

Montefiore
THE UNIVERSITY HOSPITAL

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Optimal Management of Rectal Prolapse

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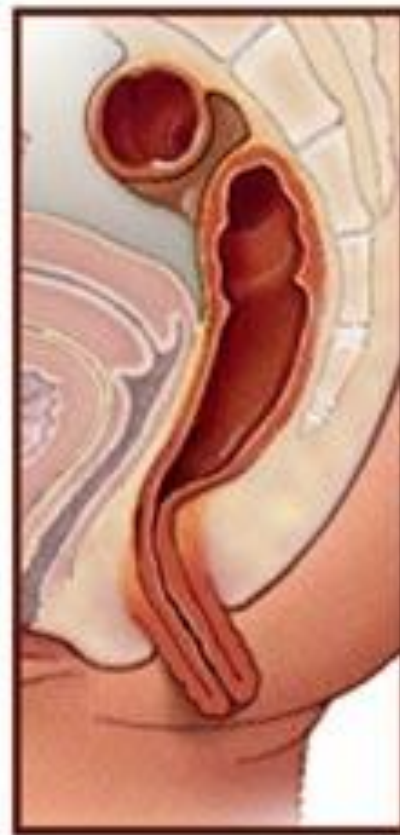
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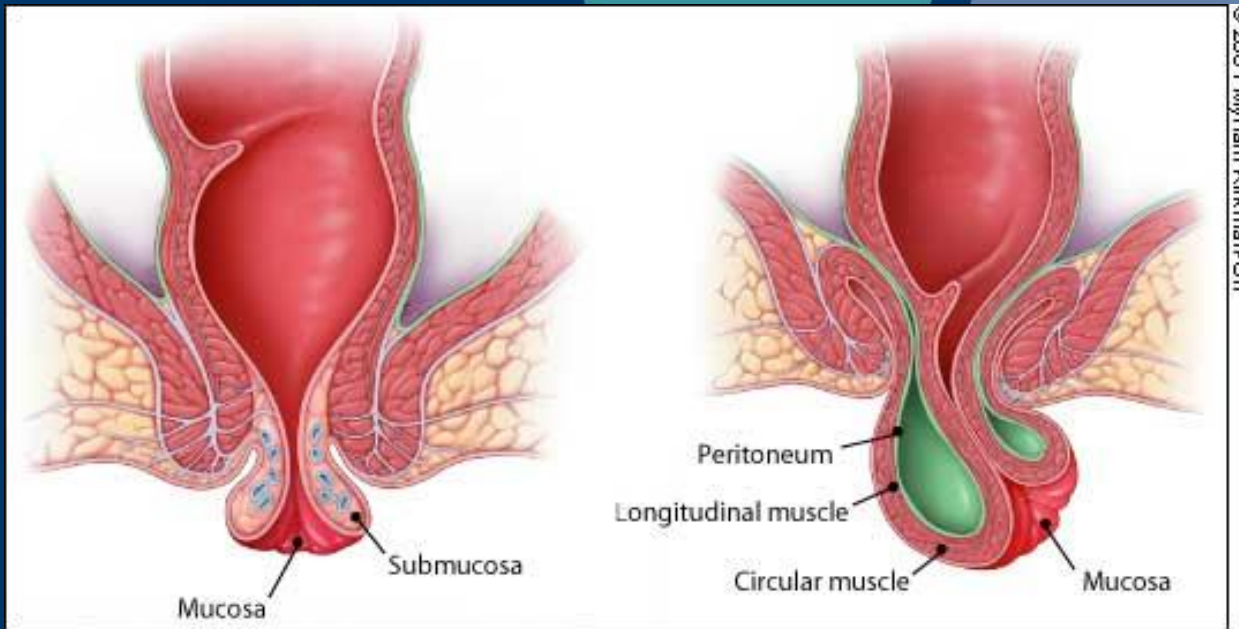
**Normal
rectum**



**Rectal
prolapse**

Rectal Prolapse

- Recognized as early as 1500 BC ¹
- Intussusception of the rectum.
 - Complete → full-thickness protrusion of the rectum through the anus
 - Mucosal → protrusion of the mucosa only, with the muscular layers of the rectum in place
 - Occult → does not extend beyond the anal canal
 - often not associated with any symptoms;
 - may be a precursor to complete prolapse.



Rectal Prolapse

- Exact pathophysiology remains unclear
- Factors associated with its development
 - Constipation
 - Female gender
 - Postmenopausal status
 - Previous anorectal surgical procedures

Anatomic Abnormalities Associated with Rectal Prolapse

- Deep cul-de-sac
- Redundant rectosigmoid colon
- Elongated mesorectum
- Diastasis of levator ani
- Perineal descent
- Herniation of pelvic organs through pelvic funnel
- Patulous anus
- Loss of support of uterus and bladder

Symptoms of Rectal Prolapse

- Sensation of protrusion of tissue through anus
- “Persistent hemorrhoids”
- Mucoid or bloody discharge
- Constipation
- Straining
- Incontinence
- Incomplete evacuation
- Perineal pressure
- Excoriation of perianal skin

Rectal Prolapse

Evaluation

- History
 - Defecatory history
 - Medical History / Comorbidity
 - Prior Surgical procedures
- Fecal incontinence
 - 30-80% of patients
 - +/- sphincter defect → Anal Ultrasound
→ Electromyography
 - +/- pudendal neuropathy → PNTML

Rectal Prolapse

- Constipation
 - 50% of patients
 - Causes
 - Electrolyte imbalance → Calcium
 - Hormonal → hypothyroidism
 - Colonic inertia → Colonic Transit Study
 - Outlet obstruction → Defecogram (may alter treatment algorithm)
 - Presence may indicate resection rectopexy
 - Advocates: pexy alone may worsen constipation ^{1,2}

1- Luukkonen et al. Int J CRD, 1992

2- Tjandra et al. DCR, 1993

Rectal Prolapse

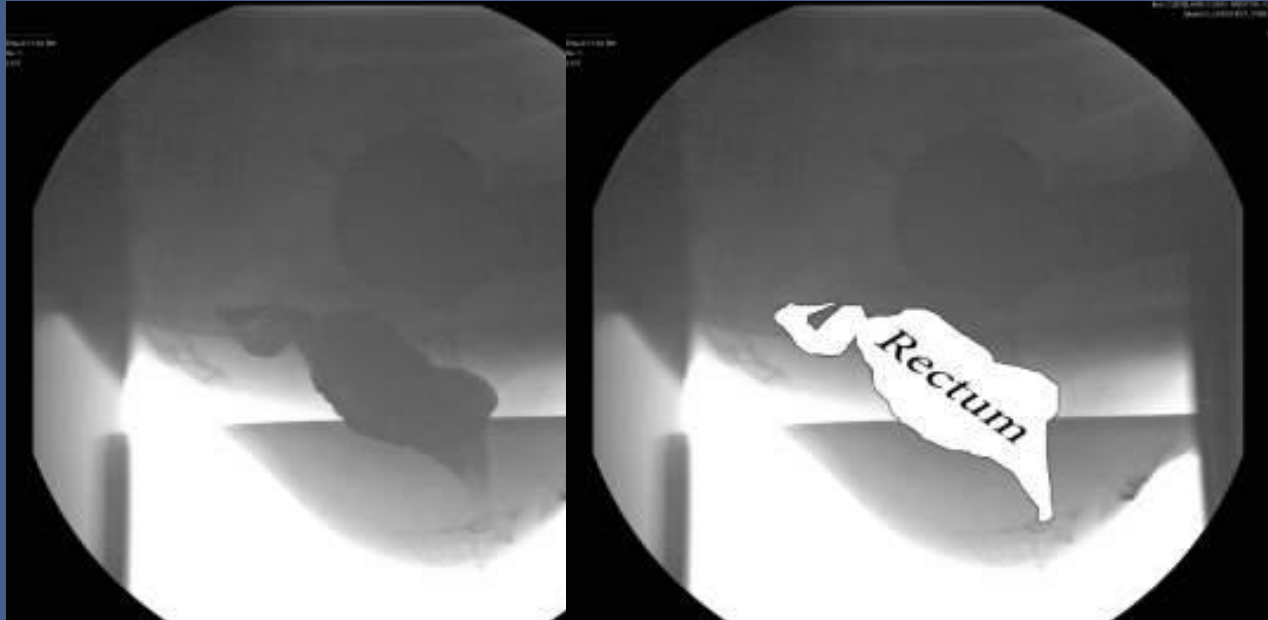
- Patient positioning

→ To reproduce prolapse during examination

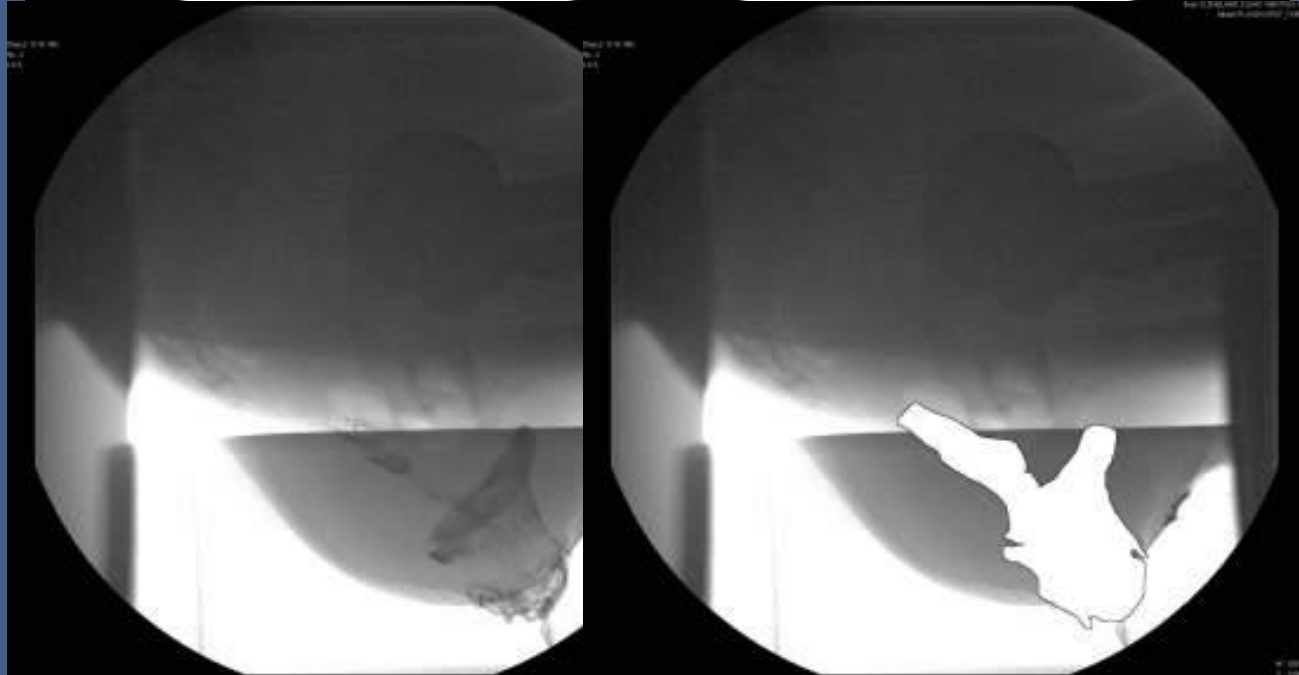
- Seated on a Commode
- Additional investigations:
 - Colonoscopy

