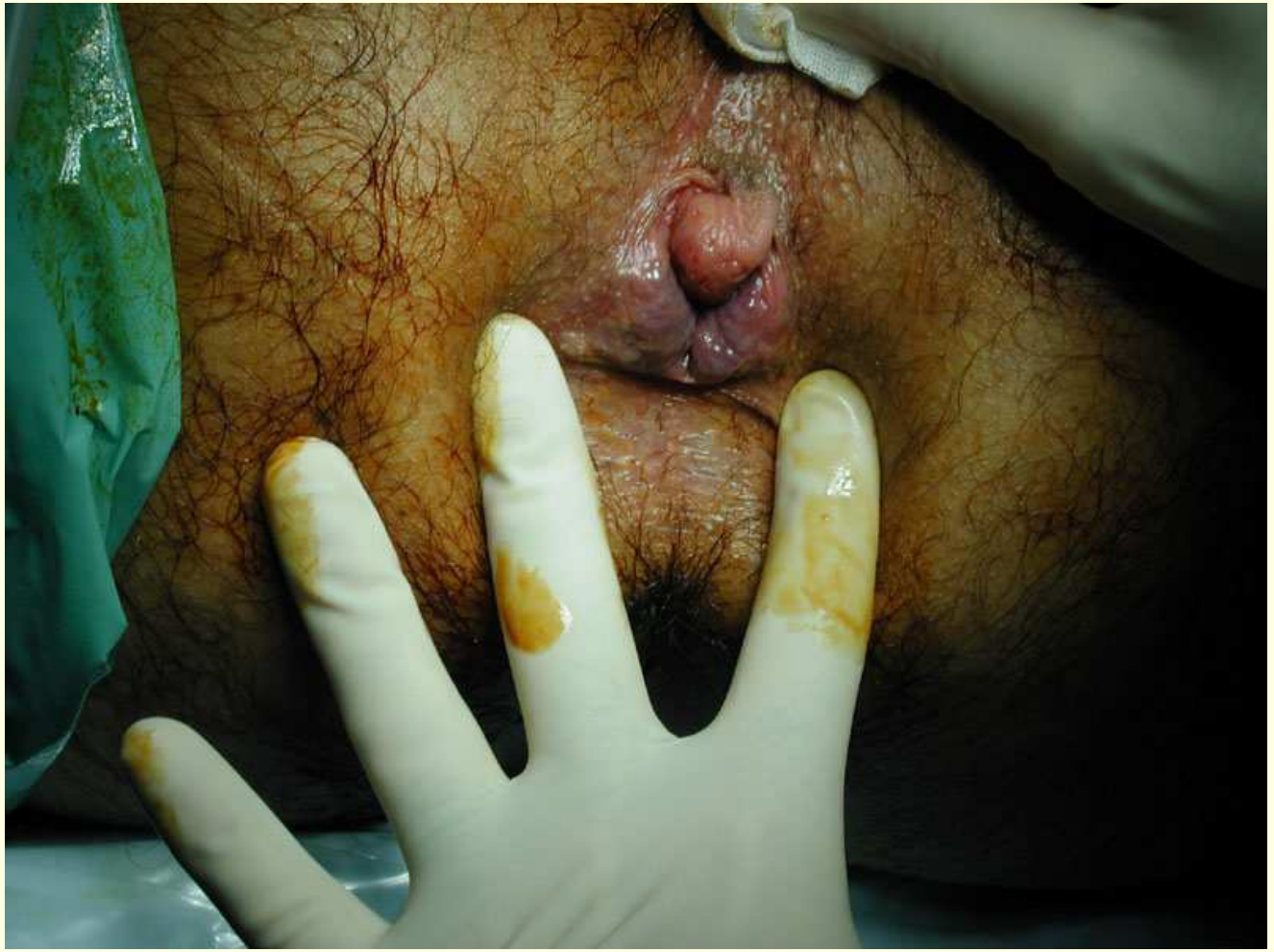
MECHANICAL OBSTRUCTION IS NEARLY ALWAYS ASSOCIATED TO A COMBINATION SCENARIOS.

Haemorrhoids



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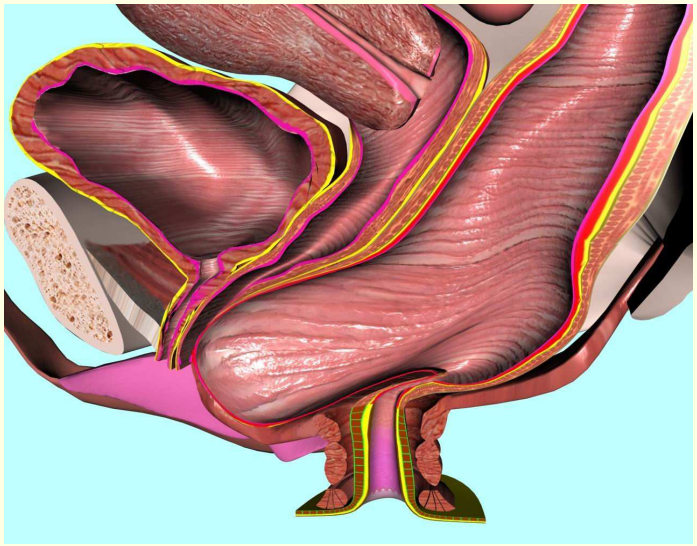
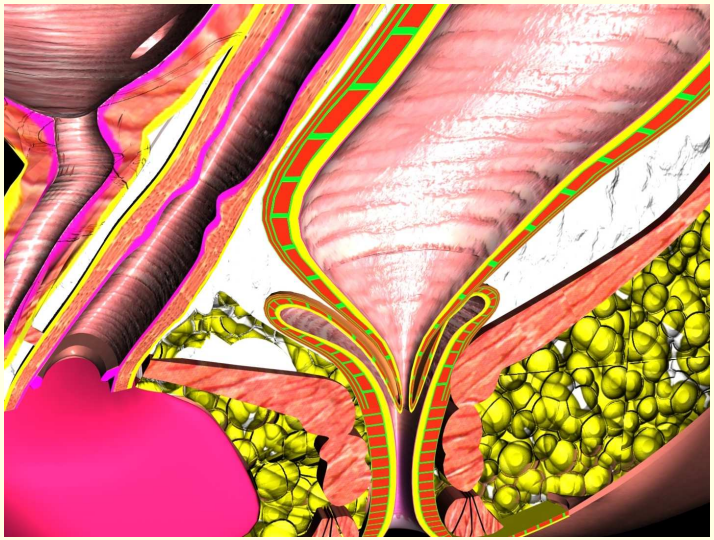
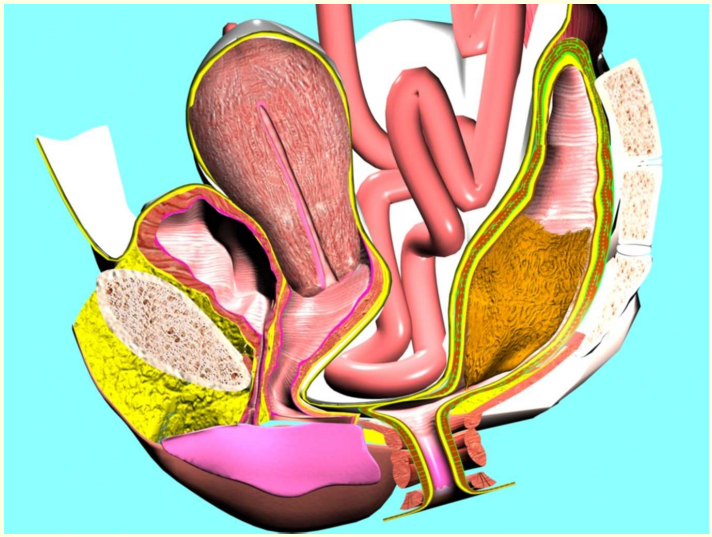
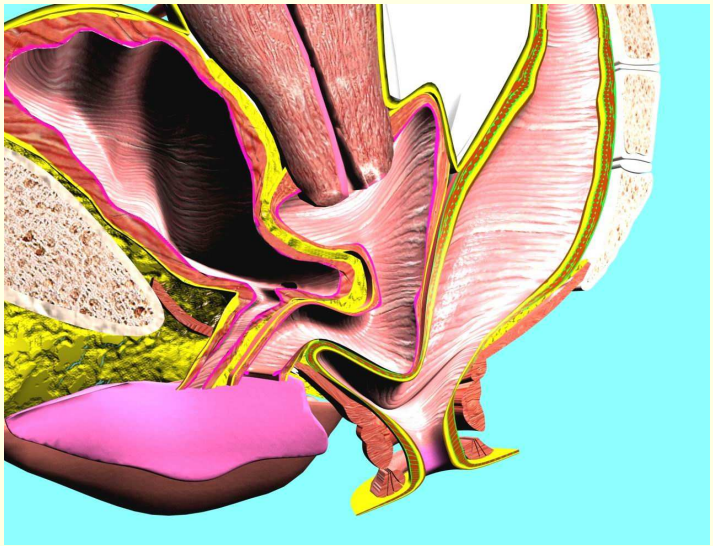
STAGING OF PELVIC FLOOR DISORDERS









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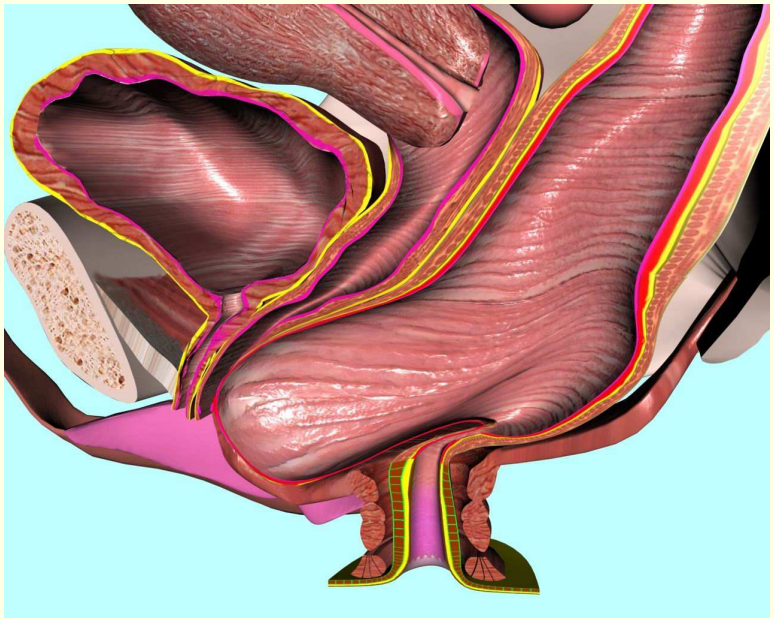
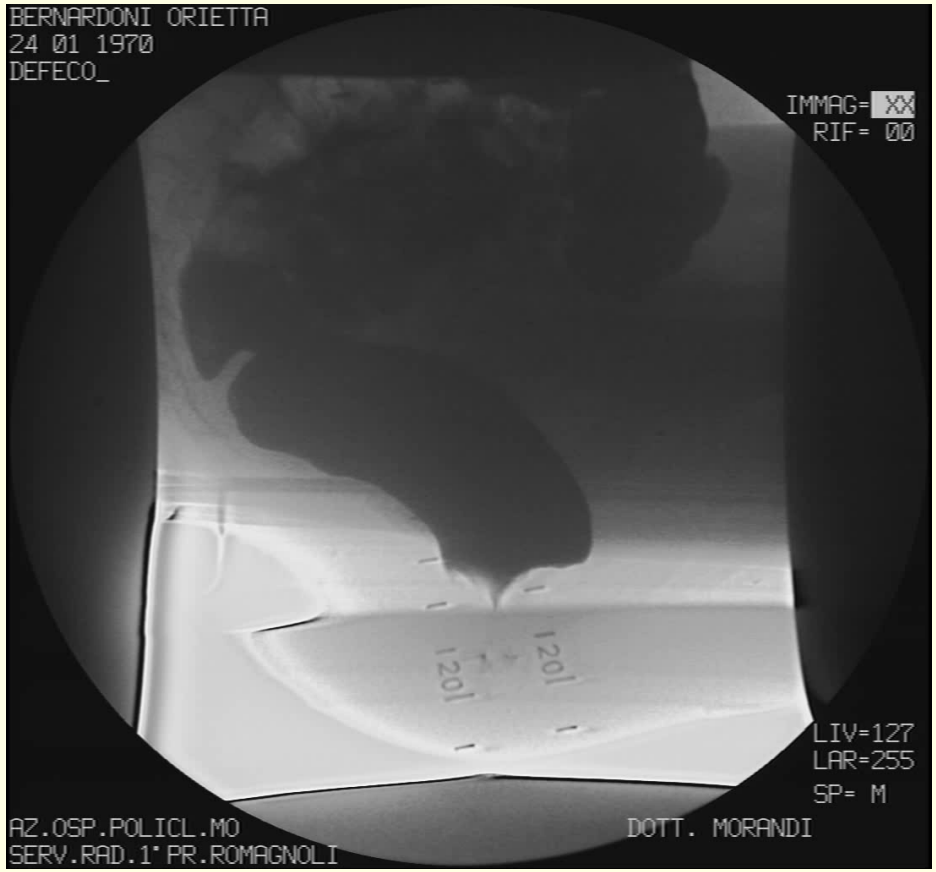
Rectocele





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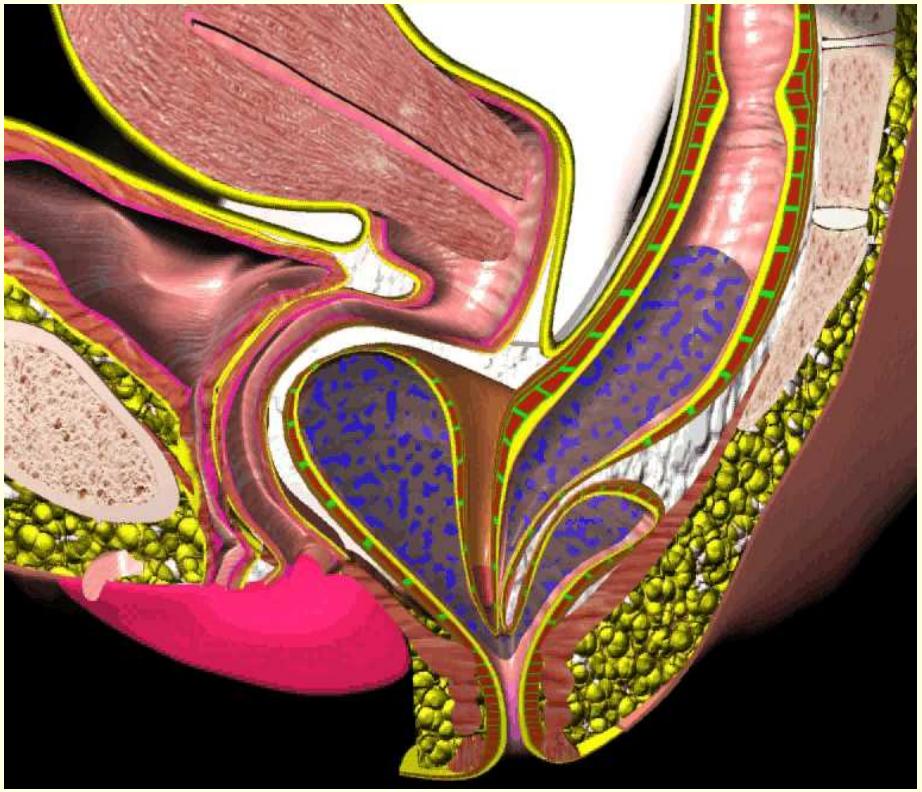
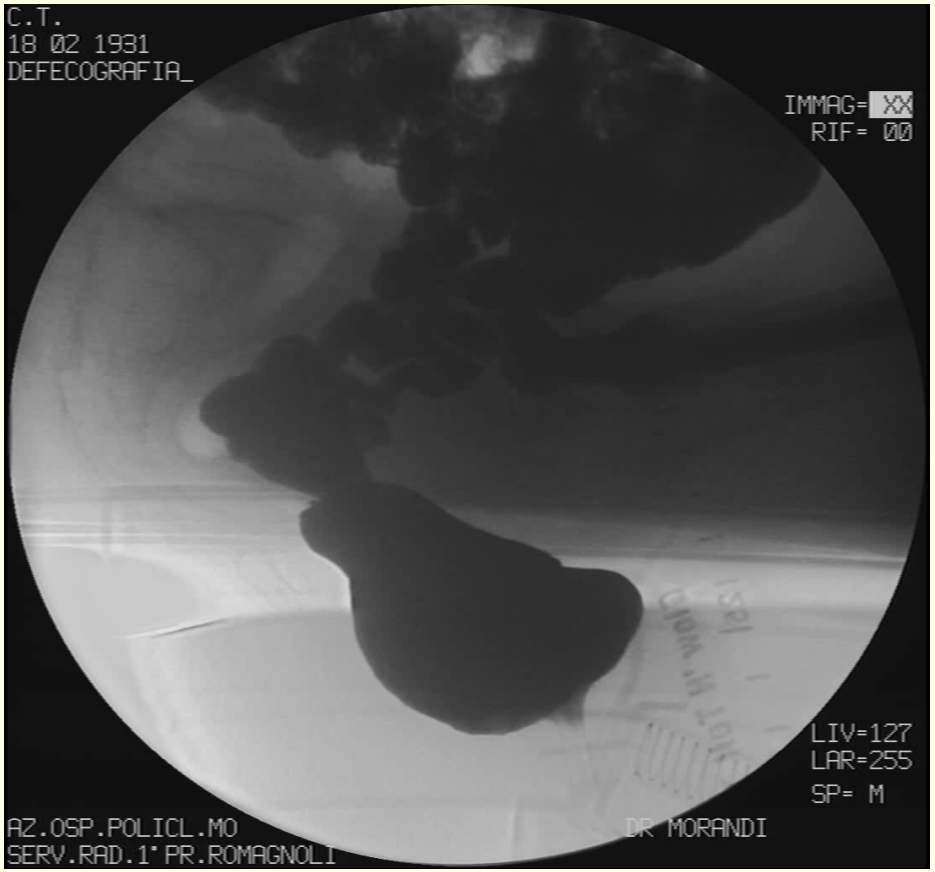
High rectal intussusception





