

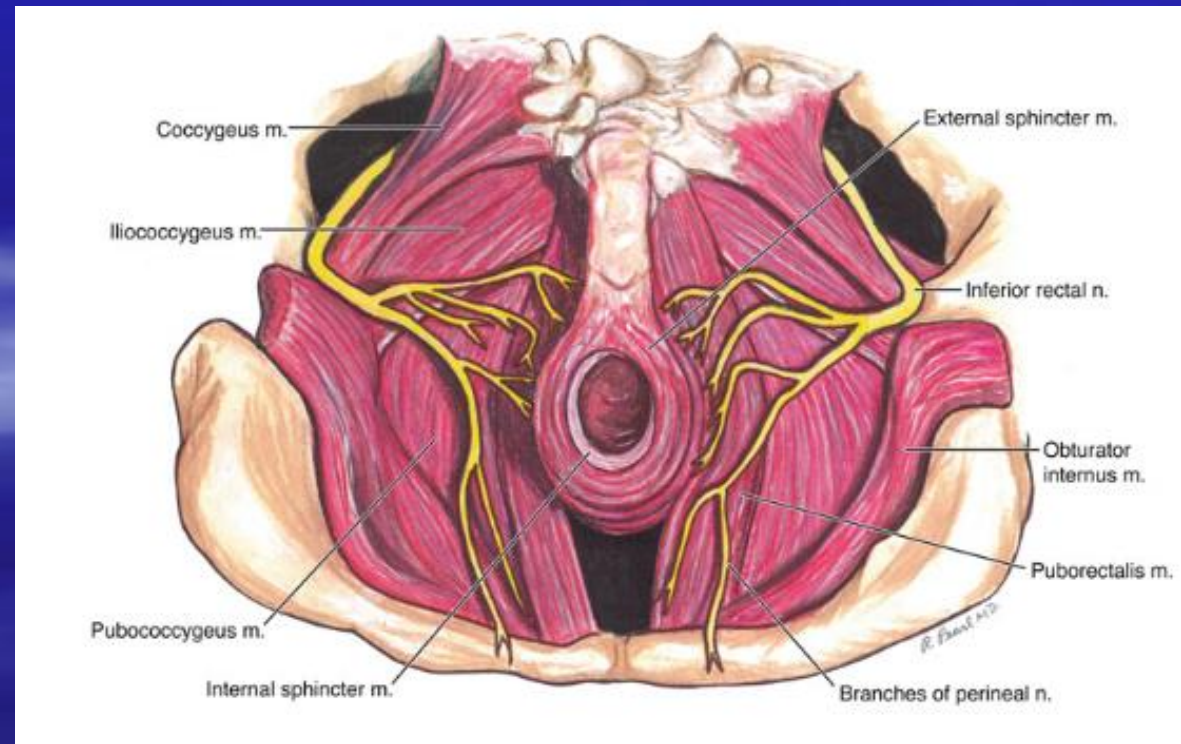
# *Management of Rectal Prolapse Syndromes*

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# Anatomy of pelvic floor

- ✦ The pelvic diaphragm consists of myofascial structures supported by osteo-ligamentous attachments
- ✦ It is pierced by urogenital and anorectal hiatuses
- ✦ The levator ani is tonically contracted to support the viscera during straining



# Mechanism of pelvic support

- ✦ It is not just the muscles, tendons, and ligaments that provide support
- ✦ The quality of the connective tissue fascia that envelops and suspend visceral organs
- ✦ Cross-linkage between fibrin and elastin developing many types of collagen
- ✦ Collagen type I provides tensile strength while Collagen type III provides more elastic support



# Factors affecting pelvic support

- ✦ **Pregnancy-related hormonal changes result in decreased collagen levels with subsequent softening of connective tissue**
- ✦ **Vaginal delivery can tear the fascia, avulse the levator tendons, and can cause a stretch neuropathy of the pudendal nerve**

# Factors affecting pelvic support

- ✦ Aging can disrupt the tissue matrix and decrease the muscular hypertrophy in response to stress
- ✦ Nulliparous women and men (20% of prolapses): have genetically poor quality of the connective tissue + habitual chronic straining
- ✦ Histologically the ligaments of prolapsed tissue have lower concentration of collagen I : III ratio, and greater concentration of lytic proteases