Cinedefecography of Rectal Prolapse

Rest



Push



Surgical treatment

- Choice of Procedure
 - No perfect procedure
- The choice of operation is determined by
 - Patient's age, gender, operative risk
 - Associated pelvic floor defects
 - Degree of incontinence +/- sphincter defect
 - History of constipation
 - Surgeon's experience

Rectal Prolapse

- **Repair strategies:**
 - Narrowing of the anal orifice
 - Obliteration of the pouch of Douglas
 - Restoration of the pelvic floor
 - Resection of the prolapsing segment
 - Suspension of the prolapsing rectum



Surgical Treatment

- Perineal procedures
 - Anal encirclement (Thiersch wire procedure)
 - Mucosal sleeve resection (Delorme procedure)
 - Perineal rectosigmoidectomy (Altemeier procedure)

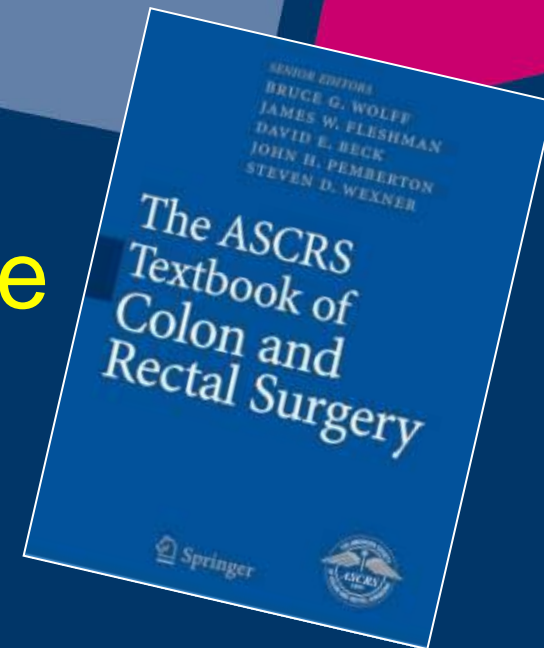
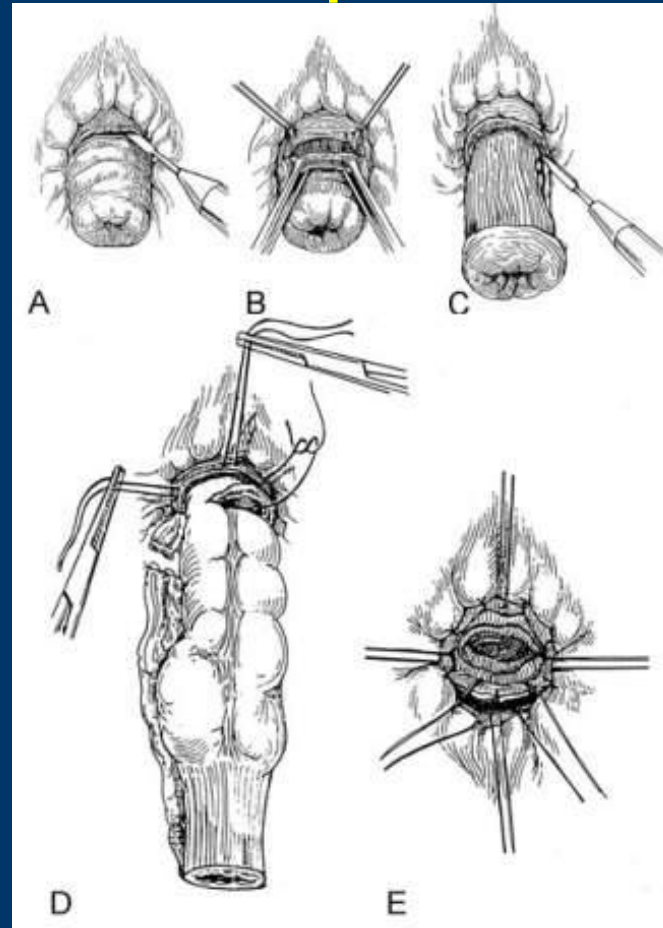
Surgical Treatment

- Transabdominal procedures
 - Rectopexy
 - Suture vs. Resection
 - Anterior sling (Ripstein procedure)
 - Ivalon sponge (posterior rectopexy)
 - Posterior sling (modified Ripstein procedure)
 - Resection rectopexy (Frykman-Goldberg procedure)
 - Laparoscopic repairs
 - Resection rectopexy
 - Suture rectopexy
 - Rectopexy with mesh

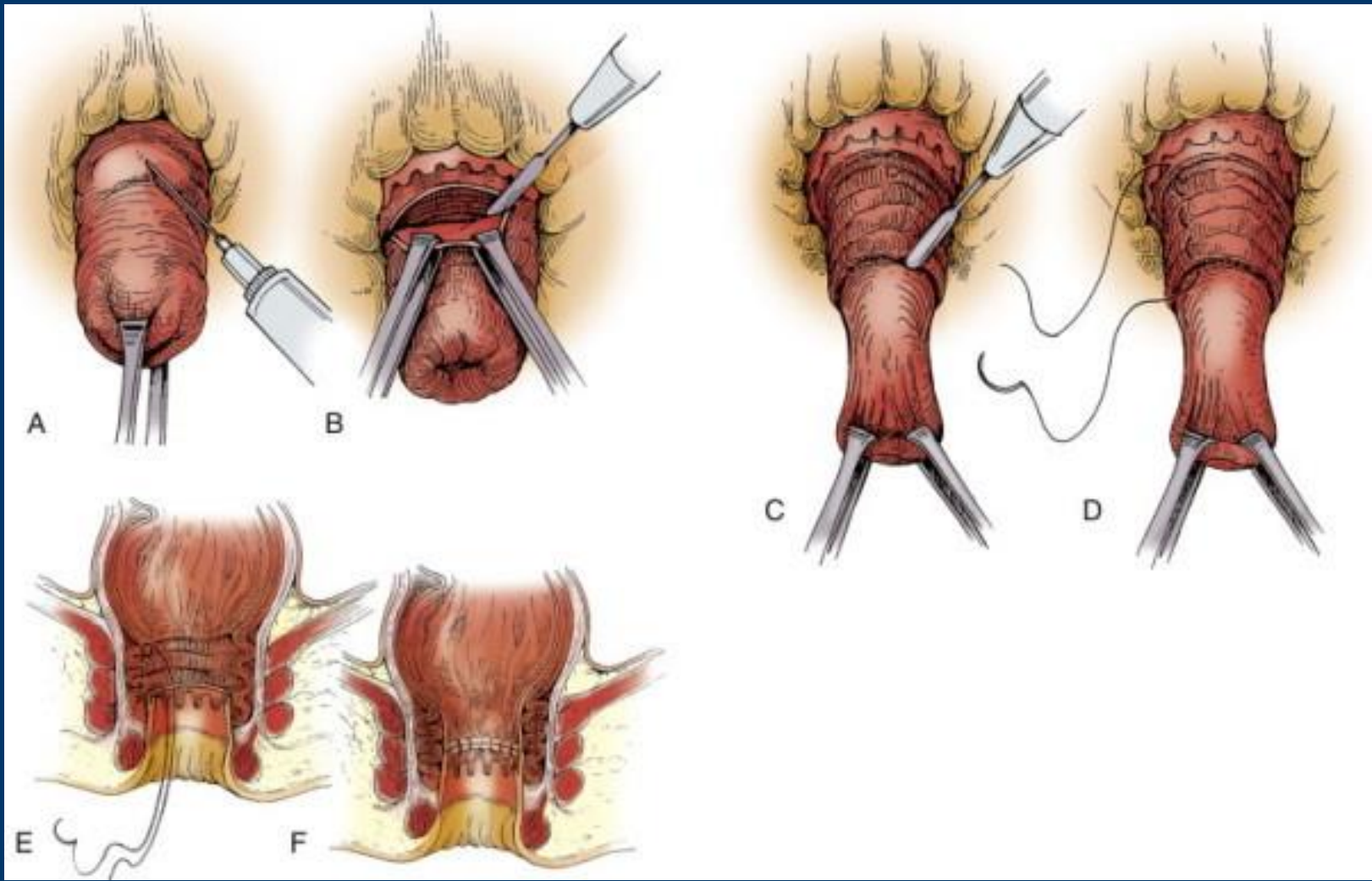
Rectal Prolapse

Perineal approach

Altemeier procedure



Vernava et al. The ASCRS textbook of Colon and Rectal Surgery. 2007



Rectal Prolapse

Perineal procedures

Results of Altemeier procedure

Author/year	No. of patients	Mortality (%)	Continenence (%)	Constipation (%)	Recurrence (%)
Altemeier, 1971	106	0	NS	NS	3
Prasad, 1986	25	0	88	NS	0
Williams, 1992	56	0	46	NS	6
Johansen, 1993	20	1	21	NS	0
Ramanujam, 1994	72	0	67	NS	4
Deen, 1994	10	0	80	NS	1
Agachan, 1997	32	0	NS	NS	4
Takesue, 1999	10	0	NS	NS	0
Kim, 1999	183	NS	53	61	29