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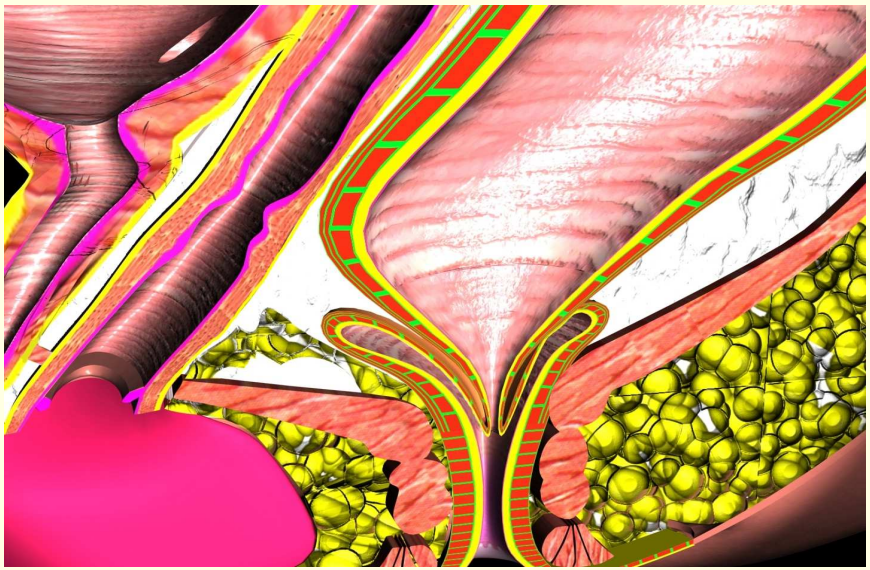
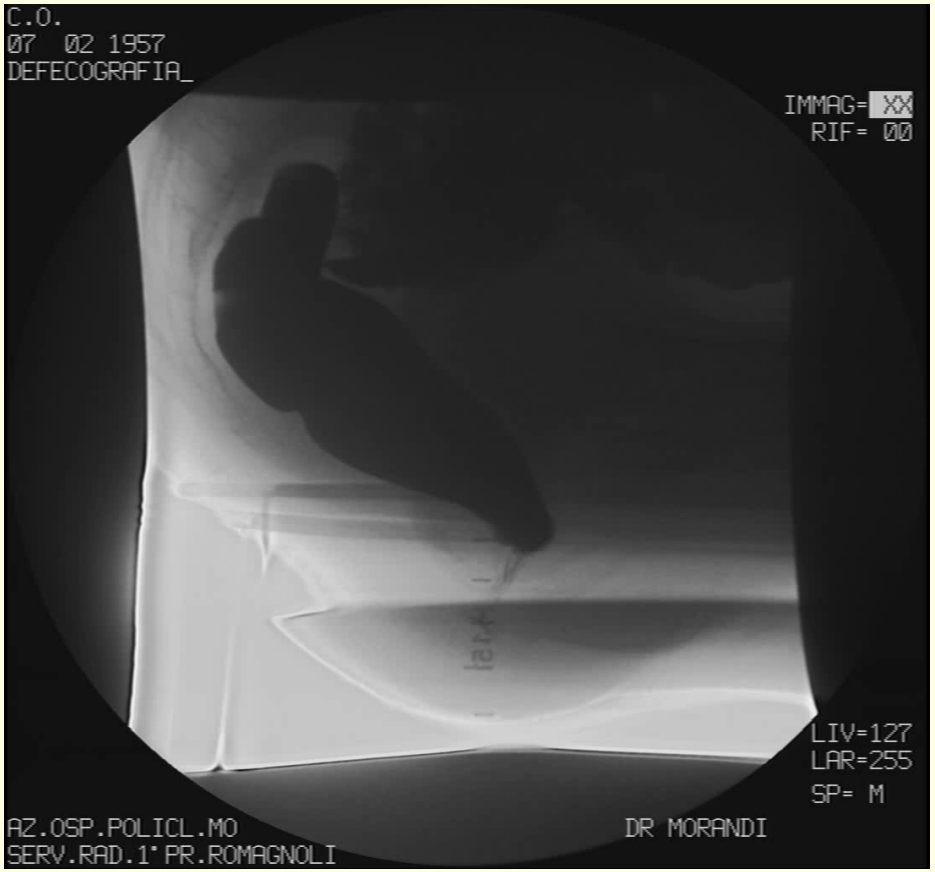
Recto-anal intussusception





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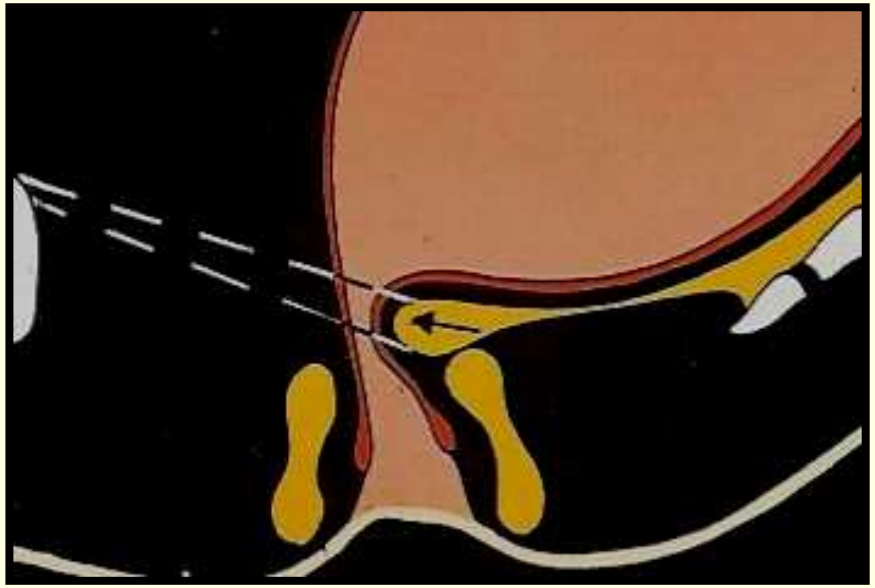
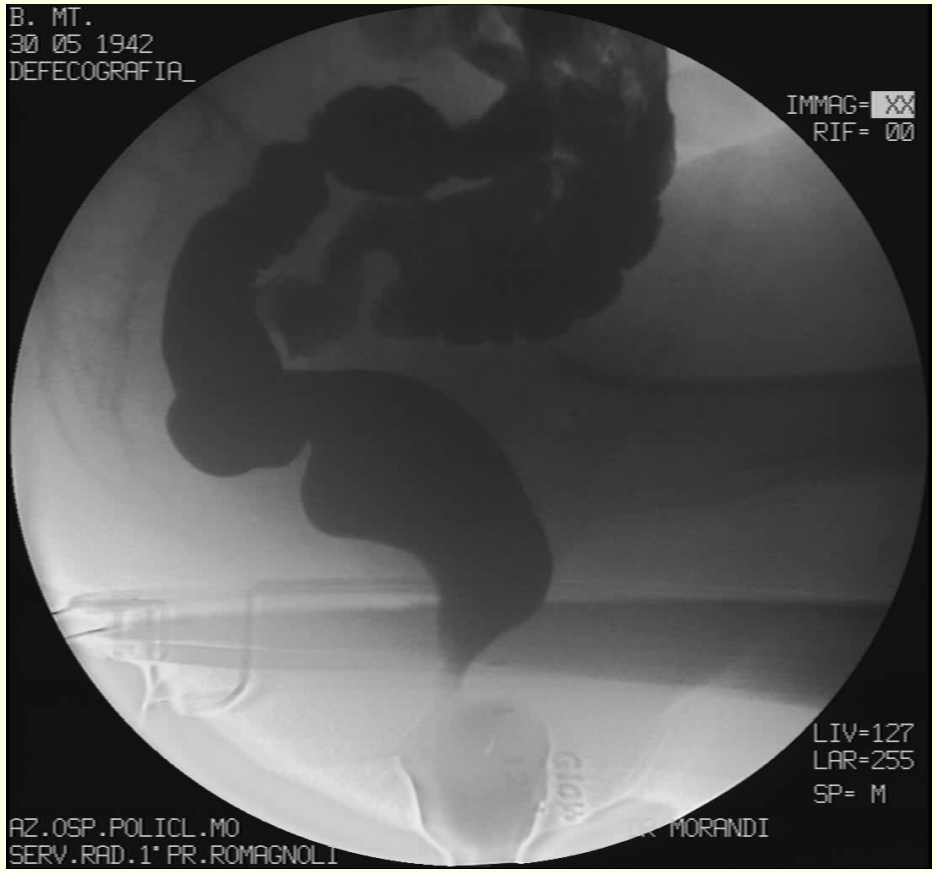
Paradoxical pubo-rectalis movement





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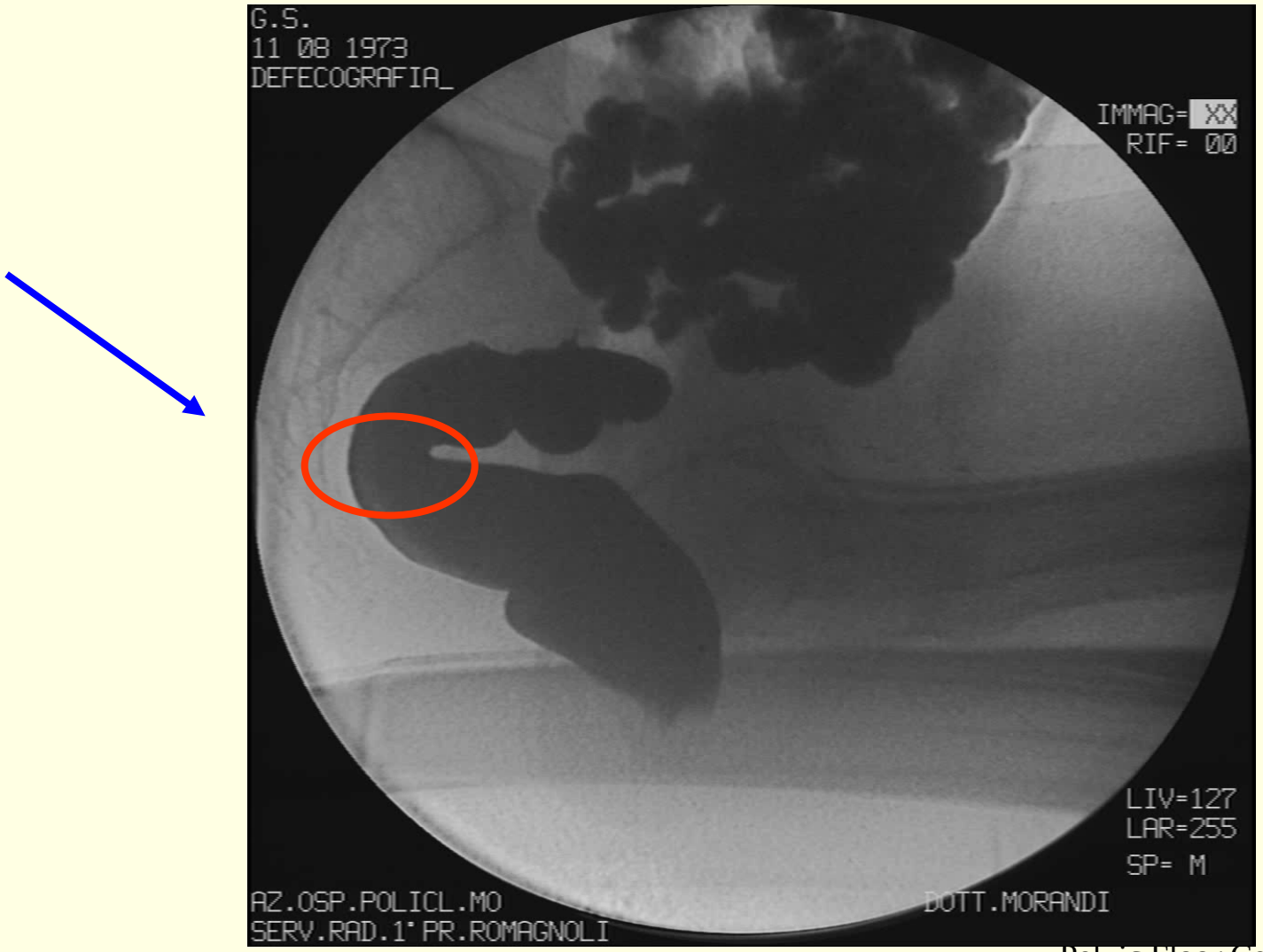
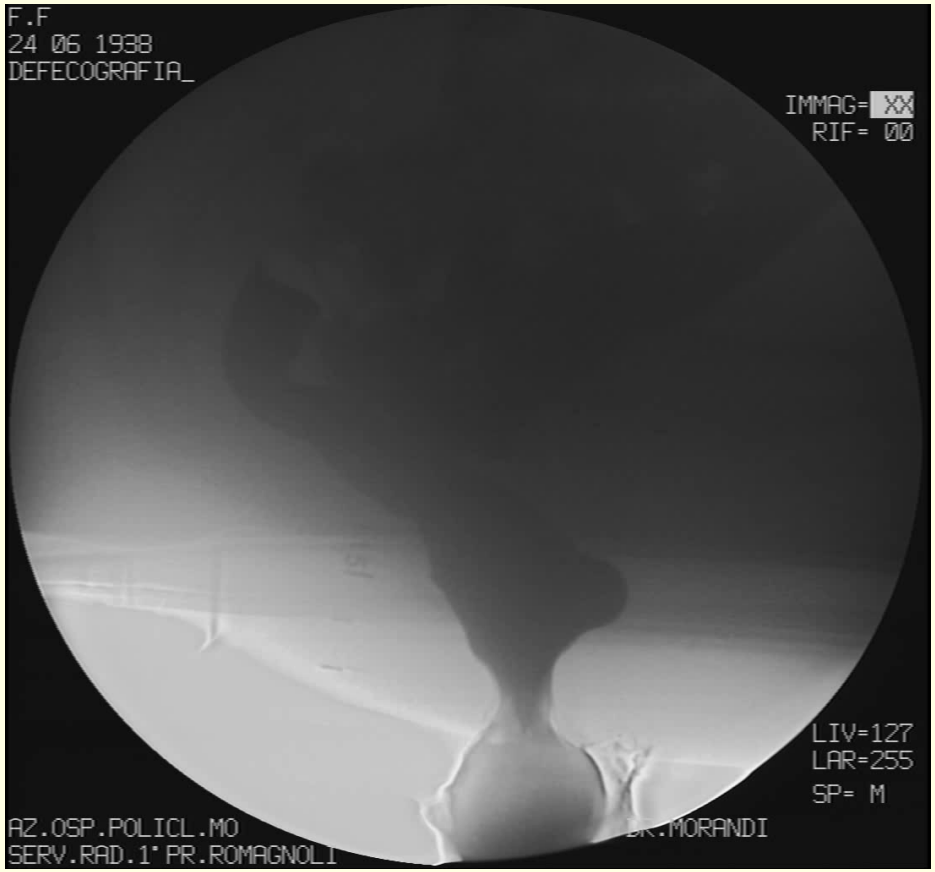
Post - Rectopexy