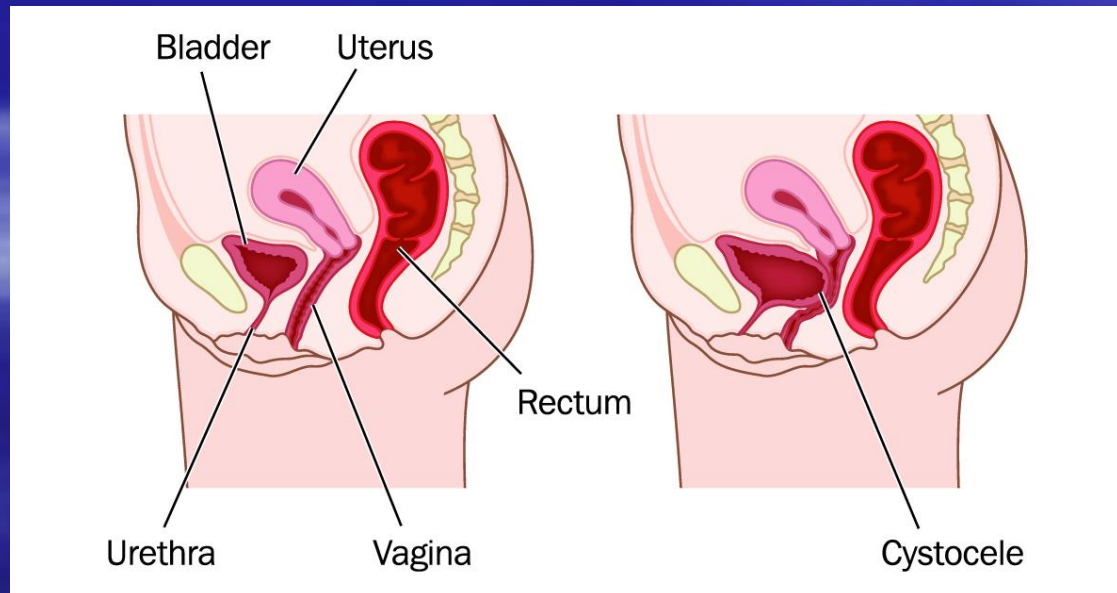
# Spectrum of Rectal Prolapse

**Umbrella of full-thickness rectal prolapse:**

- ☐ **External rectal prolapse (complete/overt)**
  - ☐ **Internal prolapse (internal intussusception/occult)**
  - ☐ **Complex prolapses: + rectocele, enterocele, sigmoidocele, cystocele, uterine/vaginal prolapse (colpocele)**
  - ☐ **Recurrent rectal prolapse**
- 
- ☐ **Associated anatomical & functional disorders: Constipation/OD, incontinence, perineal descent / SRUS**

# Spectrum of pelvic organs descent

- ✦ **Anterior compartment descent/prolapse: cystocele, urethrocele**
- ✦ **Middle compartment descent/prolapse: uterine/vaginal procidentia, colpocele, enterocoele, sigmoidocele**
- ✦ **Posterior compartment descent/prolapse: recto-rectal / recto-anal intussusception**
- ✦ **Perineal descent syndromes: combin prolapses, SRUS**





# Pathophysiology

- ❑ Genital prolapse (uterine/vaginal) is almost always associated with internal or external rectal prolapse & rectocele
- ❑ While rectal prolapse may be 1ry or 2ry to genital prolapse
- ❑ Secondary rectal prolapse may be partially or completely reducible by reduction of the genital prolapse
- ❑ The ligaments and supporting structures of the pelvic organs consent a rectal prolapse without genital prolapse but never vise versa



# Pathophysiology

- ✦ 1ry rectal prolapse starts as intussusception ==> imp def ==> excess straining ==> perineal descent
- ✦ Progressive mechanical stretching of the pelvic floor ms & internal and external sphincters ==> Anatomic defect + functional deficit
- ✦ Association of uterine prolapse:10-25% and cystocele 35%
- ✦ Associated constipation/OD:15-65%
- ✦ Associated Fecal incontinence: 30-80%
- ✦ Traumatic proctitis and rectal bleeding / SRUS

# Pathophysiology

- Female: Male = 6 : 1
- Female patients (90% of cases):

## Two peaks

- 20 Y : congenital weakness of rectal support and /or chronic straining disorder (primary rectal prolapse)
- 40-70 Y: weak denervated pelvic floor (secondary rectal prolapse)  
combined prolapses of middle and anterior pelvic compartments

# Pathophysiology

**Constant anatomical findings in complete rectal prolapse**

- ✦ **intussusception**
- ✦ **Deep pouch of Douglass**
- ✦ **Absent fixation of rectum**
- ✦ **Elongation of the sub-peritoneal rectum & redundant sigmoid**
- ✦ **Weakness of pelvic floor and anal sphincter muscles**



# Incontinence in rectal prolapse (multifactorial)

- ✦ Rectoanal inhibition
- ✦ Mechanical stretching of sphincter complex
- ✦ Pudendal neuropathy
- ✦ Impaired rectal adaptation to distention
- ✦ Impaired rectoanal motility
- ✦ The irritated mucosa of the prolapsed rectum constantly secretes mucus, making the patient feel to be chronically wet and incontinent.