Perineal rectosigmoidectomy for rectal prolapse: role of levatorplasty

- Aim: compare outcomes of perineal rectosigmoidectomy with and without levatorplasty
- 1989 to 1999
- 109 patients (10 men)
- 120 procedures for rectal prolapse
- Mean age: 75.7 (23-94) years
- Mean follow up: 28 (0.4-126.4) months

Perineal rectosigmoidectomy for rectal prolapse: role of levatorplasty

- Recurrence rate
 - With Levatorplasty → 7.7% (P=0.049)
 - Without Levatorplasty → 20.6%
- Interval for recurrence
 - With Levatorplasty → 45.5 months (P<0.001)
 - Without Levatorplasty → 13.3 months
- Both groups → improved continence

Comparison of 3 perineal procedures

- Aim

compare the short-term outcome of Delorme's procedure and perineal rectosigmoidectomy (with and without levatorplasty) in patients with rectal prolapse

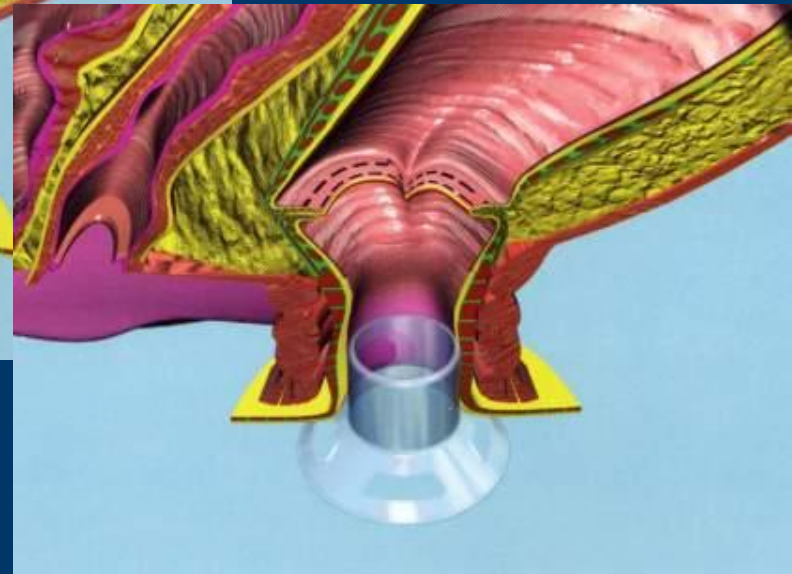
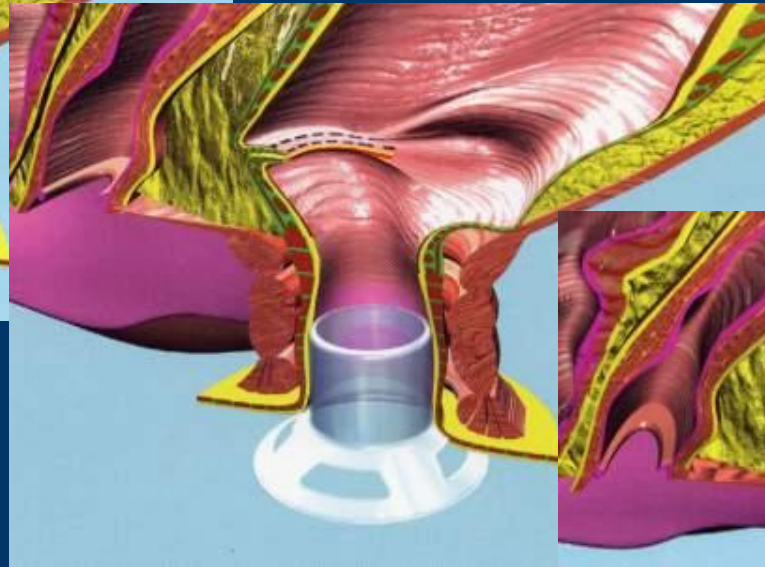
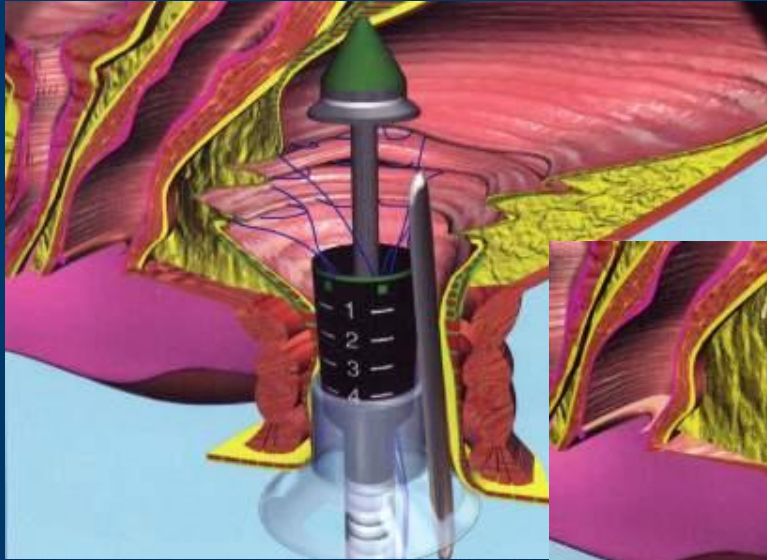
- 61 patients (55 women)

- Mean age: 75 (range, 48-101) years

Comparison of 3 perineal procedures

Procedure	Recurrence
Delorme procedure	38%
Perineal rectosigmoidectomy	13%
Perineal rectosigmoidectomy with levatorplasty	5%

Stapled Transanal Rectal Resection (STARR)



STARR to reverse the anatomic disorders of pelvic floor dyssynergia

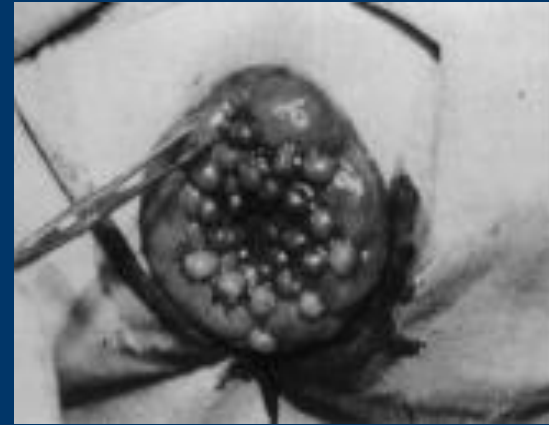
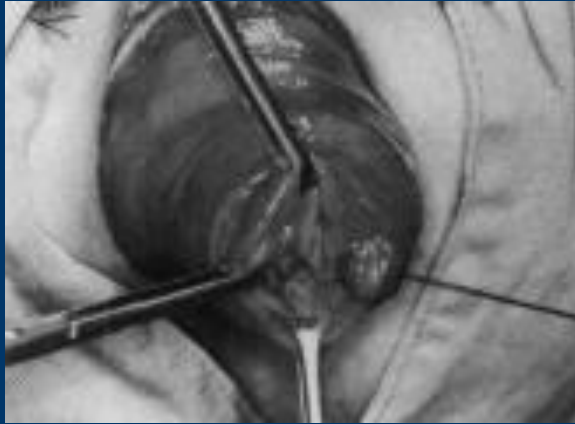
- 16 patients (12 female)
- All had evacuation difficulties
- Pre-operative dynamic defecography:
 - 12 patients rectoanal intussusception > 2 cm
 - 8 rectocele 2-4 cm
 - 4 rectocele > 4 cm
 - 4 patients rectoanal intussusception 1-2 cm
 - Rectocele < 2 cm