Dynamic Enterocele



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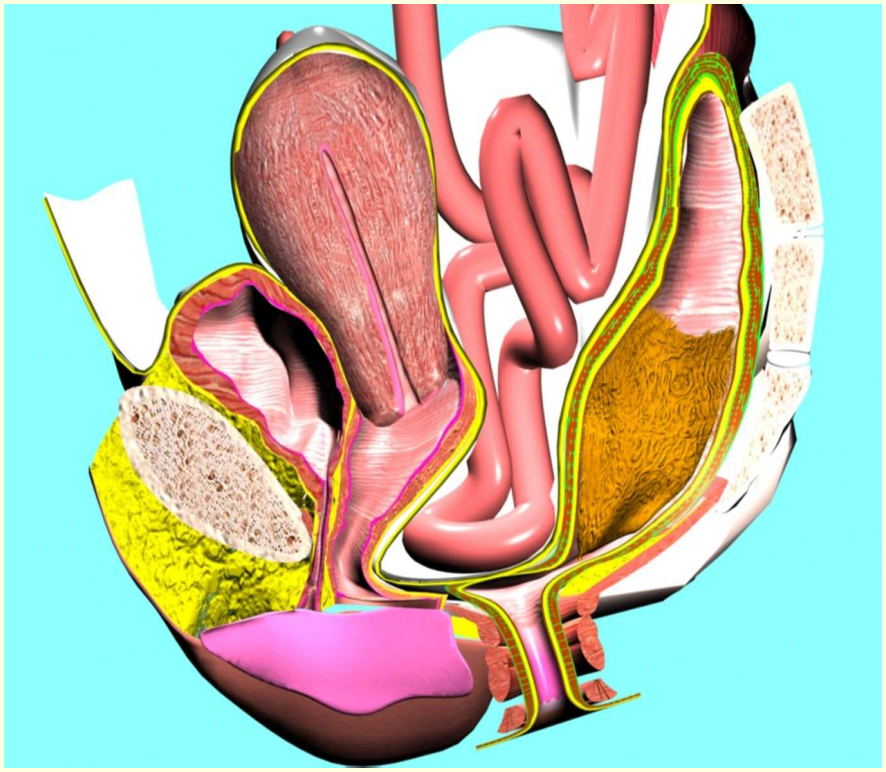
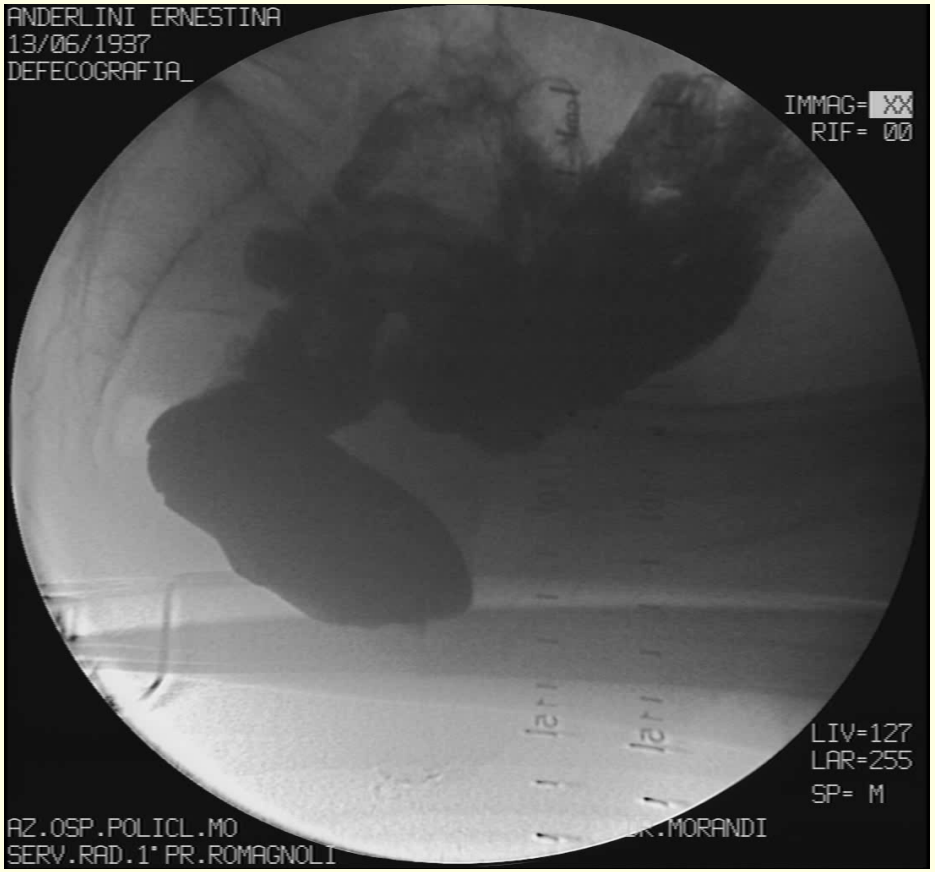
“ True” Enterocele





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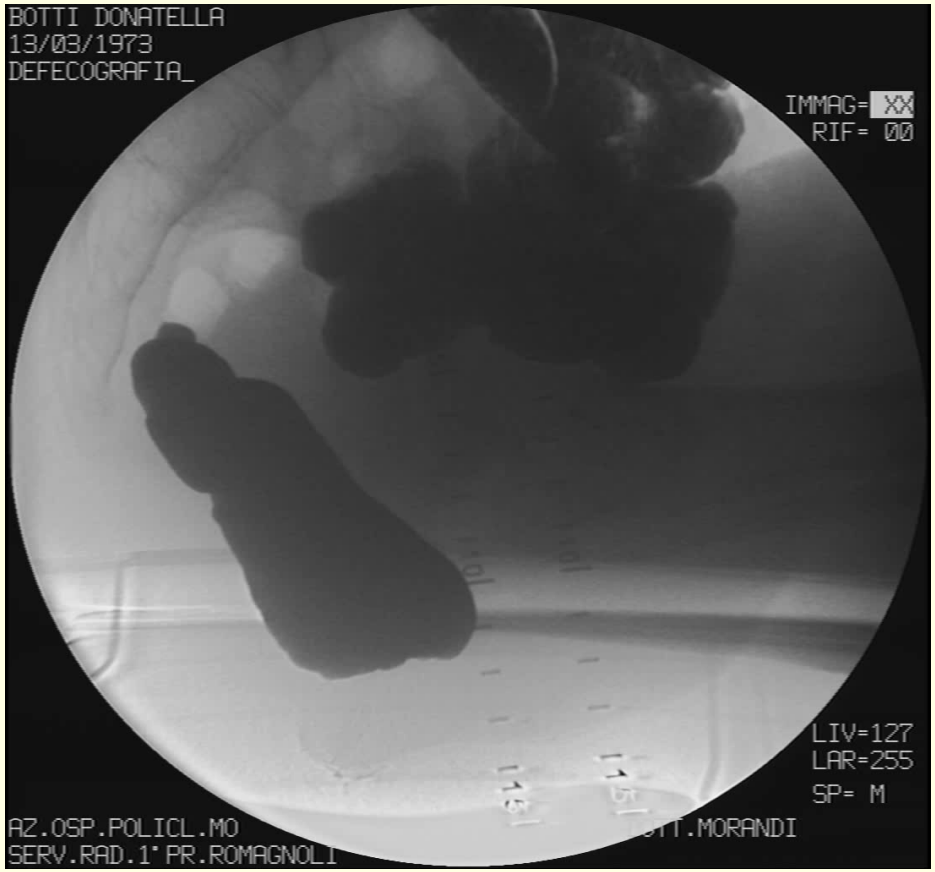
Descendind perineum and Sigmodocele



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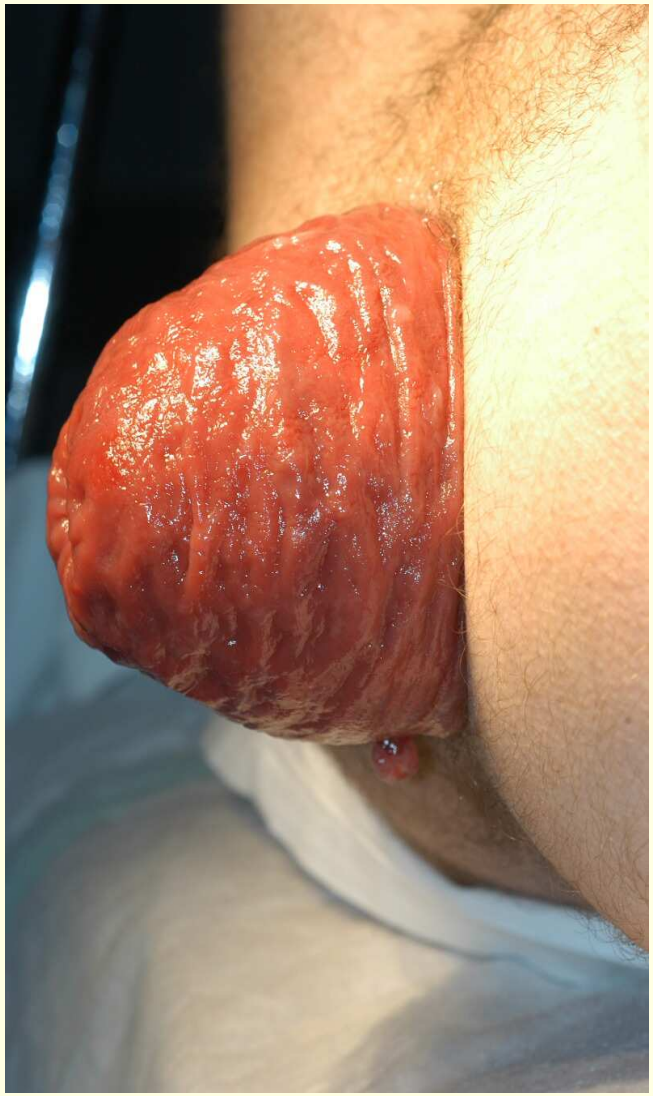
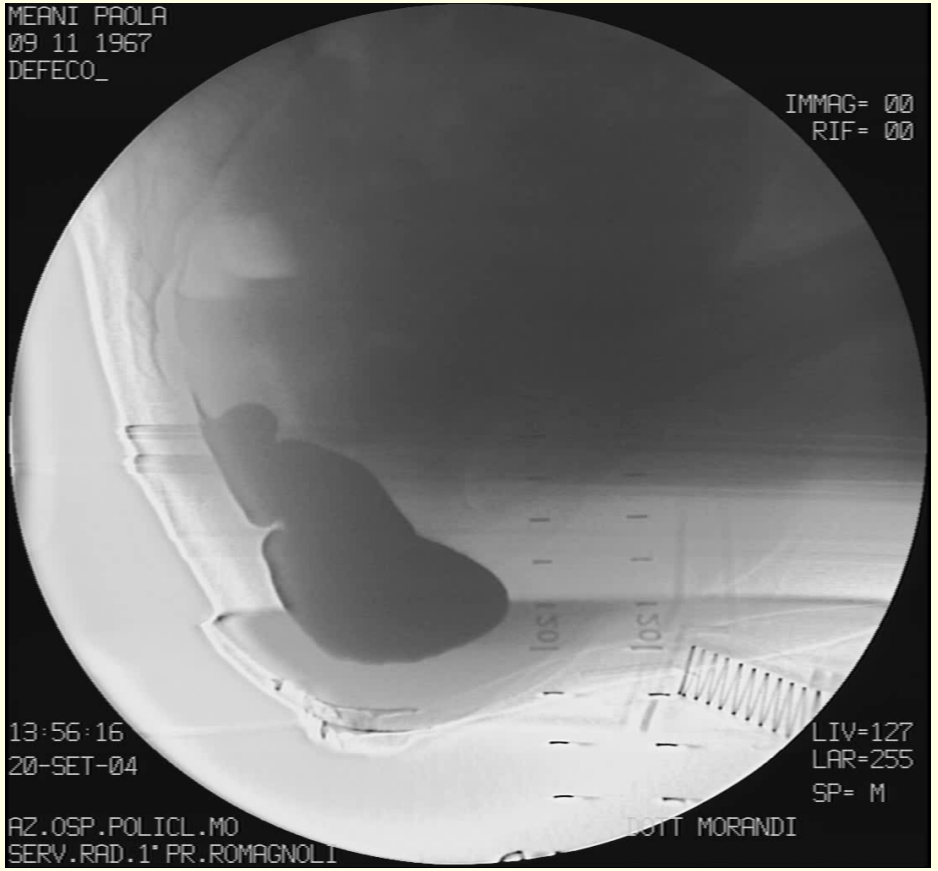
External Rectal Prolapse





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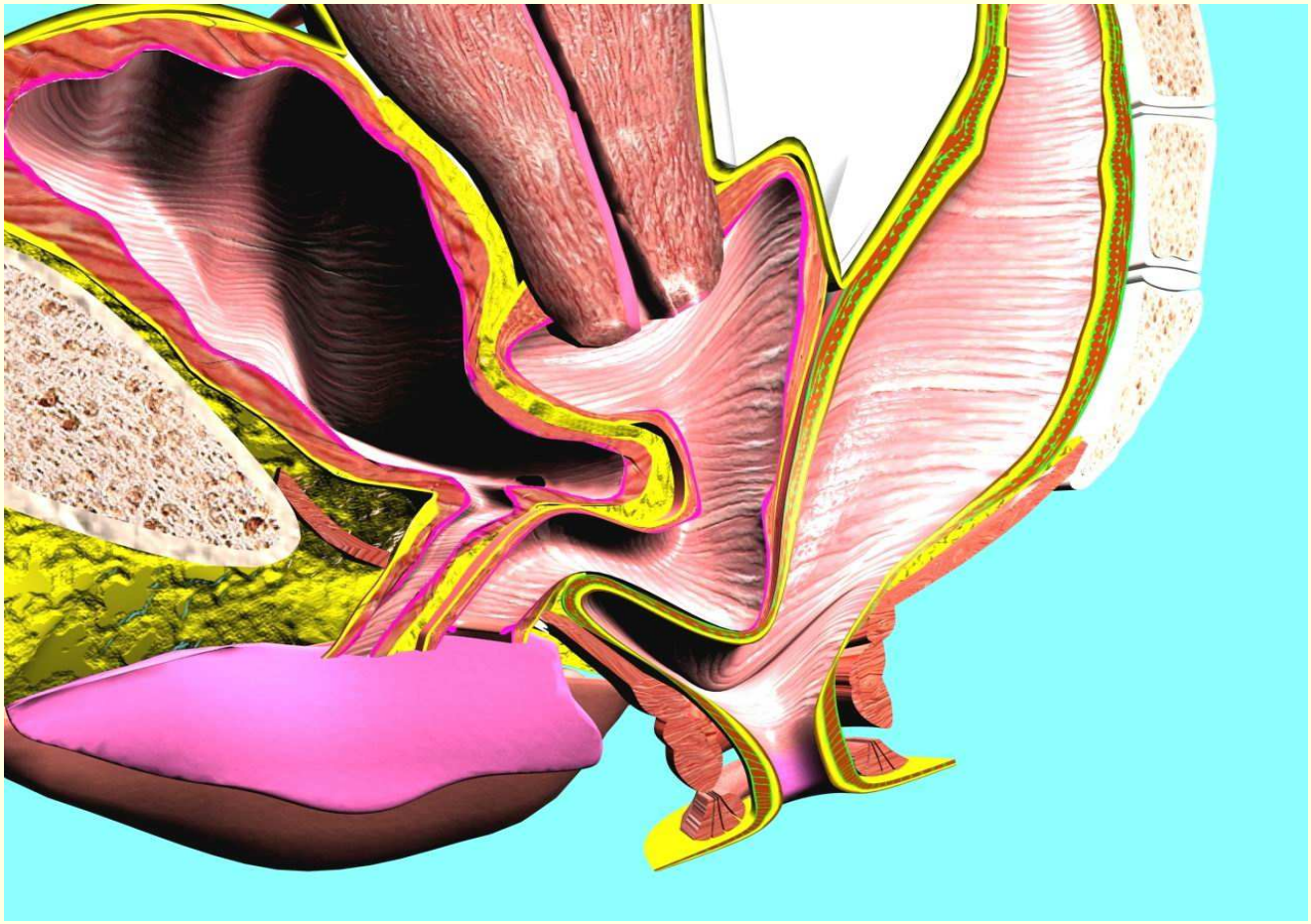
Uterine Prolapse