# Symptomatology

## Symptoms

- ✦ Asymptomatic
- ✦ Tissue protruding from the anus
- ✦ A sensation of incomplete evacuation
- ✦ Mucus discharge and soiling
- ✦ Functional complaints, ranging from incontinence and diarrhea to constipation and OD



# Associated Symptoms

## URINARY DYSFUNCTION

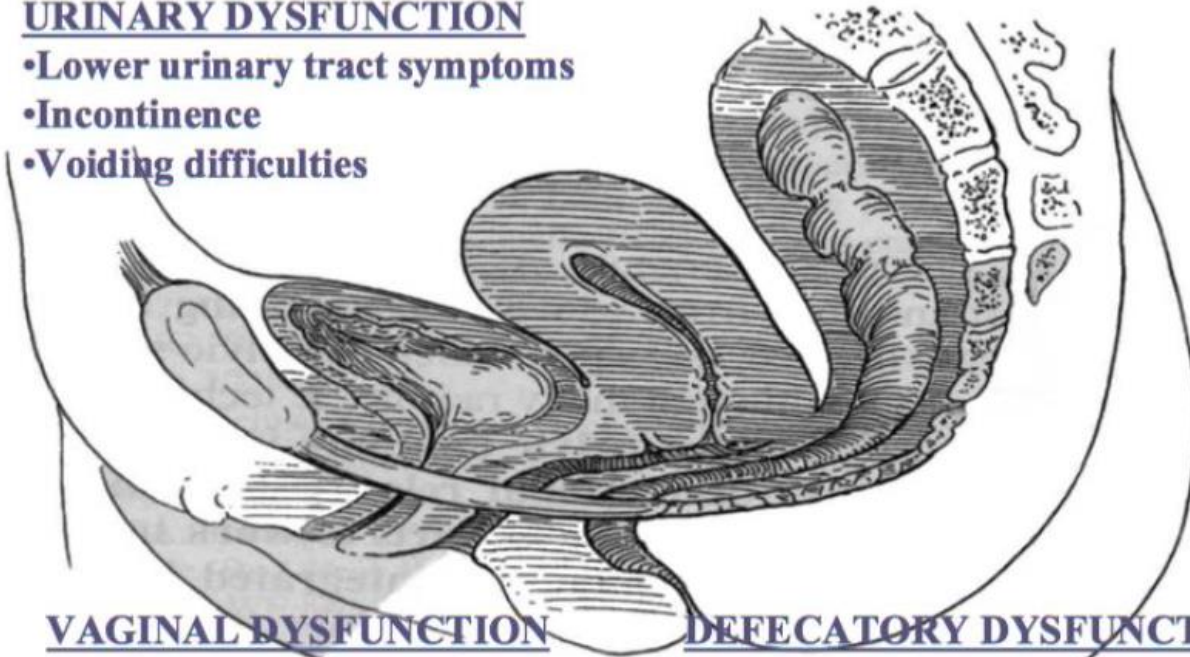
- Lower urinary tract symptoms
- Incontinence
- Voiding difficulties