STARR to reverse the anatomic disorders of pelvic floor dyssynergia

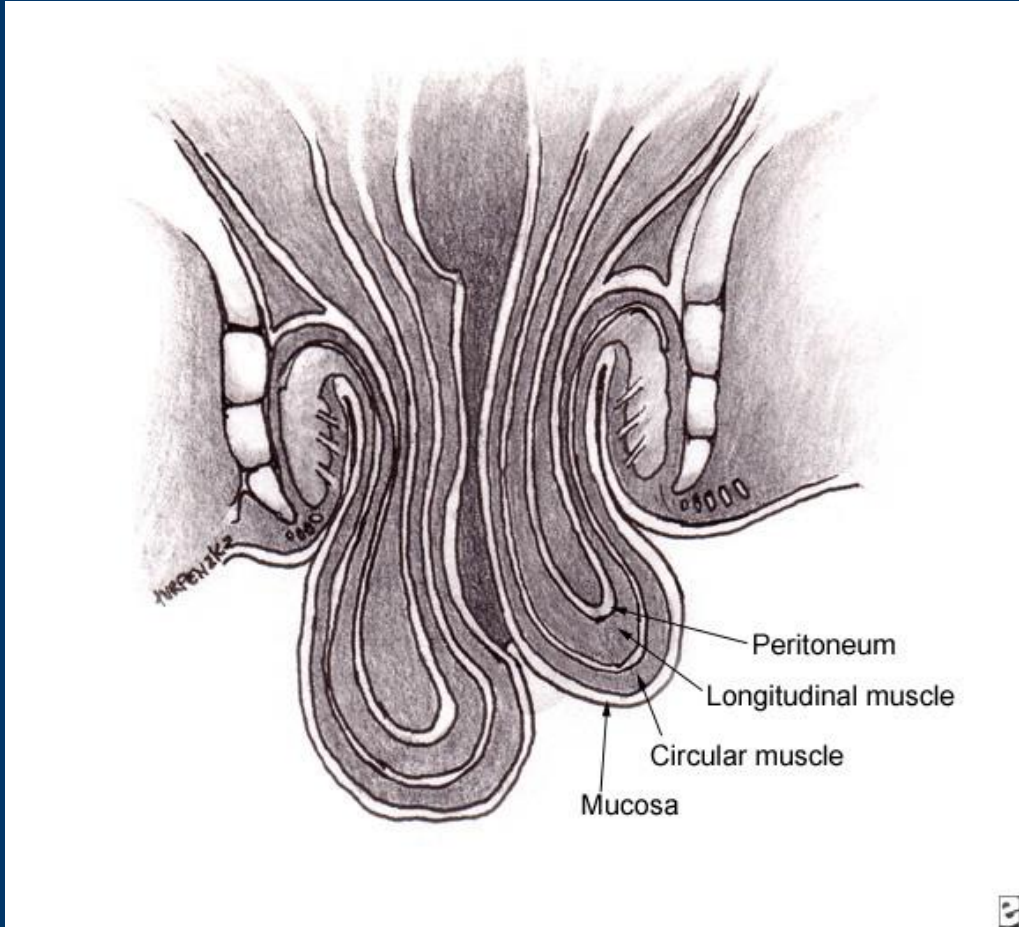
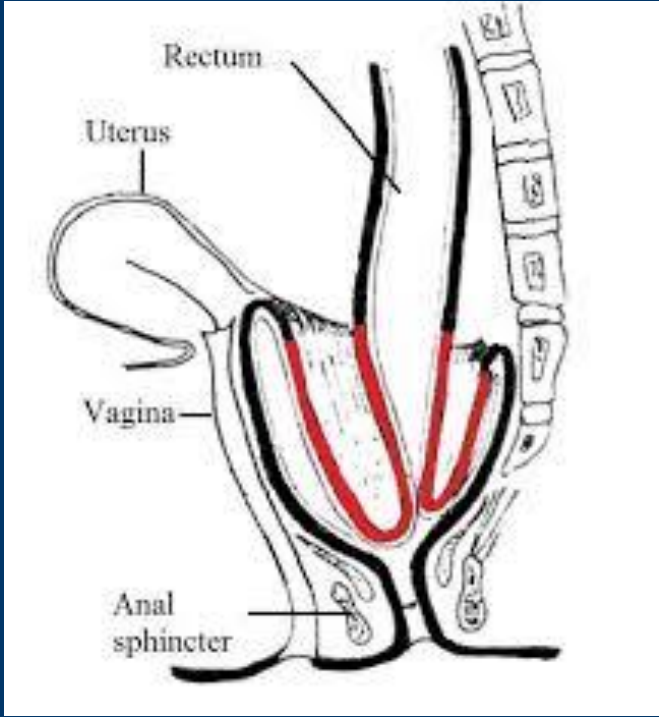
- Obstructive defecation symptoms:
 - Remained in 7 → anismus on anal manometry
 - Improved in 6
 - Disappeared in 3
- Immediately after surgery
 - Urgency
 - Frequent small motions
 - Resolved over 3-5 weeks

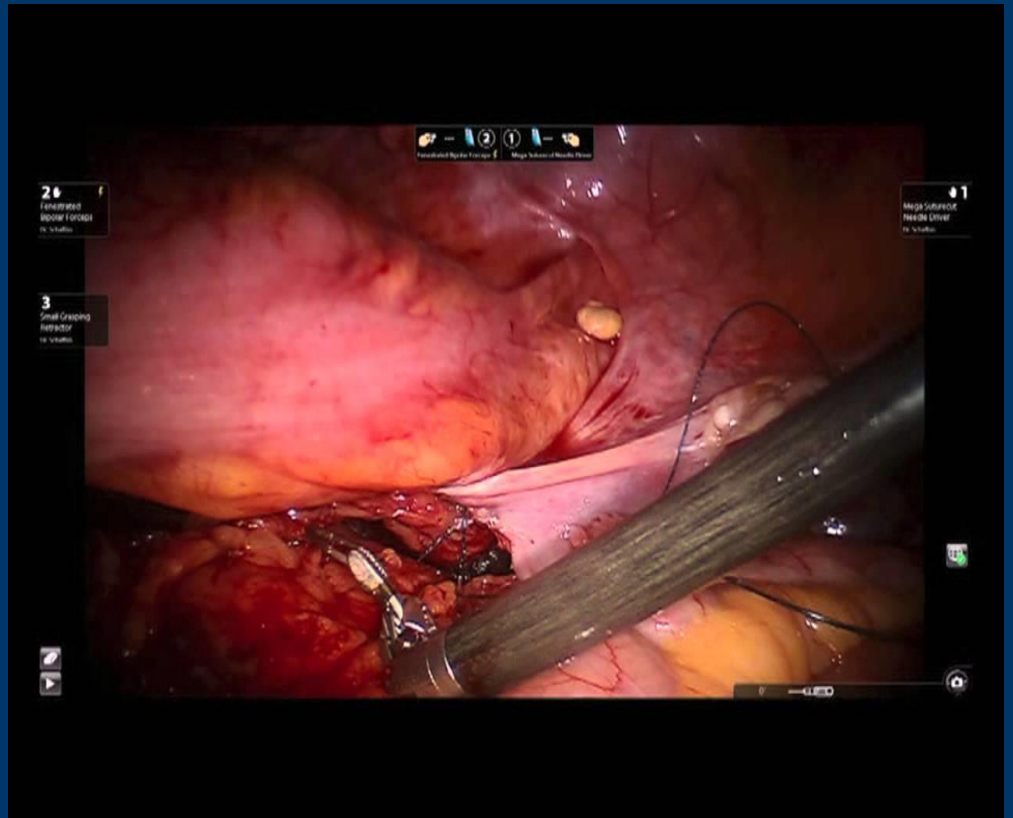
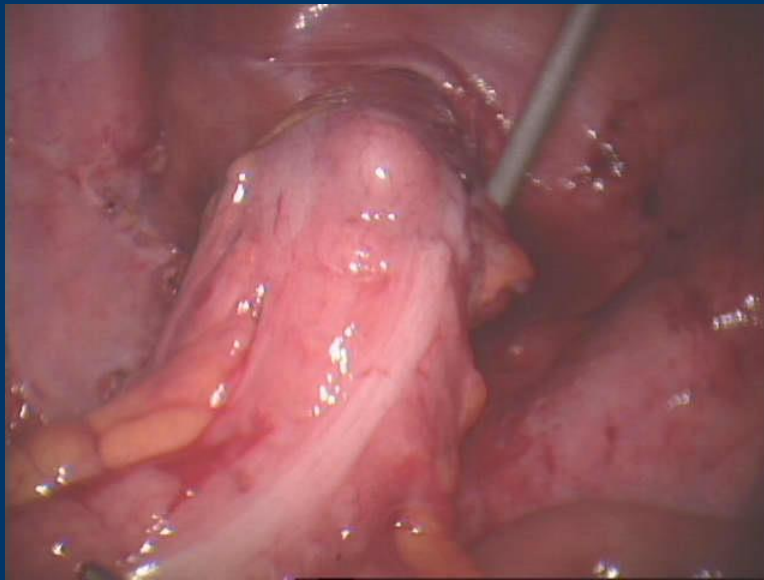
Other procedures