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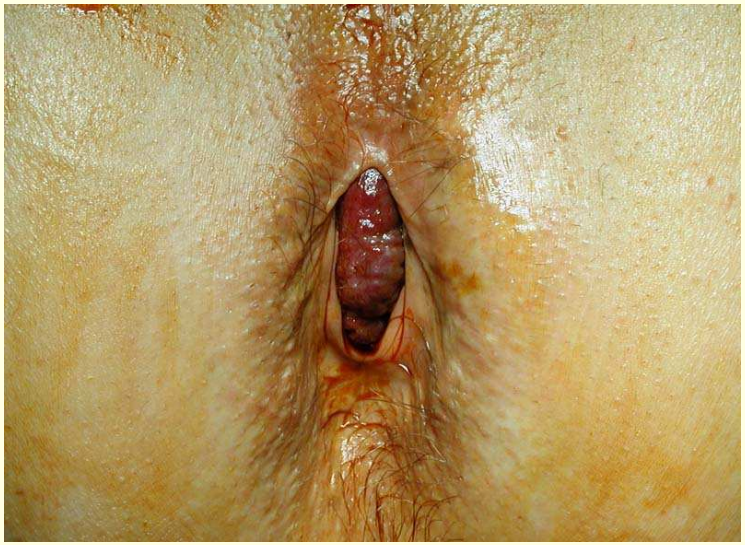
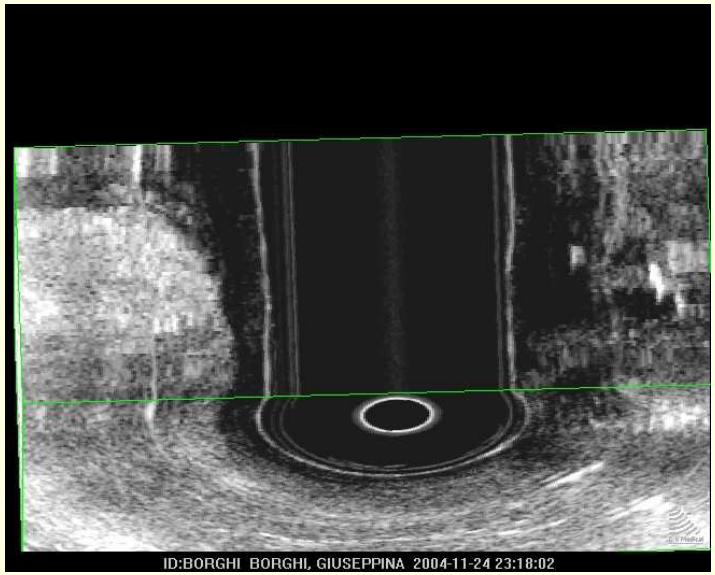
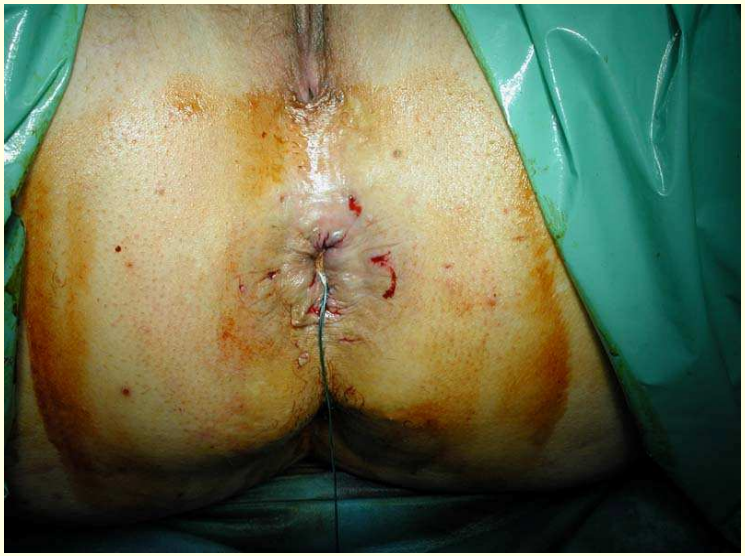
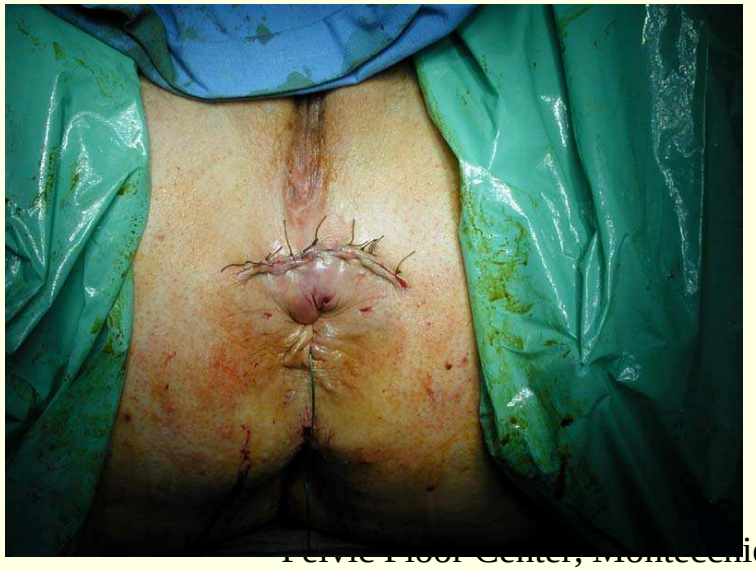
Fecal Incontinence

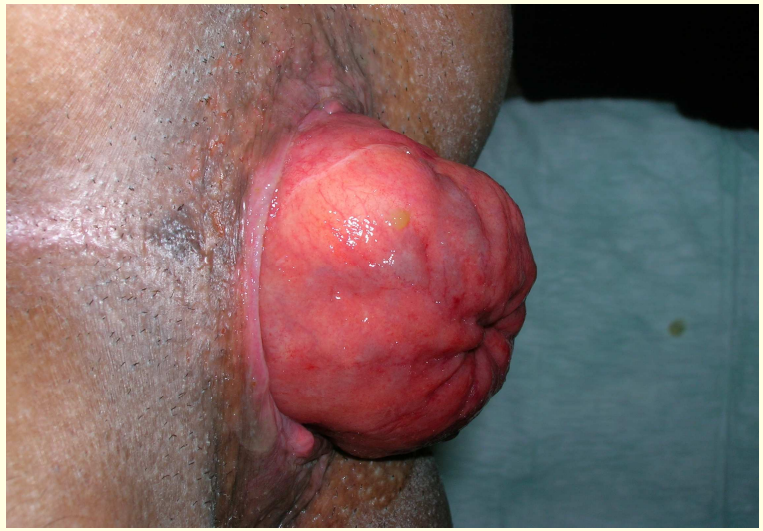


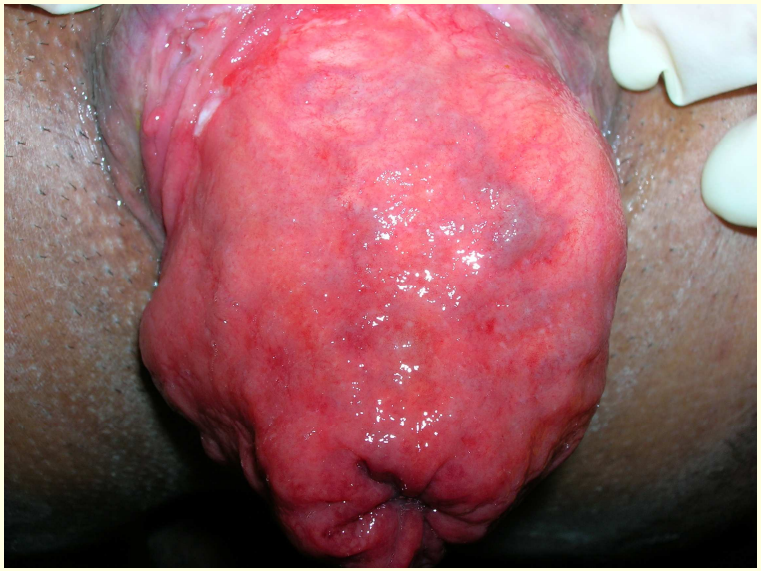


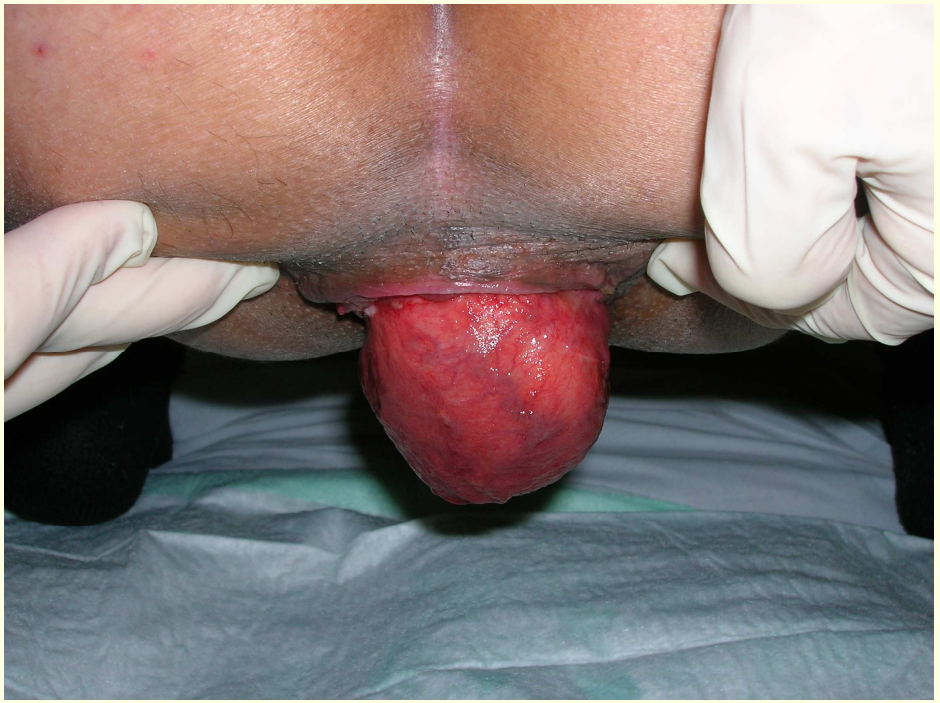




Complete Rectal Prolapse and Fecal Incontinence







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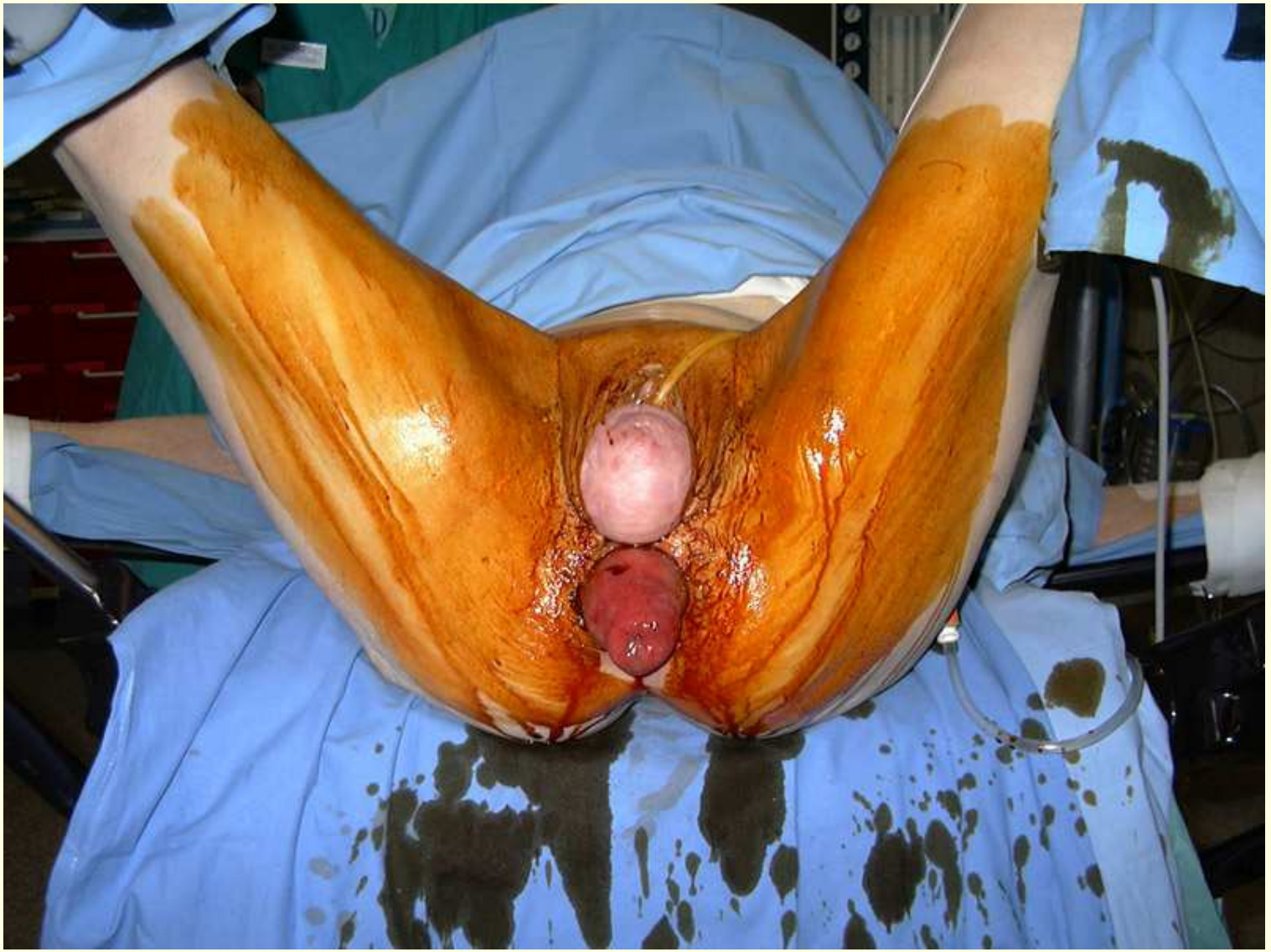
Why?



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The TARGETS

- Pelvic Dyssynergia
- Rectocele
- Recto-Rectal Recto-Anal Intussusception
- Enterocele - Sigmoidocele
- Genital Prolapse

Always a PROLAPSE!