## VAGINAL DYSFUNCTION

- Protrusion symptoms
- Sexual dysfunction

## DEFECATORY DYSFUNCTION

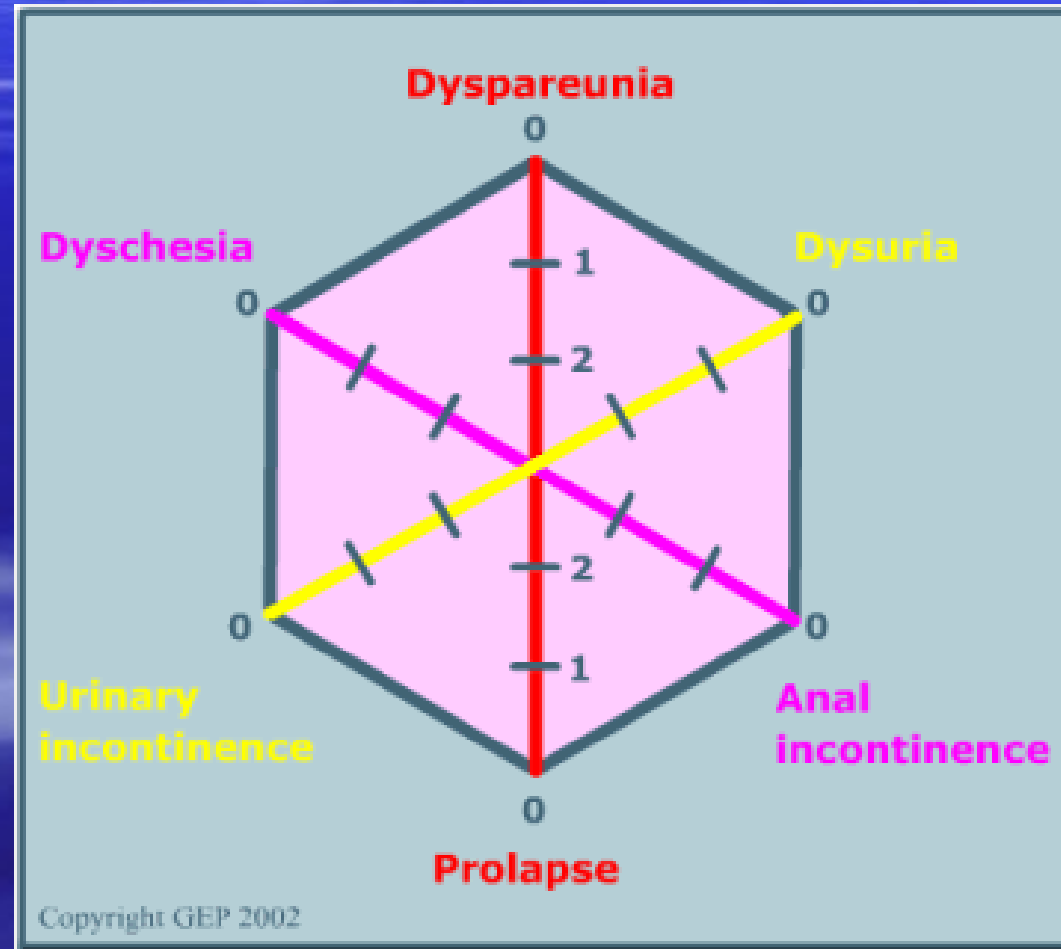
- Incontinence