Gant-Miwa-Thiersch-Yoshida Method for Complete Rectal Prolapse

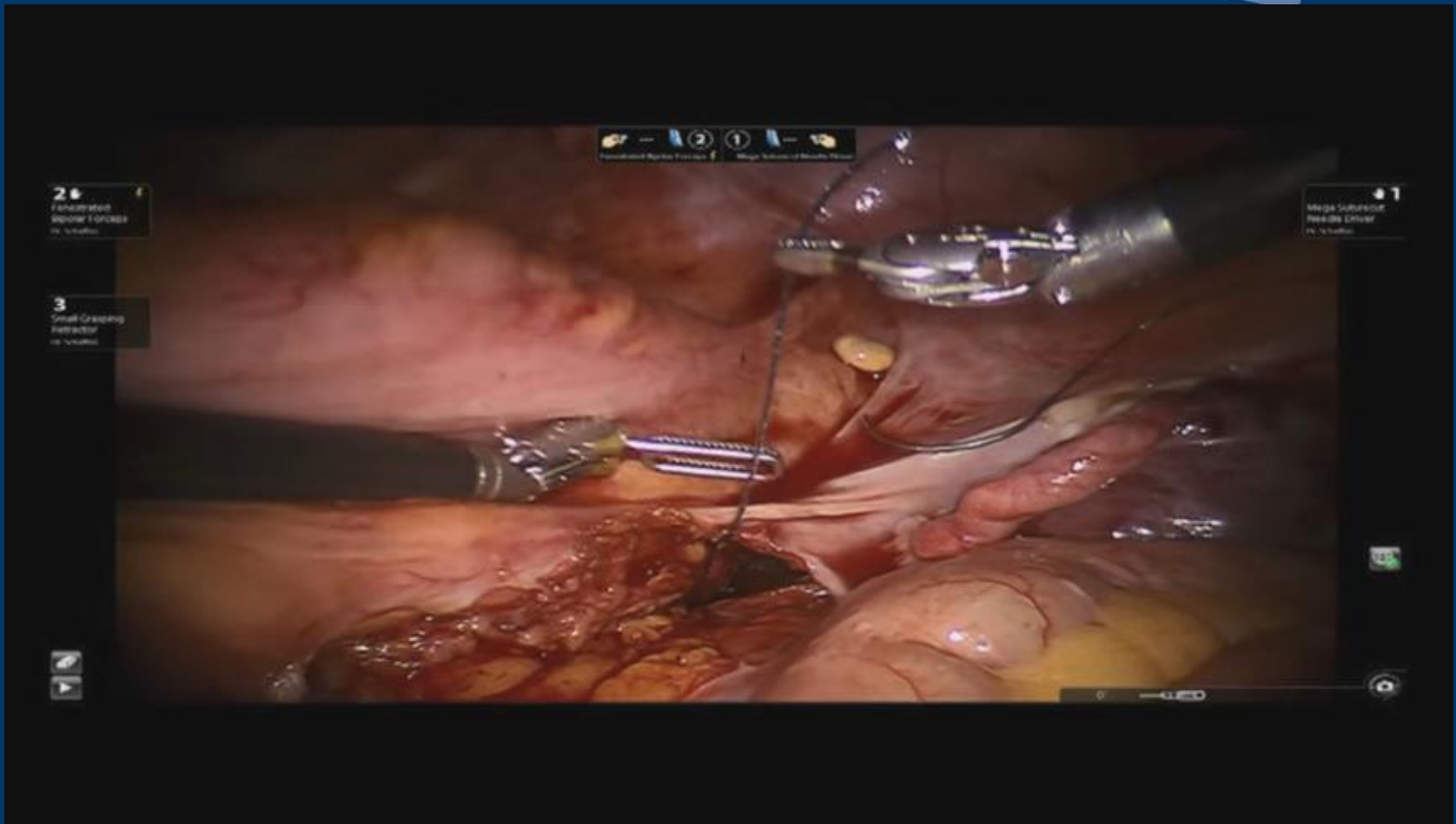


ABDOMINAL PROCEDURE: RECTOPEXY

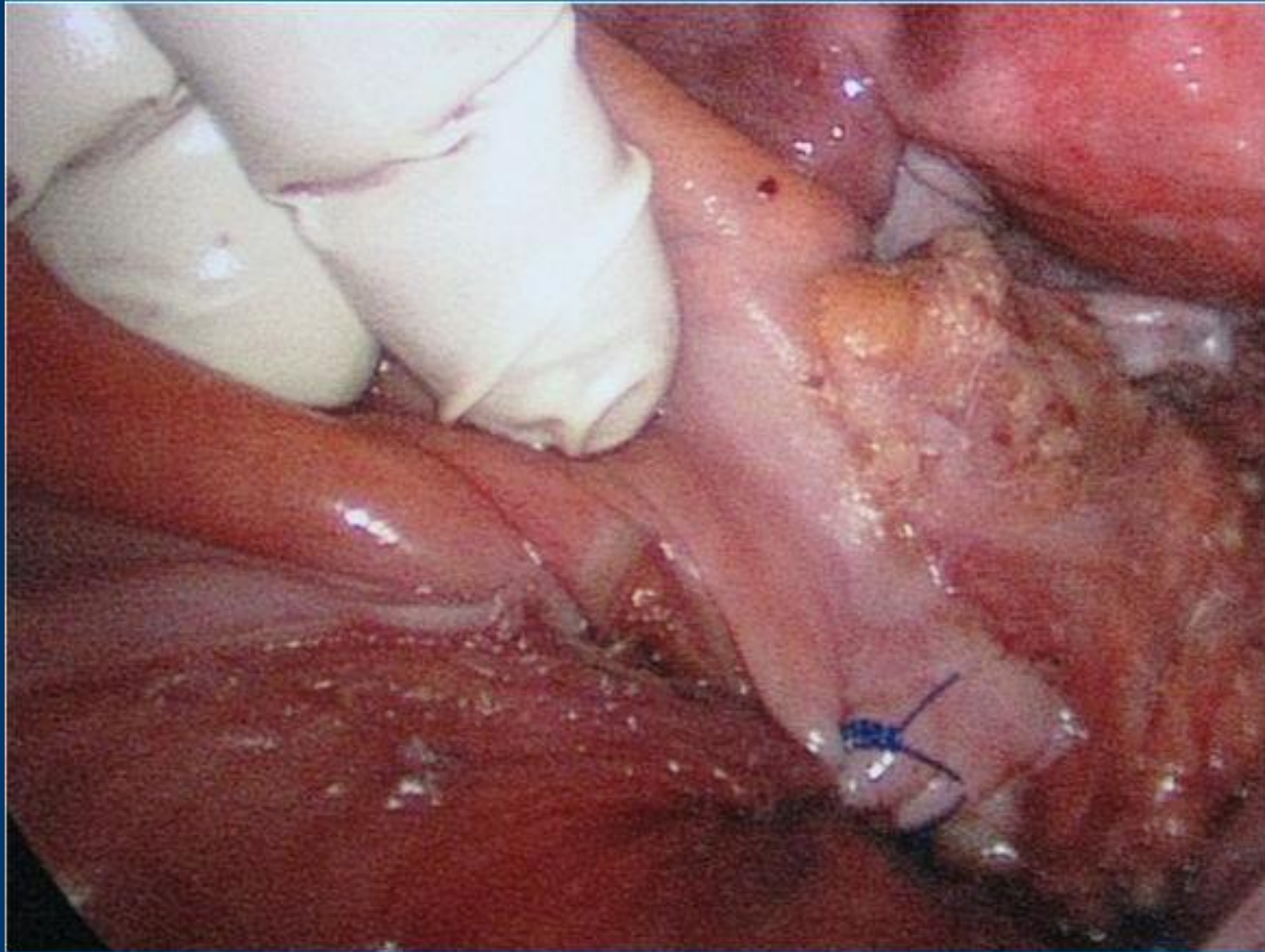




Dr. David Schaffzin at St. Mary Medical Center, Langhorne, PA



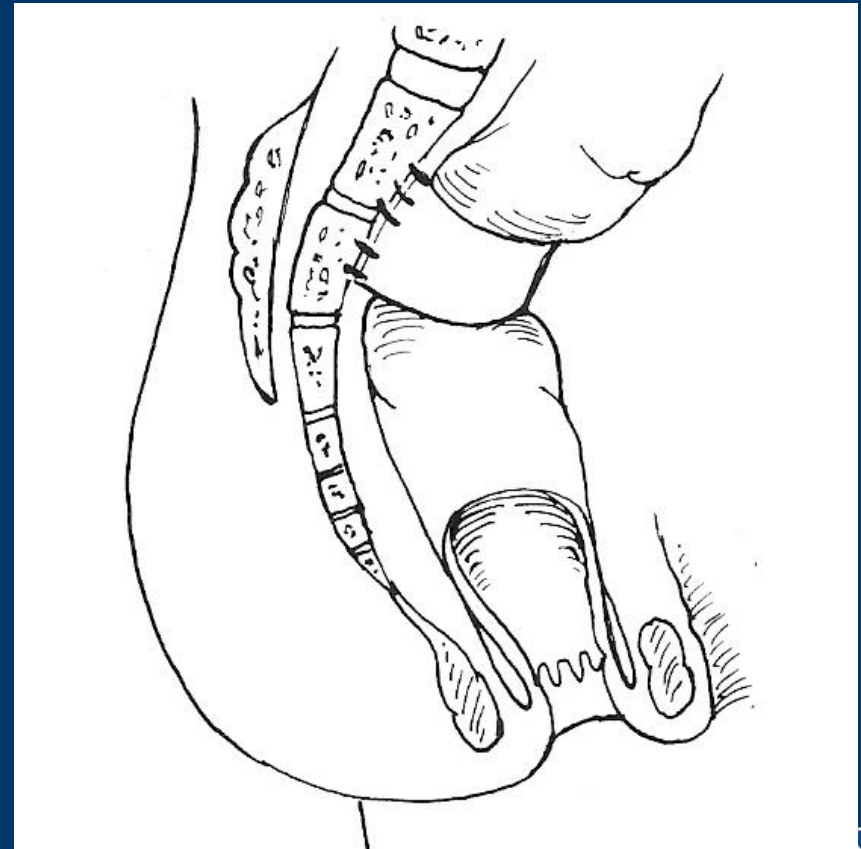
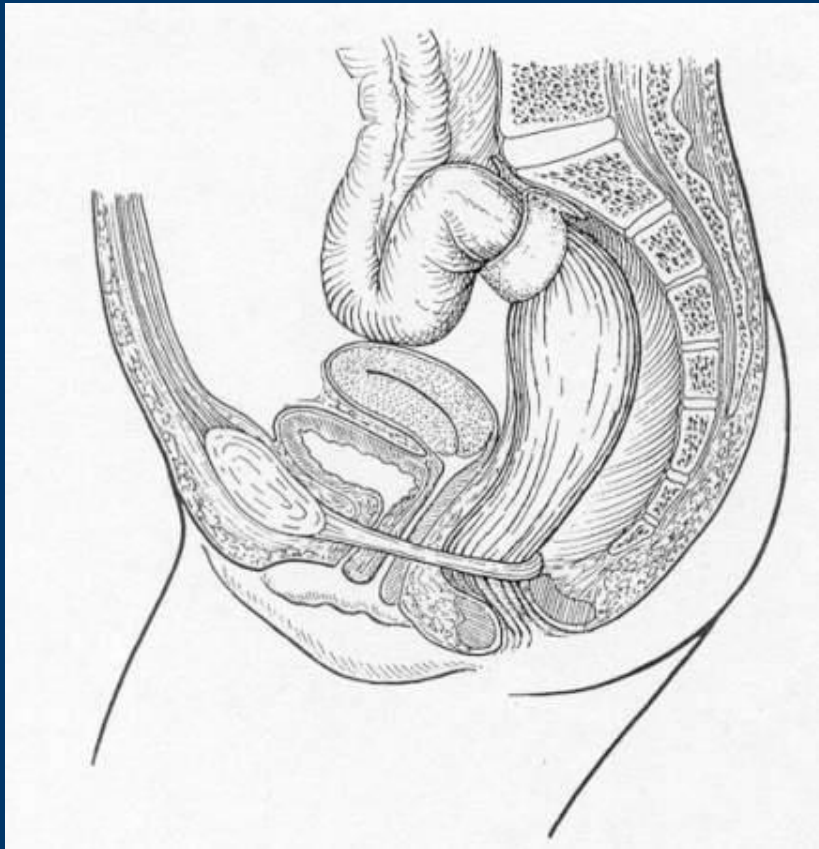
Dr. David Schaffzin at St. Mary Medical Center, Langhorne, PA



Rectal Prolapse

Abdominal approach

Anterior mesh rectopexy (Ripstein, USA)