Hemorrhoidal disease
Grading

- I° internal, no prolapsing
- II° prolapsing , come back spontaneously
- III° prolapsing , need digital reduction
- IV° stable prolapsed

Patients Assessment

- Standard Questionnaire

  Sex, Age, Pregnancy, Episiotomy, Hysterectomy,
  Assoc.Ano-Rect.Dis., Prev.Operations, Symptoms
- CCF Constipation Score
- ODS Longo's Score
- CCF Continence Grading Scale
- Defecography
- Anorectal manometry
- EAUS
- Colonic transit time

ODS SYNDROME

⇒ STRAINING SCORE INDEX (range 0 –20)

⇒ COSTIPATION SCORE INDEX (0 -30)

⇒ INCONTINENCE SCORE INDEX (0-20)

Wexner, 1996

Straining Index

	Squeeze	Difficulty	Digitation
Sometimes	1	4	7
Moderate	2	5	8
Important	3	6	9

Straining score:
Normal 0, Good 1-7, Moderate 8-15, Important 16-20

Constipation scoring system

(Agachan F. et al, Dis Col Rectum 1996)

Bowel movements	0	1	2	3	4
Painful evacuation effort	0	1	2	3	4
Feeling incomplete evacuation	0	1	2	3	4
Abdominal Pain	0	1	2	3	4
Minutes at toilette	0	1	2	3	4
Assisted evacuation	0	1	2		
Unsuccessful evacuation	0	1	2	3	4
Duration of constipation	0	1	2	3	4

CONTINENCE GRADING SCALE

Faecal Incont.	Never	Rarely <1/month	Sometimes >1/month; <1/week	Usually >1/week; <1/day	Always >1/day
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
Gas	0	1	2	3	4
Wears pad	0	1	2	3	4
Lifestyle alteration	0	1	2	3	4

0 = continence perfect 20 = complete incontinence

Jorge JMN et al.: Etiology and management of fecal incontinence. Dis Colon Rectum 1993; 36: 77-97.

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Health-related QoL in Constipation

- Randomly selected national survey
- Questionnaire, Rome II Criteria, self-reported constipation, SF-36
- Subjects 1149 (49.3% male)
- Prevalence Rome II Criteria 61.7%
- Functional constipation 14.9%
- Self-reported constipation 27.2%

Results

Mean physical and mental component summary and eight subscores of SF-36 are significantly lower ($p<0.05$) in self-reported and Rome functional constipation than in Canadian norms

Conclusions

Constipation is common in the Canadian population and significantly impairs health-related quality of life. Poor quality of life is an important predictor of health care utilization in these subjects

Irvine EJ, Ferrazzi S, Pare P, Thompson WG, Rance L. Am J Gastroenterol 2002;97:1986-1993.

QoL in benign anorectal disorders

	Patients	GIQLI
Haemorrhoids	96	120
Anal fissure	38	104
Fistula	22	119
Severe Constipation	14	94 (*)
Faecal Incontinence	35	93 (*)
Rectocele	12	112
Perianal abscess	7	115
Perianal Thrombosis	7	129
Miscellaneous	94	117 (*)

* ($p<0,001$)

Sailer M, Bussen D, et al., BJS, 2004, 85,12, 1716-1719

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Indications for elective hemorrhoidectomy

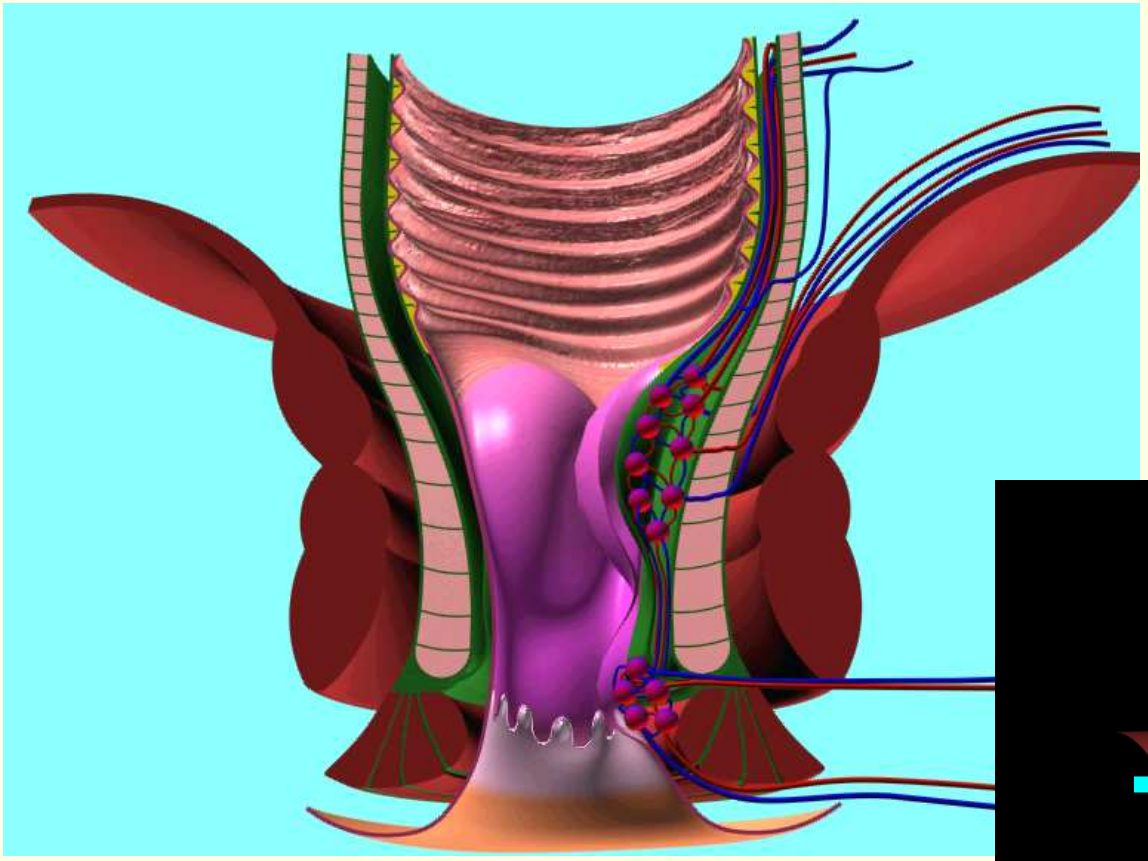
1) failure of medical and nonoperative therapy

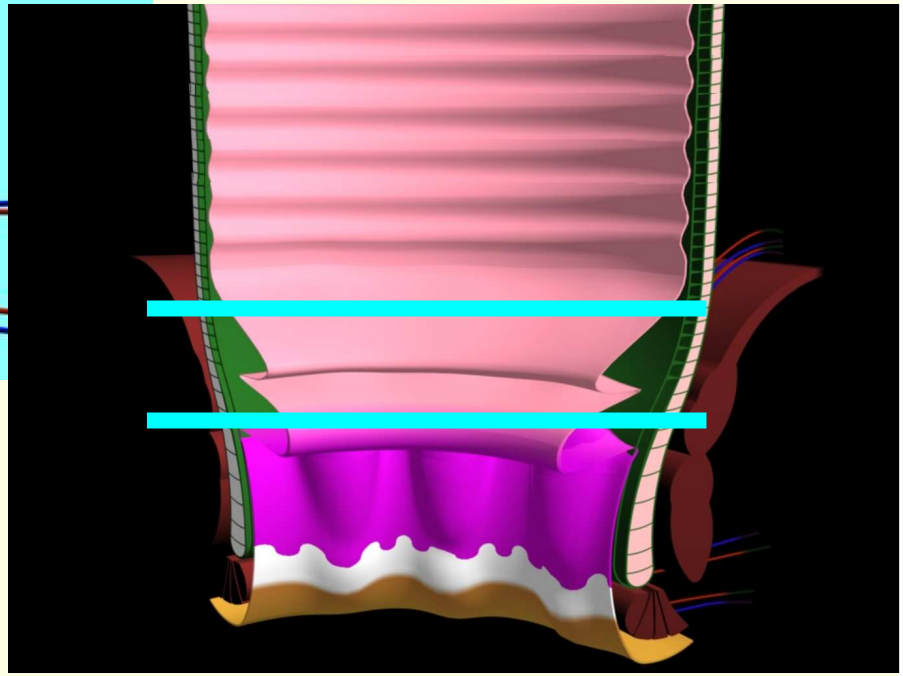
2) symptomatic third degree,fourth-degree, or mixed internal and external hemorrhoids

3) symptomatic hemorrhoids in the presence of a concomitant anorectal condition that requires surgery

4) patient preference, after discussion of treatment options with the referring physician and surgeon

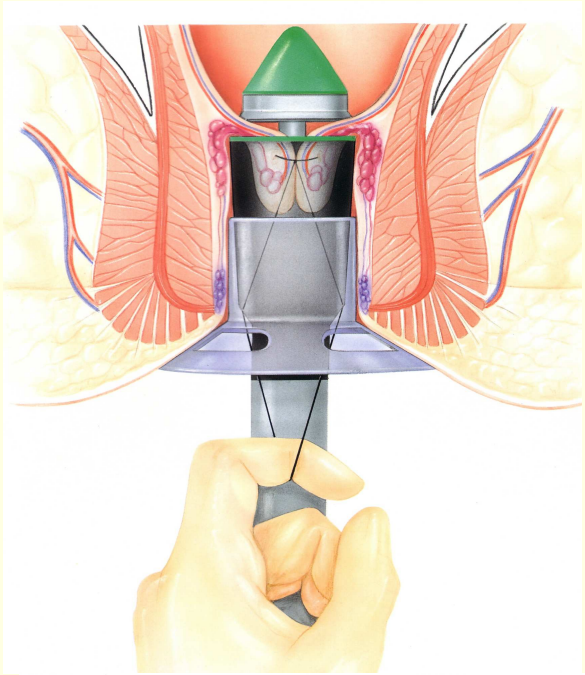
GASTROENTEROLOGY 2004;126:1461–1462

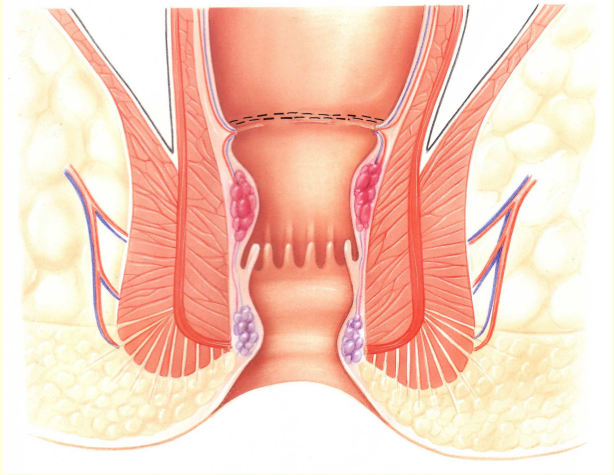


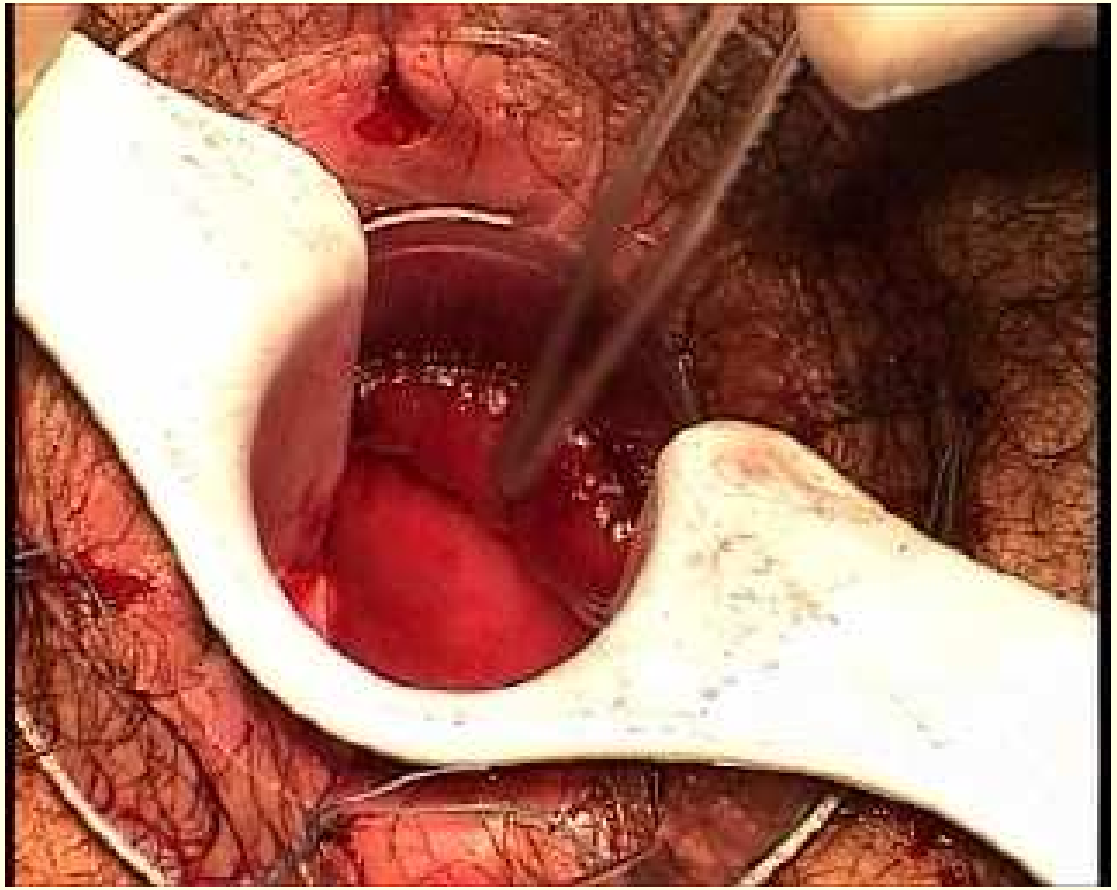


Thomson WH. The nature of haemorrhoids.
Br J Surg 1975; 62:542–552

PPH Surgery







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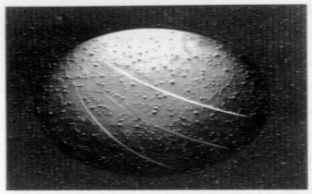


Trattamento della malattia emorroidaria mediante correzione del prolasso mucoso con suturatrice circolare
Tecnica originale

Antonio Longo

L'anoretto ha una complessa architettura anatomica risultante dalla interconnessione di tessuti altamente specializzati, innervati da fibre nervose, somatiche e viscerali, che rendono possibile l'espletamento di sofisticate funzioni fisiologiche. Tale complessità anatomica e funzionale rende difficile la comprensione della patogenesi delle patologie anorettali.

La cosiddetta "malattia emorroidaria" ha avuto diverse interpretazioni patogenetiche: una semplice dilatazione varicosa del tessuto vascolare emorroidario primitiva o secondaria ad altre patologie; un'iperplasia del tessuto angiocavernoso. Pertanto si è ritenuto che l'asportazione del tessuto emorroidario fosse la premessa indispensabile per guarire malattia.

Nel 1975 Thomson [1] ha chiarito l'anatomia dei cuscinetti emorroidari ed il loro ruolo fisiologico nella continenza. Egli ha dimostrato che tra le teorie sulla patogenesi della malattia emorroidaria la più corretta è quella del prolasso dei cuscinetti emorroidari e della mucosa anale; mentre la teoria delle dilatazioni varicose e dell'iperplasia vascolare non possono essere supportate. Lo stesso Autore ed altri [2], successivamente, hanno osservato che la fragmentazione del tessuto di sostegno della mucosa anale e del tessuto emorroidario, legamento di Treitz, comporta il dislocamento distale della mucosa anale e del tessuto emorroidario (fig. 5); se alla rottura del legamento di Treitz si associa quella del legamento di Parks si determina uno scivolamento distale anche dell'anoderma (fig. 6).

In quest'ultima circostanza la mucosa anale e l'anoderma perdono il loro normale rapporto topografico con il canale anale muscolare, che risulterà invece permanentemente occupato da mucosa rettale. Il prolasso dei cuscinetti

Università di Palermo
Dipartimento di Discipline Chirurgiche, Anatomiche ed Oncologiche
Cattedra di Chirurgia Generale
Direttore: Prof. P. Leo

Longo A. Treatment of hemorrhoidal disease by reduction of mucosa and hemorrhoidal prolapse with a circular suturing device: a new procedure. Proceedings of the 6th World Congress of Endoscopic Surgery **1998**:777-84.