- Defecatory disorders





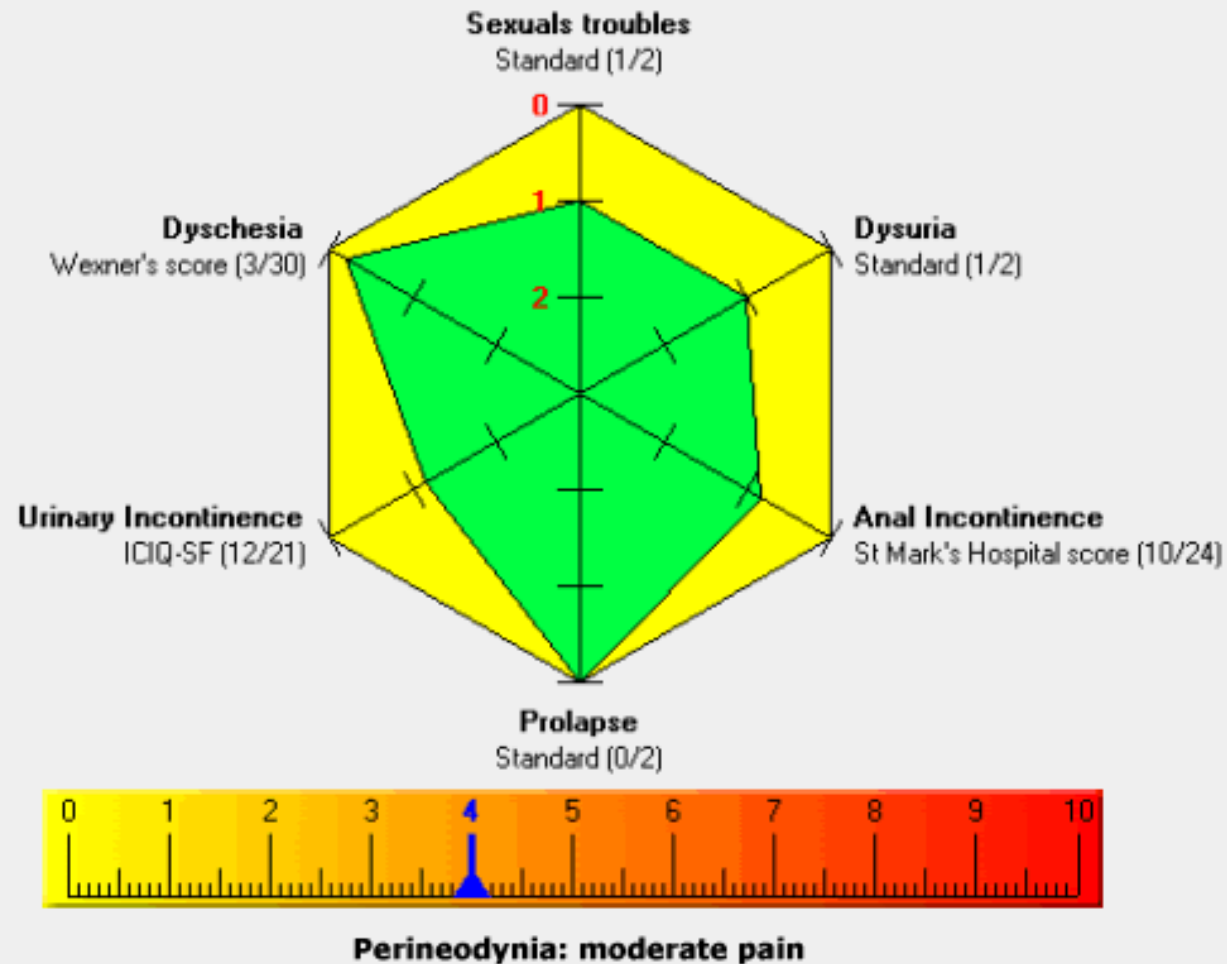
# Assessment

## Three Axes Perineal Evaluation (TAPE)

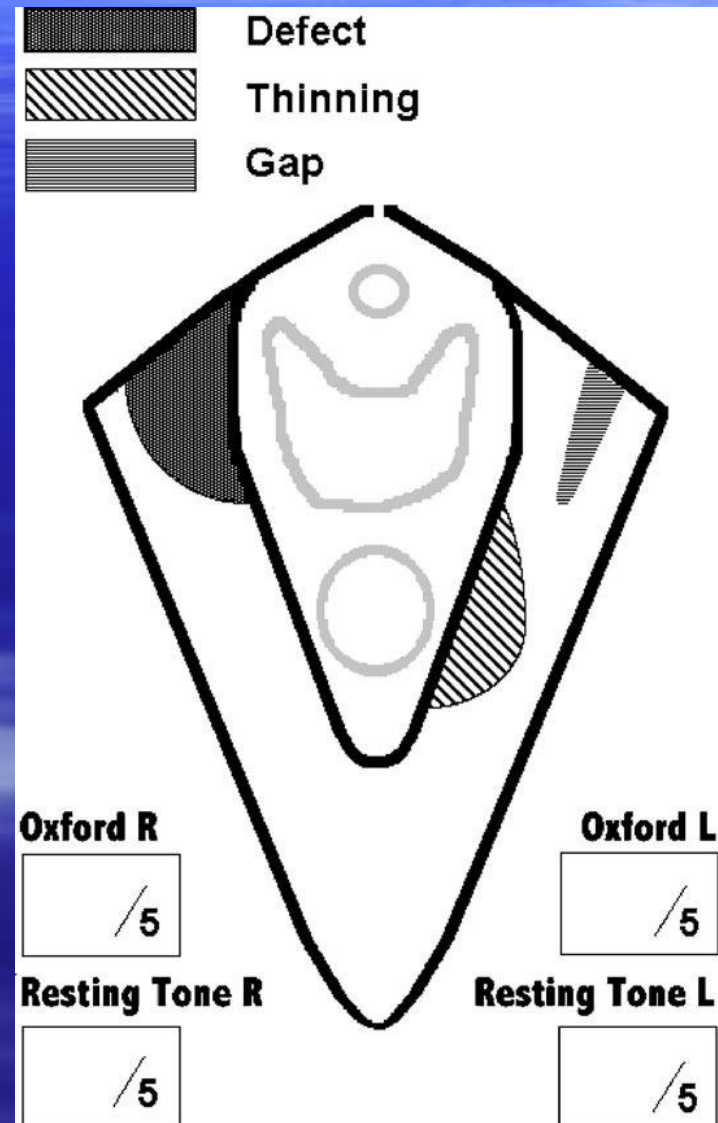