Rectal Prolapse

Abdominal approach

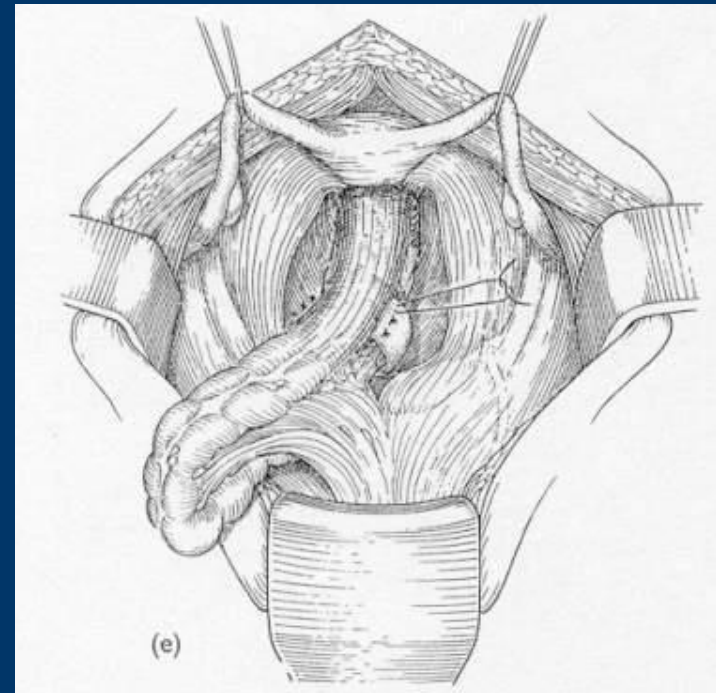
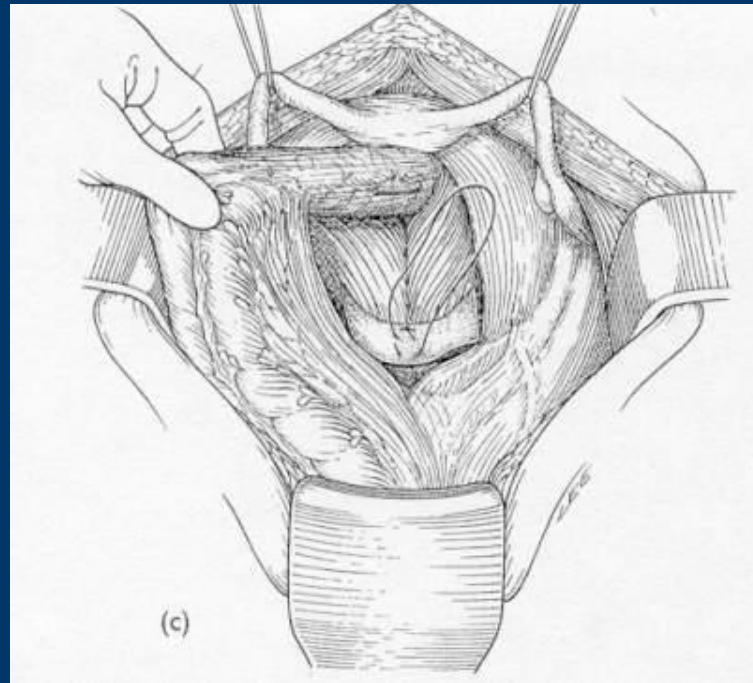
Results of anterior mesh rectopexy

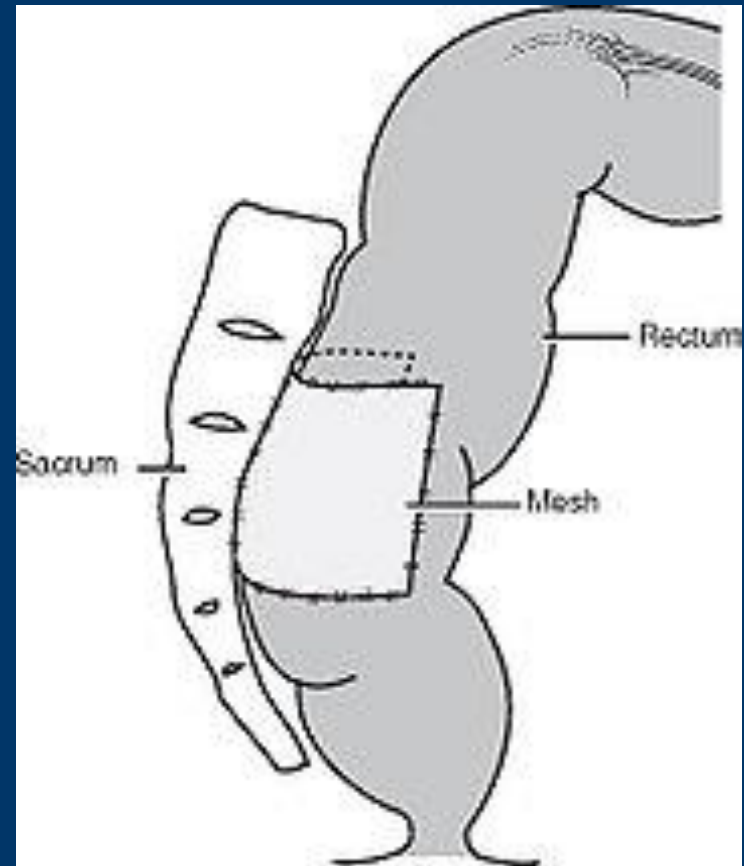
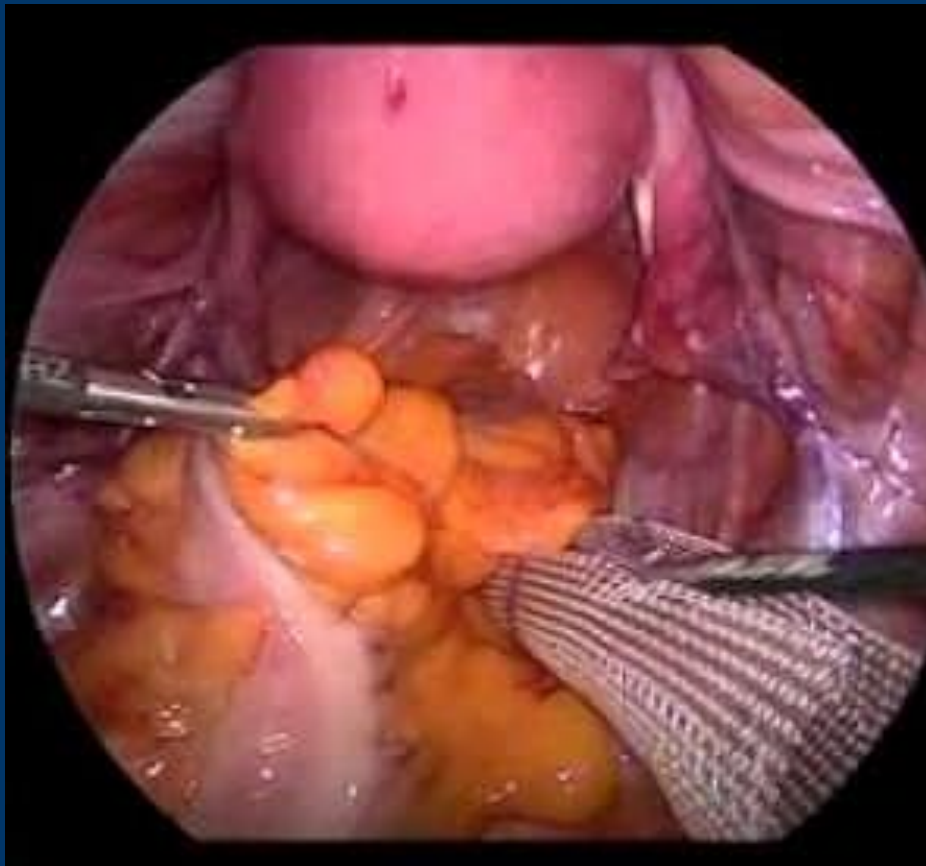
Author	Year	No of Patients	Recurrence (%)	Follow up (Years)	Morbidity (%)
Ripstein	1972	289	0	NR	NR
Roberts	1988	135	9.6	3.4	52
Tjandra	1993	142	7	4.2	21
Schultz	2000	69	2	7	33

Rectal Prolapse

Abdominal approach

Posterior mesh rectopexy (Wells, UK)





Surgwiki

Rectal Prolapse

Abdominal approach

Results of posterior mesh rectopexy

Author	Year	No of Patients	Recurrence (%)	Follow up (Years)	Morbidity (%)
Morgan	1972	150	3.2	NR	3
Penfold	1972	101	3	6	6
Yoshioka	1989	165	10.5	3	19
Novell	1994	31	3.2	4	19
Aitola	1999	96	6	5.3	15
Dulucq	2007	68 (Lap)	1.3	2.8	4.4

Functional Results after Posterior Mesh Rectopexy

	NO.	CONSTIPATION (PREOP/POSTOP)
Madden (1992)	23	48%/52%
Delemarre (1991)	23	43%/50%
Sayfan (1990)	16	19%/44%
Yoshioka (1989)	165	24%/44%