Systematic review

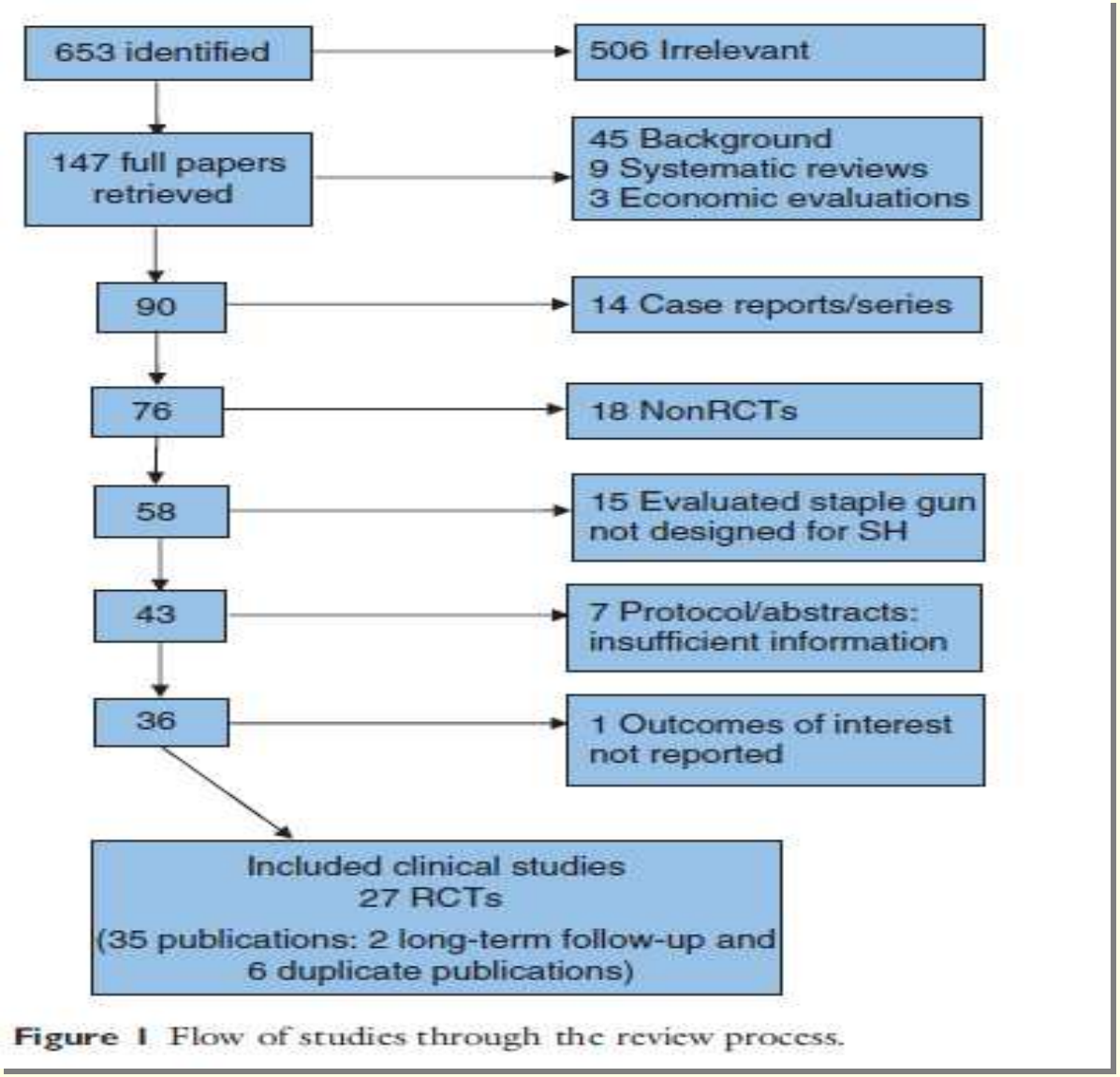


Figure 1 Flow of studies through the review process.

J. Burch et al Colorectal Disease, 2009 : 11, 233–244

Hemorrhoidectomy

Long -Terms Results

- Recurrent bleeding (after 5 years) * 33%
- Fecal incontinence * 7.5%

(Kamm' s score > 11)

- Alterated anal control (after 4 years)** 26%

(soiling, discharge, flatus incontinence, stenosis,etc.)

* Justin TA, Br J Surgery, 1999, 86

**Bennet RC, Goligher JC,BMJ, 1962,2

Long -Term Results of Haemorrhoidectomy

• Milligan Morgan	1987 –1995
• Patients	418 / 507 (83%)
• Follow-up	2 – 11 years
• Normal anal function	279 pts. (67%)
• Impaired anal continence	**139 pts. (33%)**
• Related incontinence to haem.	40/139 pts. (29%)

Johannson H., Graf W., Pahlman L., Eur.J.Surg, 2002, 168:485-489

Stapled versus conventional surgery for hemorrhoids (Review)

Jayaraman S, Colquhoun PHD, Malthaner RA

MAIN RESULTS

" Patients undergoing CSH were significantly more likely to have recurrent hemorrhoids in long term follow-up al all time points than those receiving conventional hemorrhoidectomy …"

The Cochrane Collaboration, 2006

Systematic Review on the Procedure for Prolapse and Hemorrhoids (Stapled Hemorrhoidopexy)

- **25 RCT – 1918 procedures**
- **Follow-up 1 – 62 m.**

S.H. was associated :

1. **Less operating time**
2. **Earlier return of bowel function**
3. **Shorter hospital stay**
4. **Less pain post (at rest and after defecation)**
5. **Reduction in analgesic requirement**
6. **Faster functional recovery**
7. **Shorter time off work**
8. **Earlier return to normal activities**
9. **Better wound healing**
10. **Higher patient's satisfaction**

Tjandra J. DCR 2007; 50:878-892

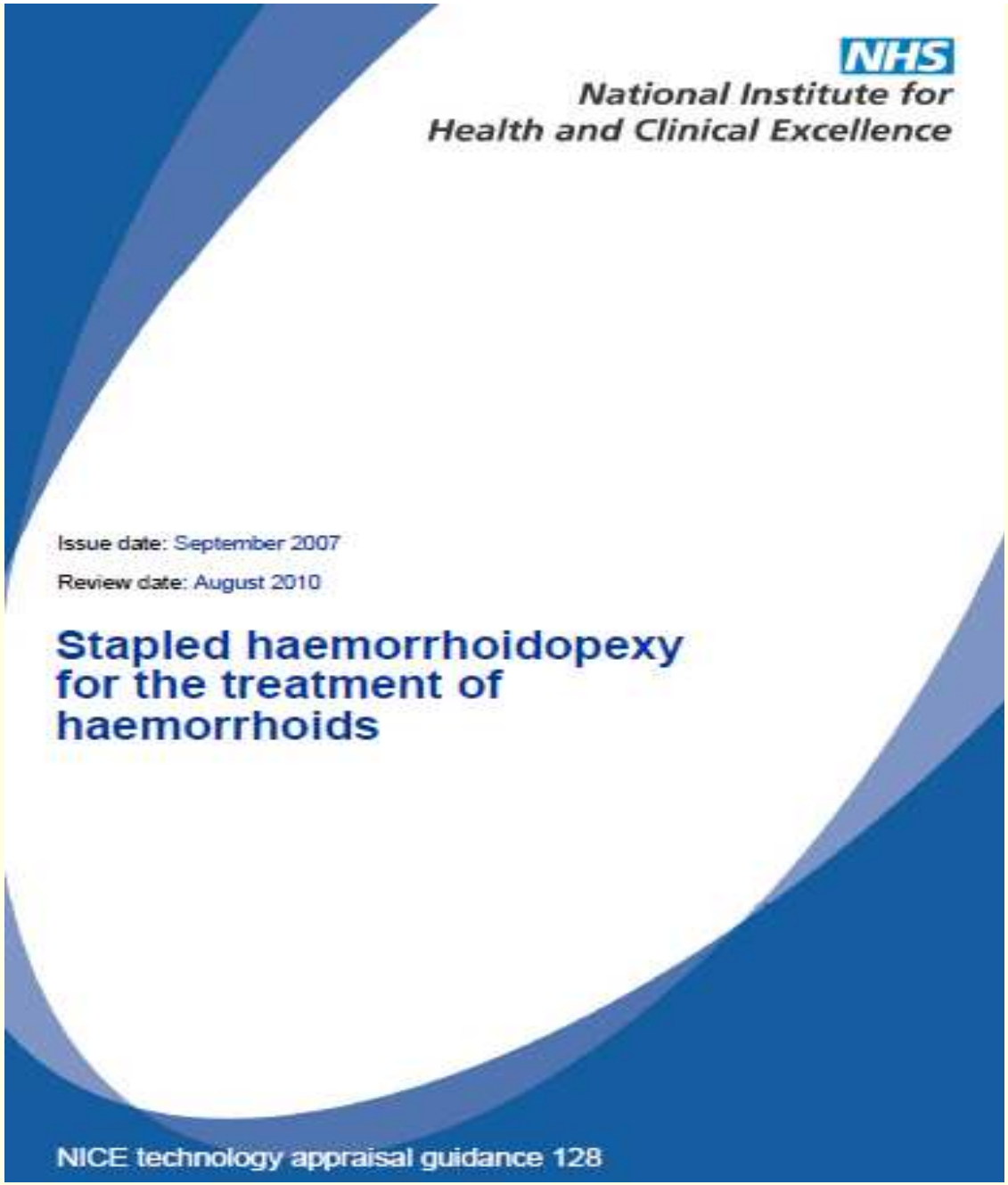
Systematic Review on the Procedure for Prolapse and Hemorrhoids (Stapled Hemorrhoidopexy)

- 25 RCT – 1918 procedures
- Follow-up 1 – 62 m.

S.H. compared with C.H. :

- **Increase recurrence of hemorrhoids at one year**
- **Overall incidence of recur. hemorr.symptoms (early and late) was similar**
- No difference on overall complication rate
- Less post-operative bleeding
- Less wound complication
- Less constipation
- Less pruritus
- **Overall need of surgical re-intervention are similar**

Tjandra J. DCR 2007; 50:878-892


NHS
National Institute for
Health and Clinical Excellence
Issue date: September 2007
Review date: August 2010
Stapled haemorrhoidopexy for the treatment of haemorrhoids
NICE technology appraisal guidance 128

NICE GUIDANCE

Clinical Effectiveness

- 27 randomized controlled trials (RCTs)

The Assessment Group included studies that compared stapled haemorrhoidopexy with the Milligan-Morgan, Ferguson, Anderson, Fransler and Parks surgical procedures

1.2 S.H., compared with C.H., was associated with

less pain up to 14 days postoperatively in 95% of identified studies

1.3 was little difference between S.H. and C.H. in **postoperative pain**

after 21 days and at 1 year or later.

Stapled Haemorrhoidopexy for the treatment of Hemorrhoids, Nice 2010

NICE GUIDANCE

Clinical Effectiveness

1.4

1. shorter wound healing time
2. shorter time to return to normal bowel function
3. length of hospital stay
4. reduction in time to return to normal activity

1.5 BLEEDING

- less bleeding at 14 days postoperatively with S.H.
- 6–8 weeks postoperatively the difference was not statistically significant
- 12 weeks : None of these analyses (and none of the individual studies) found a statistically significant difference

Stapled Haemorrhoidopexy for the treatment of Hemorrhoids, Nice 2010

NICE GUIDANCE

Clinical Effectiveness

1.6 Rates of recurrent prolapse at different time points .

Four of the analyses identified statistically significantly greater odds of recurrent prolapse between

- 1 and 8 weeks (OR = 5.18, 95% CI 1.73 to 15.50)

- 3 months and less than 1 year (OR = 4.68, 95% CI 1.11 to 19.71)

- 16 months and 2 years (OR = 6.25, 95% CI 1.53 to 25.54)

- 12 months and 3.8 years (OR = 4.34, 95% CI 1.67 to 11.28).

- A meta-analysis of seven studies did not identify a statistically significant difference 12 months postoperatively (OR = 3.20, 95% CI 0.71 to 14.45).

- after 5 years reported no recurrence in either of the treatment arms

Stapled Haemorrhoidopexy for the treatment of Hemorrhoids, Nice 2010

NICE GUIDANCE

Clinical Effectiveness

1.7 Rates of re-intervention

Two of these meta-analyses identified statistically significantly greater odds of re-intervention with S.H. compared with C.H. at 12 or more months:

- **Recurrent Prolapse** (OR = 4.99, 95% CI 1.05 to 23.60),

- **Bleeding** (OR = 7.44, 95% CI 1.27 to 43.43).

One identified a trend towards greater odds of any non-excision surgery with S. H. at 12–18 months, but the difference compared with C.H. **was not statistically significant**

A further meta-analysis of two studies identified a trend towards smaller odds of intervention for skin tag removal less than 12 months after S.H., but the difference compared with C.H. **was not statistically significant**

Stapled Haemorrhoidopexy for the treatment of Hemorrhoids, Nice 2010

NICE GUIDANCE

Clinical Effectiveness

1.8 Other postoperative complications and itching at different time points but no statistically significant differences.

For faecal incontinence there was a trend favouring S.H.over C.H., but the difference was not statistically significant.

1.9 Three studies for the quality of life : None had a statistically significant difference.

Patient preference or level of satisfaction

- The majority of the studies did not identify a preference , but five studies reported greater patient satisfaction with S.H. within the first year after the procedure was carried out.
- One study reported greater patient satisfaction with C.H. approximately 4 years postoperatively

NICE GUIDANCE

Consideration of Evidence

4.3.2

- reduction of short- and medium-term postoperative pain
- fear of postoperative pain and the long recovery period associated with C.H.
- require support for postoperative pain management in primary care, including community nursing support, and may be at greater risk of hospital readmission because of postoperative problems and that such interventions are required less often following S. H.
- When the price of the device was set at the 2006 price of £420 rather than the estimated 2007 price of £437, the total cost difference in the Assessment Group's model decreased to approximately £2.

NICE GUIDANCE

Consideration of Evidence

4.3.3

1. shorter wound-healing time, less time in hospital and earlier return to normal activities with S.H. than with C.H. (great importance factors)

2. recurrence of prolapse after S.H. varied on a case by case

3. possible increased need for re-intervention is a less important factor than the expectation of a high level of post-operative pain

4. level of postoperative pain and the length of the recovery period would be the deciding factors in their choice of procedure rather than any increased risk of prolapse or need for re-intervention

Stapled haemorrhoidopexy

Systematic review and economic evaluation

- **SH was associated with less pain in the immediate postoperative period, but a higher rate of residual prolapse, prolapse in the longer term and reintervention for prolapse**
- **There was no clear difference in the rate or type of complications associated with the two techniques and the absolute and relative rates of recurrence and reintervention for both are still uncertain**
- **CH and SH had very similar costs**

Health Technol Assess. 2008 Apr;12(8): 1-193

Pelvic Floor Center, Montecchio Emilia

Stapled haemorrhoidopexy

Systematic review and economic evaluation

- Some **training** may be required in the use of the staple gun
- SH or CH is conducted could primarily be based **on the priorities and preferences of the patient and surgeon**
- Good-quality RCT is required, comparing SH with CH, recruiting patients with second, third and fourth degree haemorrhoids, and having **a minimum follow-up period of 5 years** to ensure an adequate evaluation of the reintervention rate

Health Technol Assess. 2008 Apr;12(8): 1-193

Pelvic Floor Center, Montecchio Emilia

Stapled haemorrhoidopexy

Systematic review and economic evaluation

Other areas for research are the effectiveness of SH in patients with

- fourth degree haemorrhoids
- co-morbid conditions
- reintervention rates for all treatments for haemorrhoids
- utilities of patients up to 6 months postoperatively
- the trade-offs of patients for short-term pain vs. long-term outcomes
- the ability of SH to reduce hospital stays in a real practice setting

Health Technol Assess. 2008 Apr;12(8):1-193

S.H. vs C.H.

- Systematic review -

- PURPOSE

systematic review and meta-analysis of the short- and long-term outcomes of Stapled Haemorrhoidopexy

- METHODS

randomised controlled trials comparing Stapled Haemorrhoidopexy with Milligan-Morgan/Ferguson haemorrhoidectomy

- RESULTS

Thirty-four randomised trials and two systematic reviews were identified, and 29 trials included

Laughlan K et al Int J Colorectal Dis. 2009 Mar;24(3):335-44

S.H. vs C.H.