# Perineology

## Three Axis Perineal Evaluation (TAPE)



# Clinical assessment of perineum





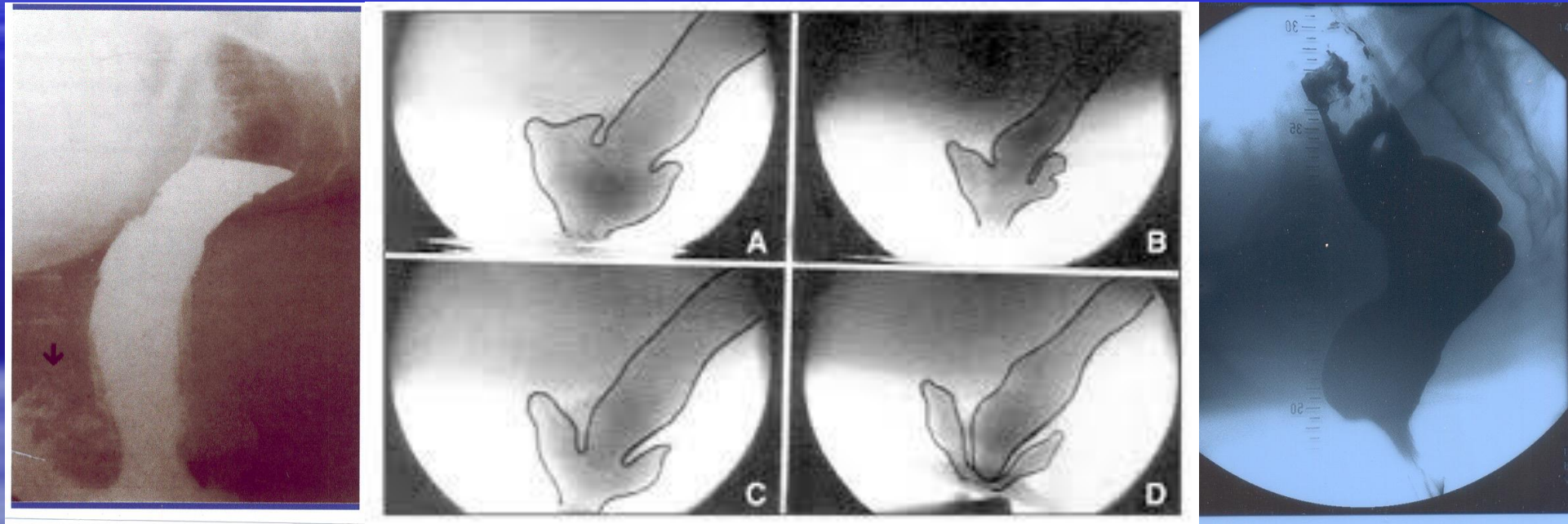
# Assessment (workup)