Rectal Prolapse

Abdominal approach

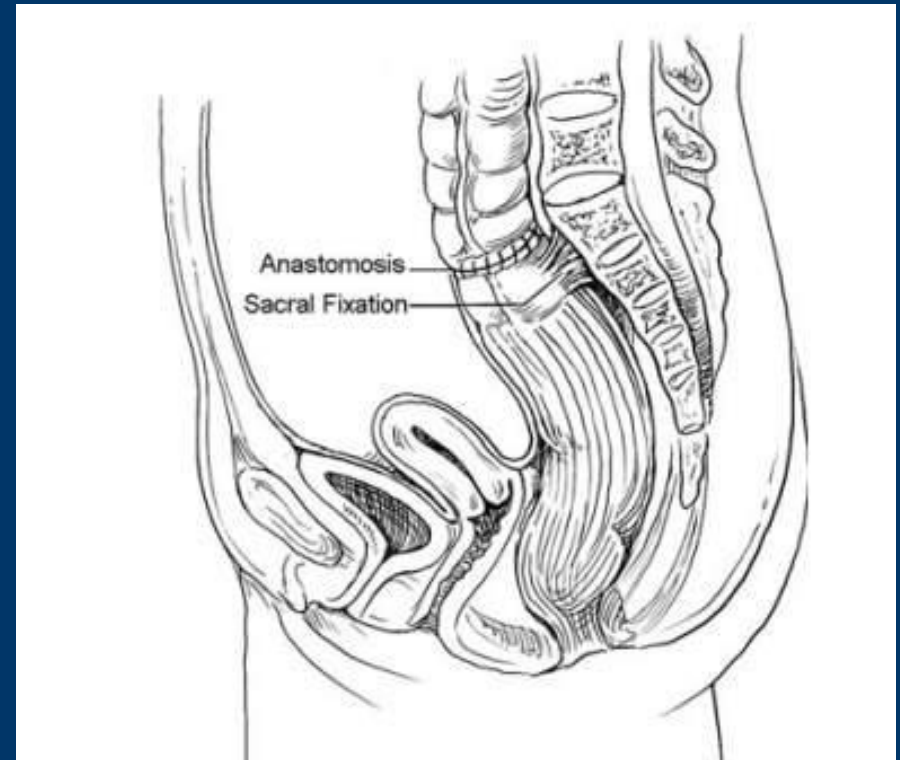
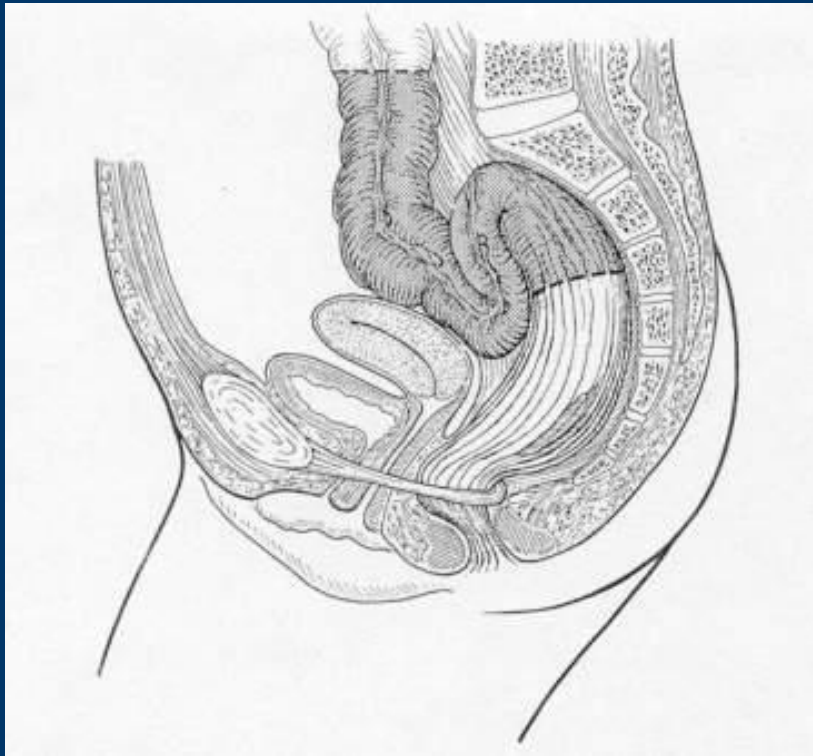
Results of suture rectopexy repair

Author	Year	No of Patients	Recurrence (%)	Follow up (Years)	Mortality (%)
Blatchford	1989	42	2	2.3	0
Novell	1994	32	3	3.9	0
Graf	1996	53	9	8	0
Khanna	1996	65	0	5.4	0
Briel	1997	24	0	5.6	0
Heah	2000	25 (Lap)	NS	2.2	0
Benoist	2001	18 (Lap)	NS	2	0

Rectal Prolapse

Abdominal approach

Suture rectopexy with resection



Rectal Prolapse

Abdominal approach

Results of suture rectopexy with resection

Author	Year	No of Patients	Recurrence (%)	Follow up (Years)	Morbidity (%)
Husa	1988	48	9	4.3	0
Luukkonen	1992	15	0	20	NR
McKee	1992	9	0	1.8	0
Huber	1995	39	0	4.5	7.1
Yakut	1998	19	0	3.2	NR
Kim	1999	161	5	8.2	20

Functional results 2 years after laparoscopic rectopexy

- 1993 – 1995 → 14
 - 14 patients → lap. Posterior mesh rectopexy
- 1996 – 1999
 - 18 patients → lap. Suture rectopexy with resection
 - 16 patients → lap. Suture rectopexy without resection
- Mean follow-up: 47, 24, 20 months respectively
- No mortality
- Similar morbidity

Functional results 2 years after laparoscopic rectopexy

- During follow-up:
- 1 patient per each group → mucosal prolapse
- Overall 75% improvement in continence
- Postoperative constipation:
 - 2 patients (11%) after resection rectopexy
 - 10 patients (62%) after suture rectopexy
 - 9 patients (64%) after mesh rectopexy

Conclusion: Laparoscopic resection rectopexy is safe, and reduces risk of constipation after surgery.

Laparoscopic-assisted resection-rectopexy for rectal prolapse: early and medium follow-up

- Aim: clinical outcomes + functional results
- 30 patients Lap. Assist. Resection rectopexy
- Median operative time: 185 minutes
- Median hospital stay: 5 days
- Morbidity: 13 %
- Mortality: 1 patient

First 10 cases

Last 10 patients

Op. time 224 minutes

163 minutes

Hosp. Stay 6 days

4 days

Laparoscopic-assisted resection-rectopexy for rectal prolapse: early and medium follow-up

- Median follow-up: 18 months
- 2 patients: recurrent mucosal prolapse
- No full-thickness prolapse

Functional improvement	%
Overall improvement	92%
Continence	70%
Constipation	64%
Incomplete emptying	62%
Need to strain	59%

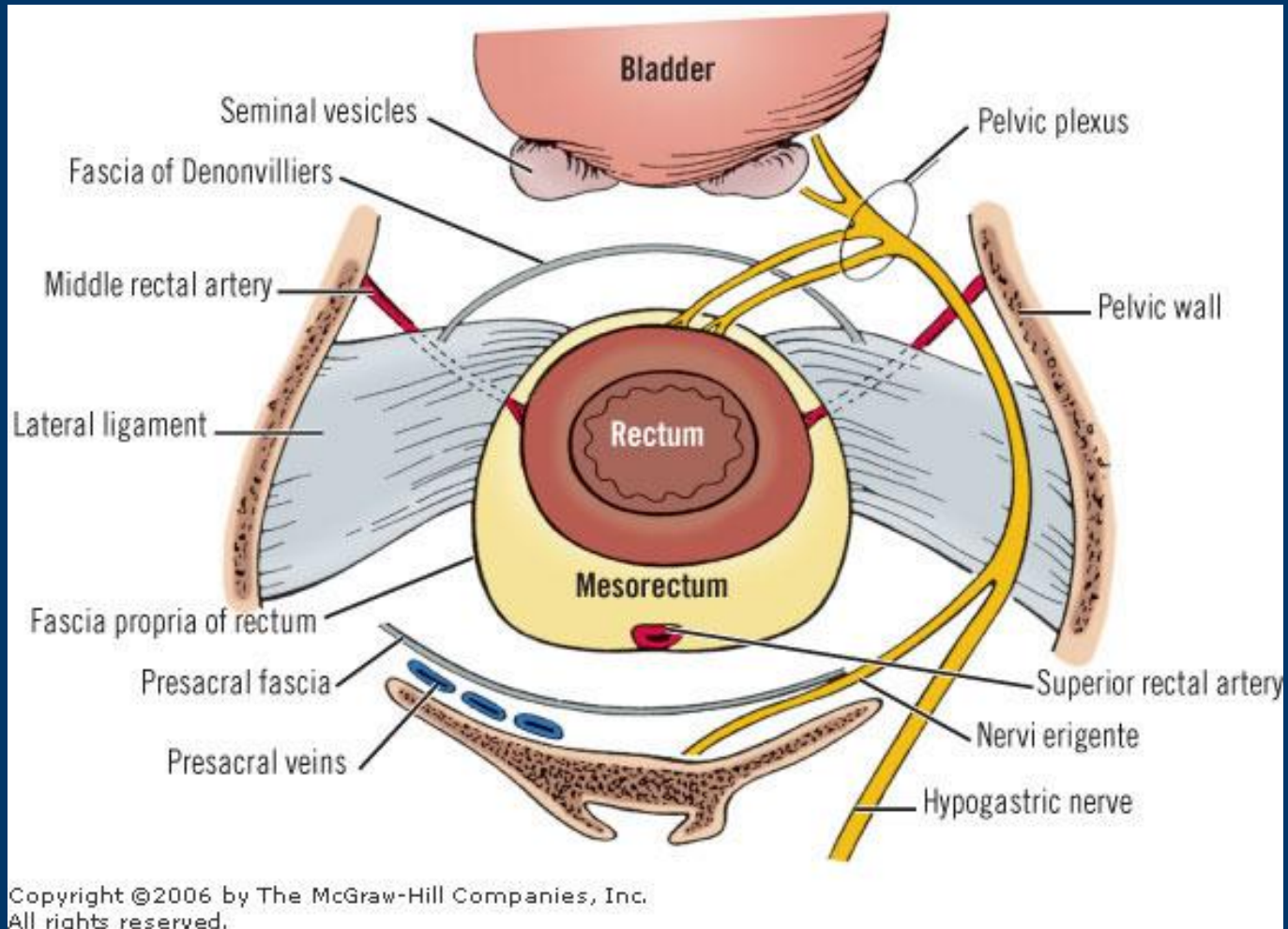
Laparoscopically-assisted resection rectopexy for rectal prolapse: ten years' experience

- Aim: clinical outcomes and long-term results
- 1992-2003
- 117 patients
- Follow-up:
 - Questionnaire
 - Phone Contact
- Data were divided into quartiles

Laparoscopically-assisted resection rectopexy for rectal prolapse: ten years' experience

- Median follow-up: 62 months
- 80 % Alleviation of symptoms
- 69 % of constipated patients improved
- 2 (2.5%) patients: recurrent full-thickness prolapse
- 14 (18%) patients: mucosal prolapse
- 5 (4%) patients: anastomotic strictures

Lateral Ligament



Lateral ligament division during rectopexy causes constipation but prevents recurrence