- Systematic review -

- S.H. was statistically superior
  - for hospital stay ($p < 0.001$)
  - numerically superior for post-operative pain (peri-operative and mid-term) ,operation time and bleeding (post-operative and long-term)
- **Recurrent prolapse and re-intervention for recurrence were more frequent following S.H.**
- No difference was observed in the rates of complications

Laughlan K et al Int J Colorectal Dis. 2009 Mar;24(3):335-44

Cost of the procedure

	Unit cost (£)	Resource use		Costs (£)	
		CH	SH	CH	SH
Theatre time (minutes)	8.27	29.2	15.5	242	128
Length of stay (days)	256	2.7	1.4	681	366
Device	420	0	1	0	420
Total procedure cost				923	914

SH, stapled haemorrhoidopexy; CH, conventional excisional haemorrhoidectomy.

J. Burch*, et al Stapled haemorrhoidopexy for the treatment of haemorrhoids:a systematic review , Colorectal Disease,2009:1, 233–244

Stapled haemorrhoidopexy or Stapled Prolapsectomy ?

CRITICAL POINTS

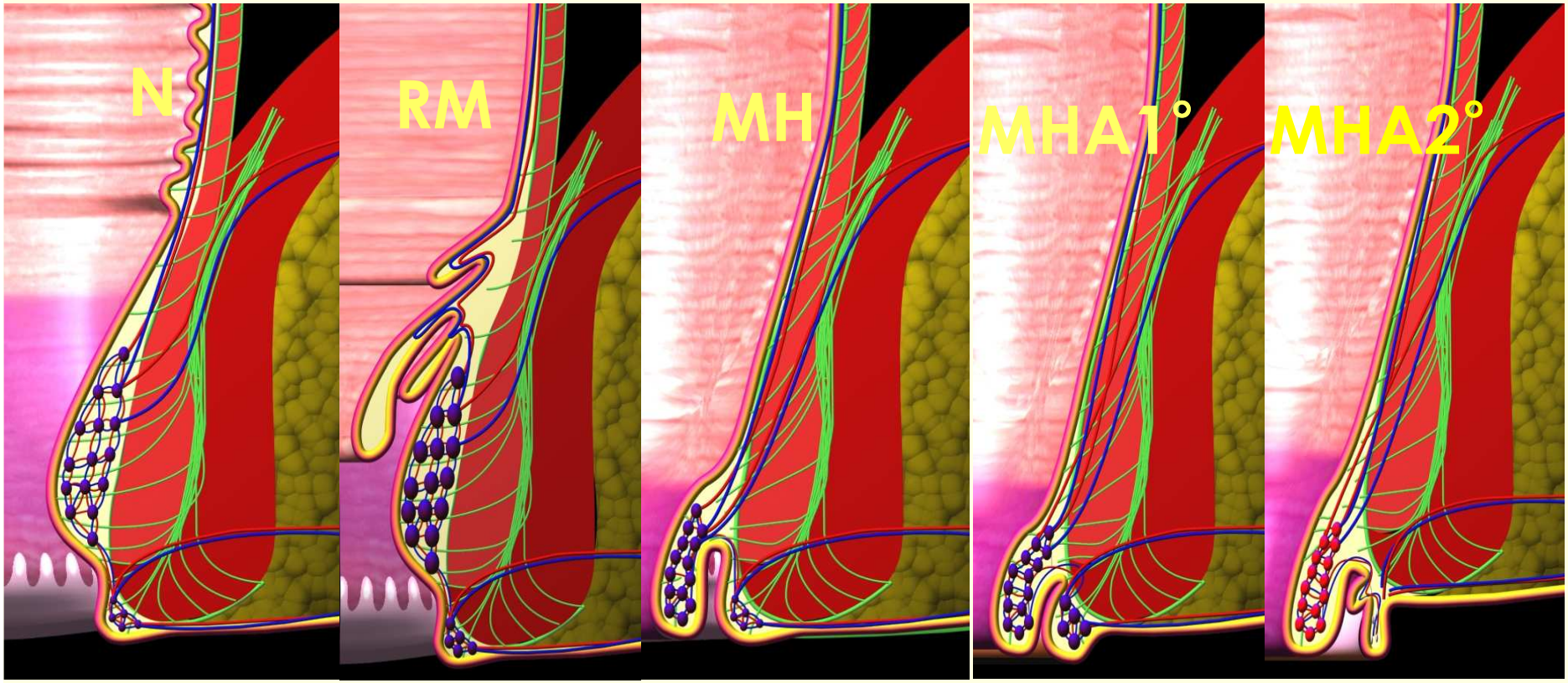
1) Is adeguate the Goligher classification to define this new surgical target, the rectal prolapse?
2) Must we create a corrispondence between anatomical rectal lesion and type of surgical technique?
3) Residual Rectal Prolapse
   - What's exactely the dimension? In all stapled procedure?
   - What diagnostic or surgical approach to prevent?
   - What resolution?

Hemorrhoidal disease
Grading

- I° internal, no prolapsing
- II° prolapsing, come back spontaneously
- III° prolapsing, need digital reduction
- IV° stable prolapsed

Goligher JC. Haemorrhoids or piles
Surgery of the anus, rectum and colon. 4th ed. London:Bailliere Tindall, 1985:98-149

RECTOANAL PROLAPSE MORPHOLOGY



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S.H.

Residual Rectal Prolapse

12.5% - 25%

- Nisar PJ et al. , DCR 2004, 47; 1837-1845

  11.8% after S.H. *vs*. 0 after C.H. (15.6 months F.U.)

- Jayaraman S.et al DCR 2007; 50:1297-1305
- Tjandra J. DCR 2007; 50:878-892
- National Institute for Health and Clinical Excellence, Sept. 2007
- Health Technol Assess. 2008 Apr;12(8):1-193
- Laughlan K et al Int J Colorectal Dis. 2009 Mar;24(3):335-44
- J. Burch*, et al Colorectal Disease, 2009 : 11, 233–244
- Thaha MA et al : Gut. 2009 May;58(5):668-78

STAPLED HEMORRHOIDOPEXY

Table 2.
Summary of Meta-Analysis

Outcome	No. of Studies	No. of Participants	Statistical Methods	Effect Size	*P* Value Overall Effect
Total complications	3	214	OR (95% CI)	0.66 (0.35, 1.22)	0.18
Immediate postoperative hemorrhage	7	408	OR (95% CI)	2.90 (1.18, 7.08)	0.02
Hemorrhage one to two weeks postoperative	6	408	OR (95% CI)	0.37 (0.22, 0.62)	0.0001
Additional procedures for hemorrhage	13	1052	OR (95% CI)	1.11 (0.59, 2.07)	0.71
Requirement for transfusion	2	120	OR (95% CI)	0.32 (0.03, 3.19)	0.3
Sphincter damage	2	149	OR (95% CI)	0.68 (0.18, 2.55)	0.6
Recurrent prolapse	9	666	OR (95% CI)	3.64 (1.4, 9.47)	0.008
Thrombosed hemorrhoids	6	578	OR (95% CI)	0.91 (0.37, 2.24)	0.8
Persistent wound discharge	2	149	OR (95% CI)	0.75 (0.32, 1.75)	0.5
Anal stenosis	8	668	OR (95% CI)	0.76 (0.35, 1.64)	0.5
Residual skin tags	7	636	OR (95% CI)	1.37 (0.77, 2.44)	0.3
Anal fissure	4	326	OR (95% CI)	0.78 (0.19, 3.24)	0.7
Acute urinary retention	12	945	OR (95% CI)	0.88 (0.56, 1.38)	0.6
Operation time (min)	6	585	WMD (random) (95% CI)	−12.82 (−22.61, −3.04)	0.01
Inpatient stay (days)	5	501	WMD (random) (95% CI)	−1.02 (−1.47, −0.57)	0.0001
Return to normal activity (days)	5	505	SMD (random) (95% CI)	−4.03 (−6.95, −1.1)	0.007
Pain score 24 hours after surgery	4	483	WMD (random) (95% CI)	−2.53 (−4.64, −0.42)	0.02

OR = odds ratio; CI = confidence interval; WMD = weighted mean difference; SMD = standardized mean difference.

Nisar PJ et al. , DCR 2004, 47; 1837-1845

STAPLED HEMORRHOIDOPEXY

Table 3.
Pooled Data on Postoperative Complications

Study	No. of Patients	Hemorrhoid Thrombosis	Wound Discharge	Anal Stenosis	Residual Skin Tags	Anal Fissure	Urinary Retention	Recurrent Prolapse
Cheetham *et al.* (22)	Stp: 15	NR	NR	NR	NR	Stp: 1	Stp: 0	Stp: 2
	Cnv: 16	NR	NR	NR	NR	Cnv: 0	Cnv: 0	Cnv: 1
Kairaluoma *et al.* (18)	Stp: 30	NR	NR	Stp: 1	Stp: 11	NR	Stp: 3	Stp: 5
	Cnv: 30	NR	NR	Cnv: 1	Cnv: 12	NR	Cnv: 0	Cnv: 0[a]
Ortiz *et al.* (19)	Stp: 27	Stp: 1	NR	Stp: 0	Stp: 7	Stp: 0	Stp: 6	Stp: 7
	Cnv: 28	Cnv: 0	NR	Cnv: 0	Cnv: 7	Cnv: 0	Cnv: 10	Cnv: 0[a]
Rowsell *et al.* (17)	Stp: 11	NR	NR	NR	NR	NR	NR	NR
	Cnv: 11	NR	NR	NR	NR	NR	NR	NR
Ho *et al.* (14)	Stp: 57	Stp: 1	Stp: 8	Stp: 5	Stp: 2	NR	Stp: 1	NR
	Cnv: 62	Cnv: 0	Cnv: 14	Cnv: 5	Cnv: 2	NR	Cnv: 0	NR
Palimento *et al.* (21)	Stp: 37	NR	NR	NR	NR	NR	Stp: 5	NR
	Cnv: 37	NR	NR	NR	NR	NR	Cnv: 8	NR
Smyth *et al.* (9)	Stp: 20	NR	NR	NR	NR	NR	NR	Stp: 0
	Cnv: 16	NR	NR	NR	NR	NR	NR	Cnv: 0
Brown *et al.* (5)	Stp: 15	NR	Stp: 3	Stp: 1	NR	NR	NR	NR
	Cnv: 15	NR	Cnv: 1	Cnv: 1	NR	NR	NR	NR
Ganio *et al.* (13)	Stp: 50	NR	NR	NR	NR	NR	Stp: 3	NR
	Cnv: 50	NR	NR	NR	NR	NR	Cnv: 5	NR

Stp = stapled hemorrhoidoplexy; Cnv = conventional hemorrhoidectomy; NR = not recorded.
[a] Statistically significant trial result.

Nisar PJ et al. , DCR 2004, 47; 1837-1845

Hemorrhoidectomy vs Lord's method
17 years follow-up

	Milligan - Morgan	Lord operation	Anal dilation
Patients	35	39	44
Recurrent Hemor.	26 %	46 %	39%
Re-treatment	11 %	23%	18%
Bleeding	43 %	31 %	34 %
Fecal incontinen.	14%	52 %	36.6%
Symptoms free	52 %	23 %	27 %

Konsten J, Baeten CG, DCR 2000, 43:503-506

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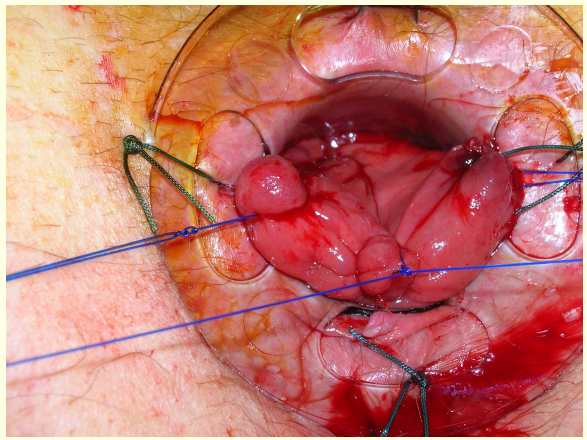
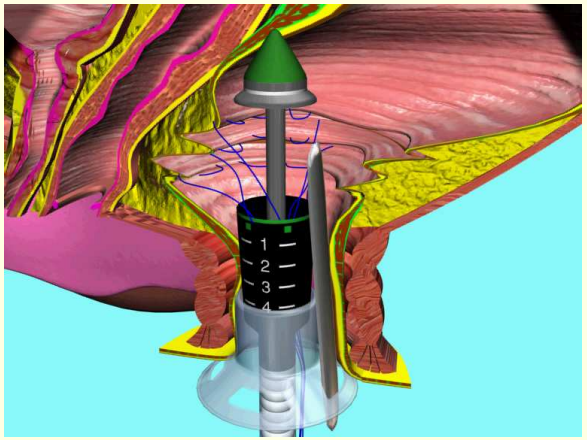
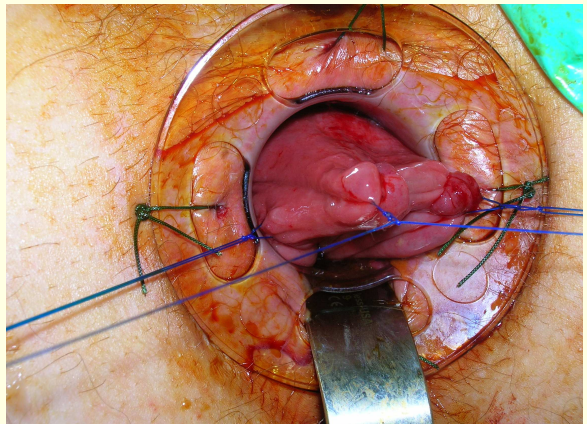
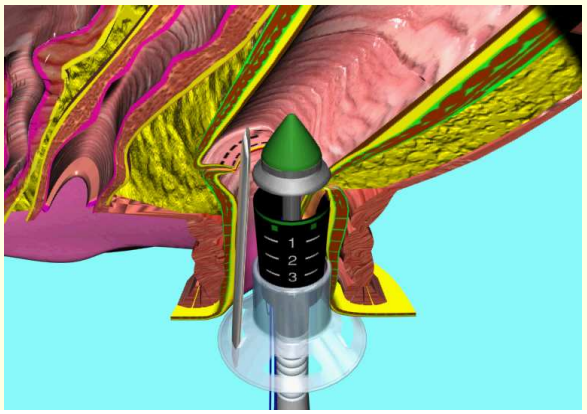
D-PPH Surgery









1) Boccasanta P,Venturi M, Roviaro G Int J Colorectal Dis. 2007 Mar;22(3):245-51
2) Papagrigoriadis S, Vardonikolaki A Acta Chir Belg. 2006 Nov-Dec;106(6):717-8
3) Naldini G. et al., Int J Colorectal Dis 2009, 24 : 1383–1387

STARR vs Stapled Anopexy

Table 3 Defecographic data in patients submitted to stapled anopexy (SA) or Starr operation: values expressed as mean (SD)

Finding	Preoperative		Postoperative 6 months	
	SA (n=34)	Starr (n=34)	SA (n=34)	Starr (n=34)
Intussusception thickness (mm):				
Anterior	4.5 (0.9)	4.4 (0.9)	4.2 (0.6)	3.6 (0.6)
Posterior	3.5 (0.7)	3.5 (0.6)	3.4 (0.5)	3.0 (0.5)
Point of take off (mm):				
Anterior	55.7 (9.9)	55.4 (9.9)	51.7 (7.9)	43.4 (6.0)
Posterior	56.8 (9.8)	57.1 (9.7)	51.9 (8.5)	46.8 (6.5)
Intussusception descent (mm):				
Anterior	22.2 (6.0)	22.0 (6.6)	20.9 (5.8)	17.7 (4.5)
Posterior	25.9 (5.8)	25.6 (5.5)	22.7 (5.7)	18.6 (4.6)

Mann-Whitney U test: no differences between the two groups were found preoperatively, while all parameters significantly improved after Starr ($p<0.001$ vs $p>0.06$ after SA).