## Triple Assessment

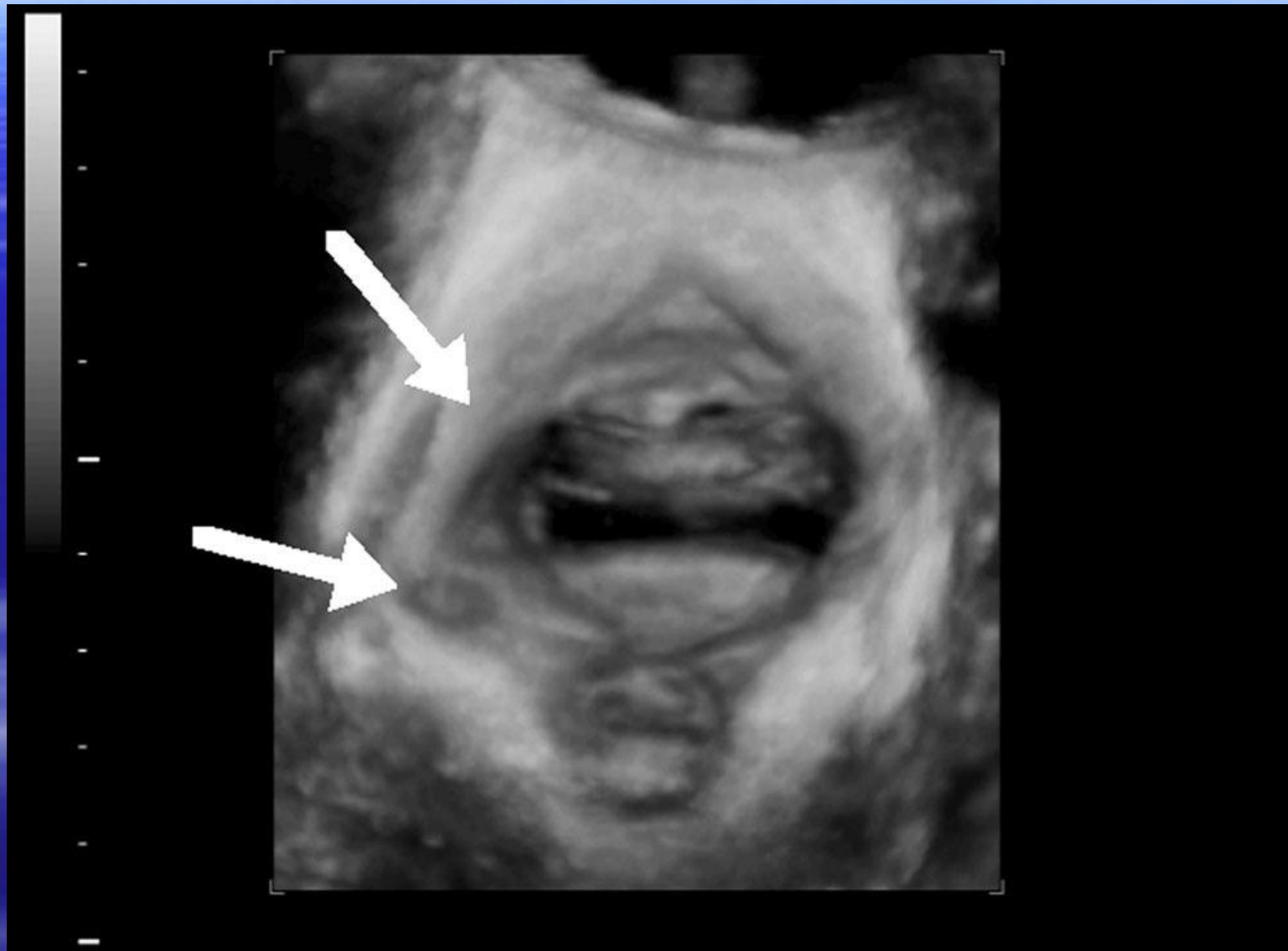
- Defecography
- Colon transit time
- Manometry

- ✦ Dynamic MRI defecography
- ✦ Colonoscopy / Ba enema
- ✦ Endoanal U/S
- ✦ Balloon expulsion test
- ✦ Perineometry
- ✦ Pudendal N terminal latency
- ✦ EMG

## Defecography: straining



Right- sided avulsion injury of the puborectalis muscle insertion  
Translabial 3D U/S





# Rectal Prolapse: Treatment

## Lines of treatment

- ✦ **Surgical intervention**
- ✦ **Biofeedback physical therapy (in pelvic floor dyssynergia)**
- ✦ **Sacral nerve stimulation (in pudendal nerve neuropathy)**

# Goal of surgery

- ✦ **Restore anatomy**
- ✦ **Improve anorectal function**
- ✦ **Avoid recurrence & post-operative functional complications**
- ✦ **Avoid operative mortality / morbidity**

# Selection of surgical approach

## Factors

- ✦ Age / associated co-morbidities
- ✦ Incontinence (continence scoring)
- ✦ Constipation / OD (OD scoring)
- ✦ Internal / external prolapse
- ✦ 1ry or 2ry rectal prolapse
- ✦ Combined prolapses: Uterine prolapse. Rectocele Cystocele Enterocoele sigmoidocele
- ✦ Redundant hypotonic colon
- ✦ Pelvic dyssynergia
- ✦ Recurrent prolapse

# Surgery for overt rectal prolapse

**Abdominal procedures: open, laparoscopic, robotic**

- ✦ **Suture rectopexy**
- ✦ **Resection rectopexy (Frykman-Goldberg procedure)**
- ✦ **Anterior resection (Muir-Mayo clinic)**
- ✦ **Posterior mesh rectopexy**
- ✦ **Ventral mesh rectopexy ( D'Hoor)**
- ✦ **Pelvic Organ Prolapse Suspension (POPS)**
- ✦ **Soft-tissue Intraperitoneal Rectopexy (SIR)**



# Surgery for overt rectal prolapse

## Perineal procedure

- ✦ Delorme's procedure
- ✦ Altemeier rectosigmoidectomy
- ✦ Levatorplasty (post-anal repair)

## Disadvantages

- ✦ Significant recurrence rate
- ✦ Anal incontinence (reduced rectal reservoir; plication/resection)

# Surgery for occult (internal) rectal prolapse

## Perineal approach

- ✦ STARR
- ✦ Transtar
- ✦ Delorme's procedure

## Abdominal approach

- ✦ Mesh rectopexy
- ✦ Suture rectopexy
- ✦ Resection rectopexy (Frykman-Goldberg procedure)
- ✦ Anterior resection (Muir-Mayo clinic)