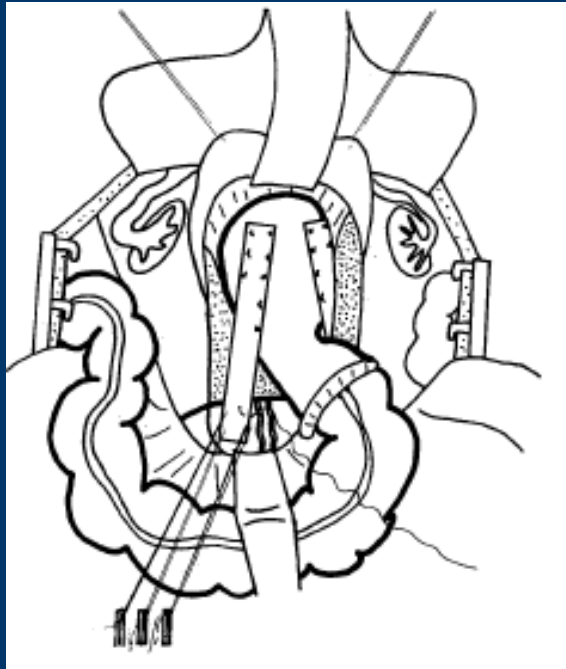
- Randomized prospective study
- Rectopexy with division: 14
- Rectopexy without: 12
- Incontinence: improved in both groups
- Constipation → increased in division group
 - 3 pre-op → 10 post-op $P < 0.01$
- Recurrent prolapse
 - None → division group
 - 6 → no division group

Effects of rectal mobilization and lateral ligaments division on colonic and anorectal function

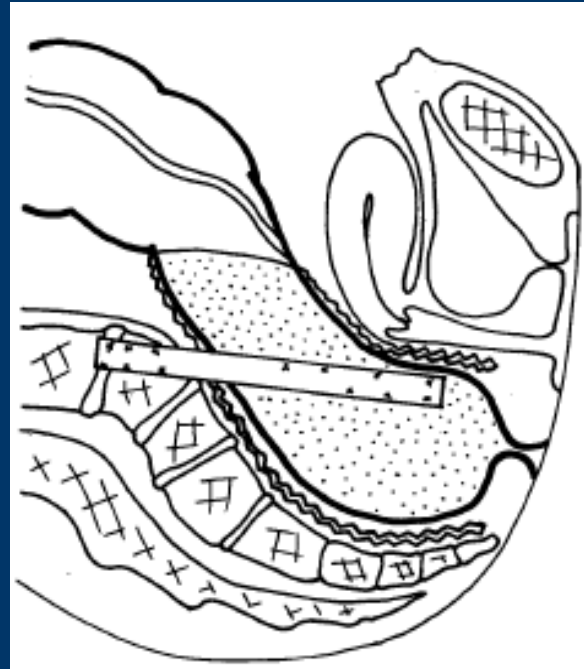
	Ligaments Divided n=10	Ligaments Preserved n=8	P-Value
Mean resting pressure	17	26	NS
Mean rectal compliance	6.7	6.9	NS
Mean post operative constipation score	7.6	7.9	NS
Mean defecation frequency	28.3	14.3	NS

Other procedures

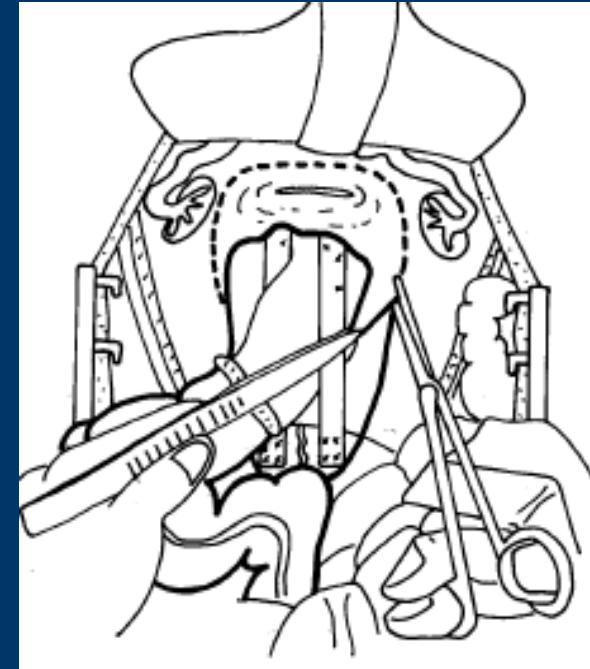
Orr-Loygue technique



Suture of nylon strips on both sides of the rectum



Attach to longitudinal ligament in front of the promontory after mobilizing rectum



Resection of the peritoneum of the pouch of Douglas

Abdominal Approach in Advanced Ages

Laparoscopic rectal prolapse surgery with short hospital stay in elderly and debilitated patients

- 2000 – 2004
- 75 patients with full-thickness rectal prolapse
 - 65 patients → laparoscopically
 - 10 patients → open
- ASA was III or IV in 50% of patients
- Minimal blood loss

Laparoscopic rectal prolapse surgery with short hospital stay in elderly and debilitated patients

- Median hospital stay:
 - Rectopexy: 3 vs. 7 days $P < 0.00001$
 - Resection rectopexy: 4 vs. 7.5 days $P < 0.00001$
- No mortality
- 2 recurrent prolapses
- Overall improvement in fecal continence
- Improvement in symptoms:
 - 84% of patients who had rectopexy
 - 92% of patients who had resection rectopexy

Outcome of laparoscopic rectopexy for complete rectal prolapse in patients older than 70 years versus younger patients

- 1997 – 2001
- 14 patients:
 - 9 > / = 70 years old
 - 5 < 70 years old
- Median follow-up : 34.5 (range 5 – 54) months
- No significant differences in:
 - Hospitalization, Morbidity, Mortality, Recurrence, Functional outcome

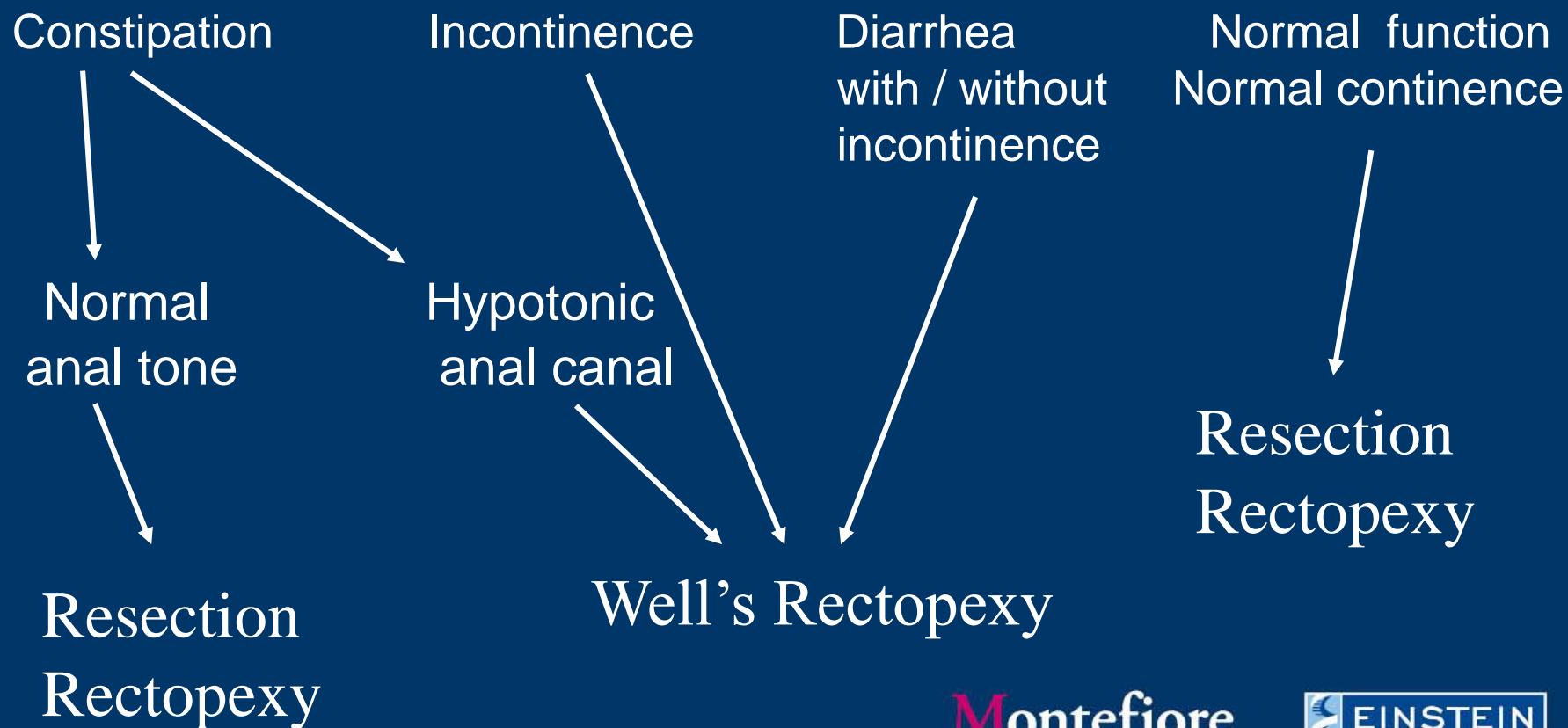
Conclusions

- Co-morbidities, bowel habit and continence
- Abdominal repair offers lower recurrence rates
- Perineal repair is reserved for those with major co-morbidities or contraindications to abdominal approach

Surgery for complete rectal prolapse in adults.

- Objective: to compare methods of repair
 - Methods: 324 patients, 10 RCT
 - Lateral ligaments may affect recurrence / constipation
 - Perineal surgery may increase incontinence
 - Laparoscopy reduces complications and stay
- Tailor operation to individual patient
- Larger trials are needed to improve the evidence to define optimal surgical treatment.

Algorithm for choosing an approach to rectal prolapse (Abdominal Approach)



Thank You