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STARR vs Stapled Anopexy

Table 9 Overall patient satisfaction after stapled anopexy (SA) or Starr operation: values are expressed as number of patients (%)

	6 months		
	SA (n=34)	Starr (n=34)	p^a
Excellent	4 (11.7)	10 (29.4)	0.24
Good	7 (20.6)	14 (41.2)	0.27
Fairly good	14 (41.2)	8 (23.5)	0.38
Poor	9 (26.5)	2 (5.9)	0.04

[a] Chi square test with Yates' continuity correction

Table 8 Incidence of residual disease (skin tags, rectal prolapse) in patients submitted to stapled anopexy (SA) or Starr operation: values expressed as n (%)

	SA (n=34)	Starr (n=34)	p^a
Skin-tags	20 (58.8)	8 (23.5)	0.007
Rectal prolapse	10 (29.4)	2 (5.9)	0.03

[a] Chi square test with Yates' continuity correction

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STARR vs Stapled Anopexy

- FU 8.1 +/− 2.0 and 7.9 +/−1.8 months for the SA and STARR

- Residual disease was significantly higher in the SA (29.4 vs 5.9 p=0.007)

- Lower incidence of residual skin-tags was found after STARR (23.5% vs 58.8 after SA, p=0.03)

- Op.time and transient fecal urgency were significantly higher in the STARR group

- SA was followed by a significantly higher incidence of poor results at the overall patient satisfaction index (p=0.04)

-All patients with residual disease showed prolapsed tissue over half the length of the anal dilator at the time of the operation

- **Anal dilator can be used for selecting the surgical technique**

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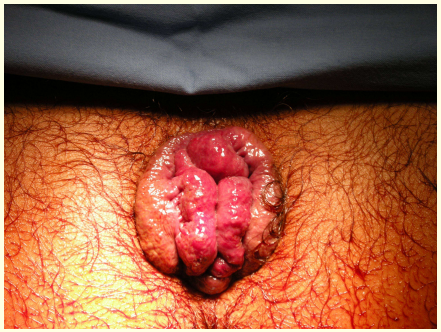
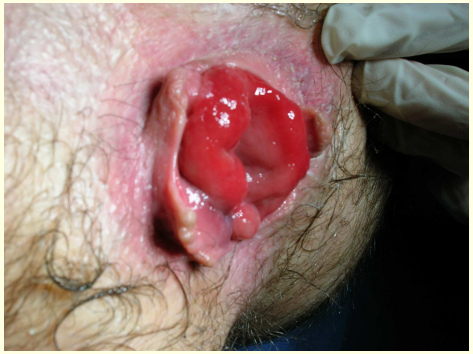
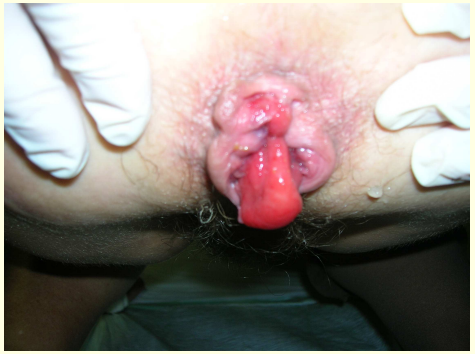
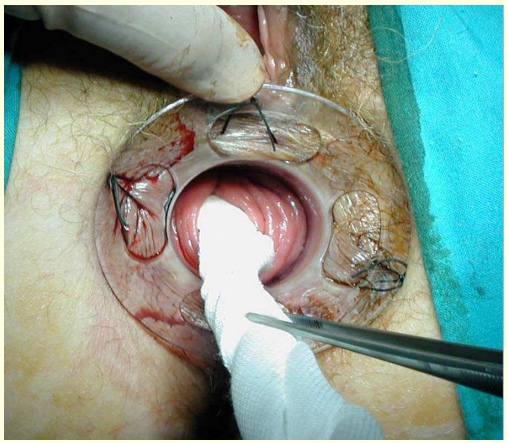
Presence and Measurement of Internal Rectal Prolapse

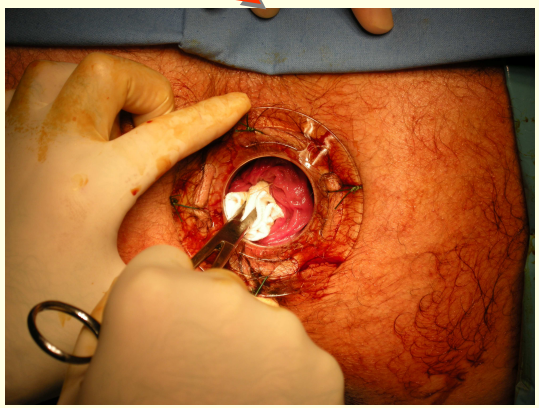
Decision Making











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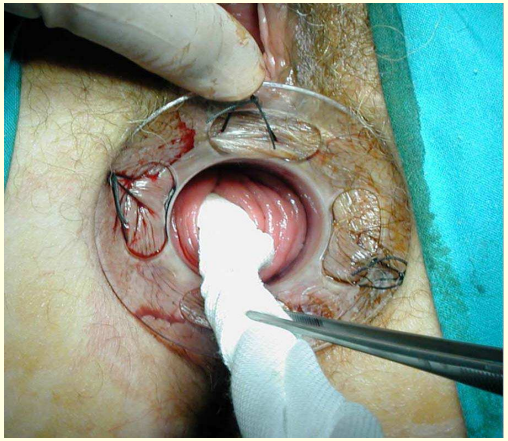
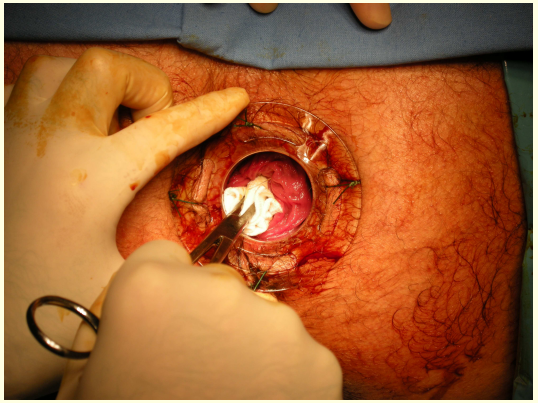
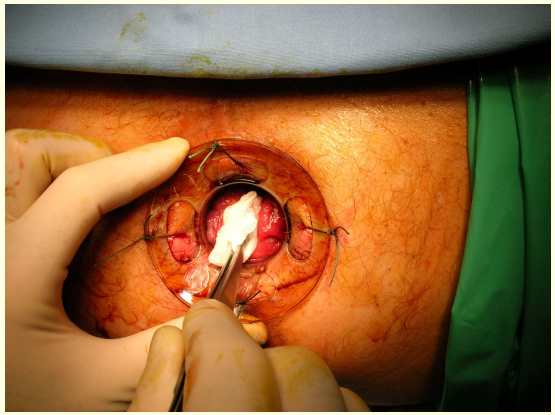
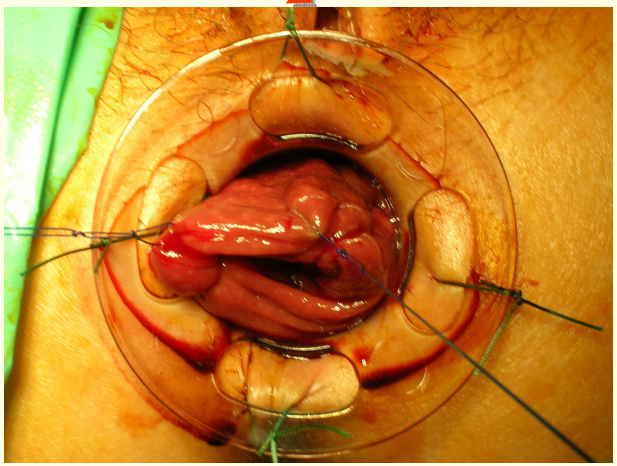
Presence and Measurement of Internal Rectal Prolapse

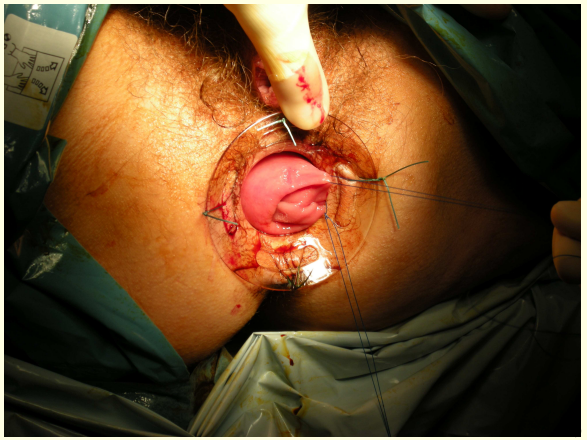
Decision Making





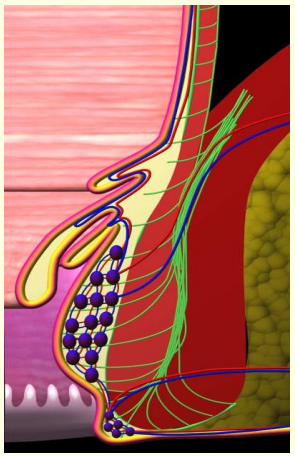




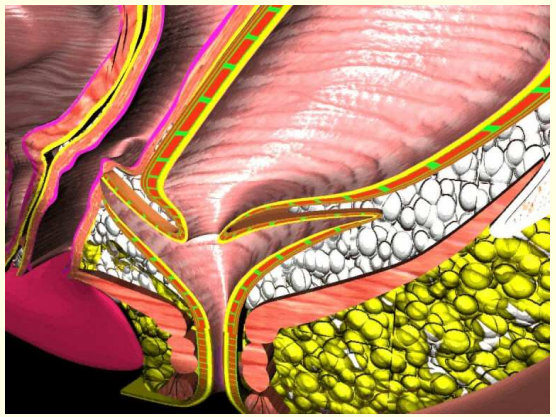


Montecchio Emilia

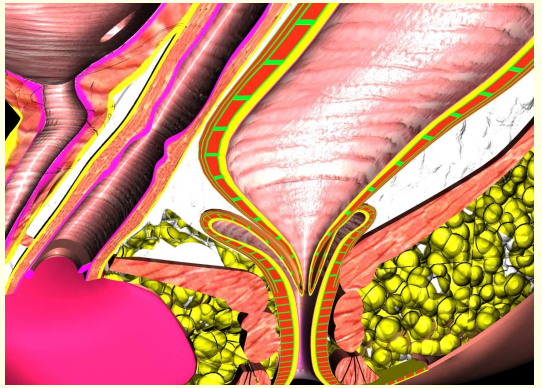
Rectal Prolapse Progression
- Unitary Vision -



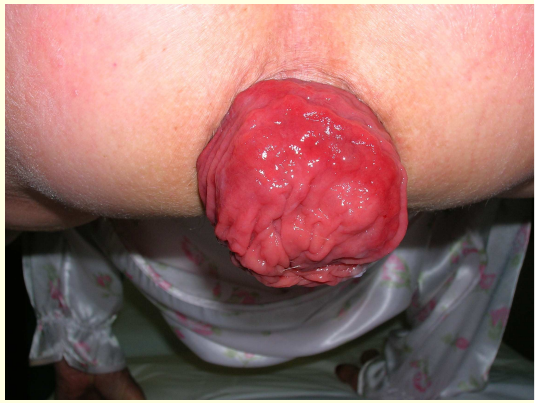
Rectal mucosa (RM)



Recto-rectal intussusception



Recto-anal Intussusception



External Prolapse

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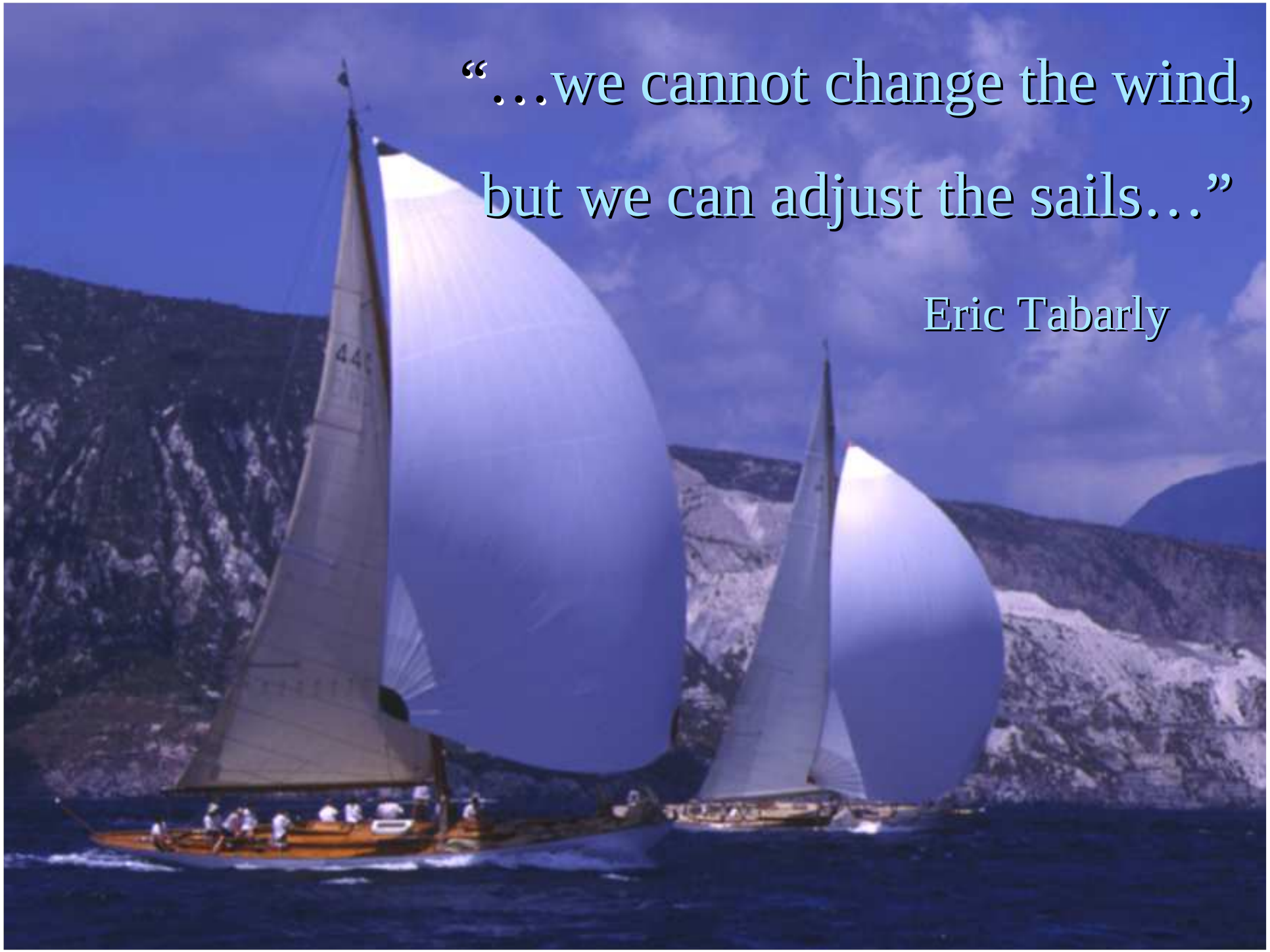
Natural history of internal rectal prolapse

	Grade of rectal prolapse	Radiological characteristics of rectal prolapse
Internal (RI)		
Recto-rectal Intussusception (RRI)	I (high rectal)	Descends no lower than proximal limit of the rectocele
	II (low rectal)	Descends into the level of the rectocele, but not onto sphincter/anal canal
Recto –anal Intussusception (RAI)	III (high anal)	Descends onto sphincter/anal canal
	IV (low anal)	Descends into sphincter/anal canal
External (ERP)		
External rectal prolapse (ERP)	V (overt rectal prolapse)	Protrudes from anus

N. A. Wijffels et al. :What is the natural history of internal rectal prolapse? ColoRectal. Disease, 2010, 12, 822–830

CONCLUSION

1. SA - Worldwide diffusion (n.operations, studies,ect.)
2. Crucial Point : Rectal Prolapse Management
3. Research
    1. New integrated model of rectal-anal prolapse
    2. Prevent Residual Rectal Prolaspse (D-PPH solution ? New device ?)
4. Selected criterias to increase outcome


"…we cannot change the wind,
but we can adjust the sails…"
Eric Tabarly

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