# Surgery for rectal prolapse

Procedure	Reccurence	Morbidity	Notes
Ant resection	10-29%	15-29%	high recurrence
Mesh rectopexy	2-10%	3-29%	imp incontin worsen const
Resection rectopexy	2-5%	4-23%	imp incontin imp constip
Suture rectopexy	10%	3-9%	worsen const
LVR	2-8%	8%	imp conten imp constip
Delorme	5-26%	0-38%	imp incont imp constip
Altemeier	0-50%	0-13%	levatorplasty added

# Perineal procedures

**Table 7. Results of the Delorme Procedure for Rectal Prolapse**

Source	N	Design	Mortality, No. (%)	Continence, %	Constipation, %	Recurrence, No. (%)	Follow-up, mo
Pescatori et al. <sup>62</sup> 1998	33	Retrospective	0	(+)	44 (+)	6 (18)	39
Lechaux et al. <sup>64</sup> 1995	85	Retrospective	1 (1.2)	45 (+)	100 (+)	11 (14)	33
Agachan et al. <sup>61</sup> 1997	8	Retrospective	0	(+)	NS	3 (38)	24
Oliver et al. <sup>66</sup> 1994	41	Retrospective	1 (2.4)	58 (+)	NS	8 (22)	47
Yakut et al. <sup>7</sup> 1998	27	Retrospective	0	NS	NS	4 (4.2)	38
Kling et al. <sup>63</sup> 1996	6	Retrospective	0	67 (+)	100 (+)	1 (17)	11
Watts and Thompson. <sup>67</sup> 2000	101	Retrospective	4 (4)	25 (+)	13 (+)	30 (27)	36
Senapati et al. <sup>65</sup> 1994	32	NS	0	46 (+)	50 (+)	4 (12.5)	21
Lieberman et al. <sup>68</sup> 2000	34	Retrospective	0	32 (+)	88 (+)	0	43
Tobin and Scott. <sup>67</sup> 1994	43	Prospective	0	50 (+)	NA	11 (26)	20

Delorme's

0-38%

**Table 8. Results of Perineal Rectosigmoidectomy for Rectal Prolapse**

Source	N	Design	Levatorplasty	Mortality, No. (%)	Continence, %	Constipation, %	Recurrence, No. (%)	Follow-up, mo
Takesue et al. <sup>60</sup> 1999	10	NS	Yes (7/10) <sup>a</sup>	0	(+)	NS	0	42
Ramanujam et al. <sup>62</sup> 1994	72	NS	No	0	67 (+)	NS	4 (6)	120
Deen et al. <sup>66</sup> 1994	10	Prospective	No	0	80	NS	1 (10)	18
Watts et al. <sup>69</sup> 1985	33	Retrospective	No	0	6 (+) 22 (-)	NS	0	23
Williams et al. <sup>63</sup> 1992	56	Retrospective	No	0	46 (+) 0 (-)	NS	6 (6)	12
Johansen et al. <sup>64</sup> 1993	20	NS	No	1 (5)	21 (+)	NS	0	26
Agachan et al. <sup>61</sup> 1997	32	Retrospective	No	0	(+)	NC	4 (13)	30
Altemeier et al. <sup>61</sup> 1971	106	Retrospective	No	0	NS	NS	3 (3)	228
Kim et al. <sup>66</sup> 1999	183	Retrospective	No	NS	53 (+)	61 (+)	29 (16)	47
Williams et al. <sup>63</sup> 1992	11	Retrospective	Yes	NS	91 (+)	NS	0	12
Agachan et al. <sup>61</sup> 1997	21	Retrospective	Yes	0	(+)	NC	1 (5)	30
Prasad et al. <sup>36</sup> 1986	25	NS	Yes	0	88 (+)	NS	0	NS

Altemeier's

0-16%



# Surgical treatment

- ✦ LVR: most popular in Europe
- ✦ Lap resection rectopexy: most popular in USA
- ✦ Perineal technique: mainly for old/frail patients
- ✦ STARR, Transstar: for occult prolapses &/or rectocele: mainly in Europe
- ✦ POPS and SIR are relatively new techniques of Longo

# Resection rectopexy

- ✦ A sigmoid resection can be added to suture rectopexy in patients with constipation
- ✦ Resection rectopexy has become popular technique in the United States in the past 30 years.
- ✦ Recurrence rates are low, ranging from 2% to 5%, and major complication rates range from 0% to 20%

# Lap Ventral Mesh Rectopexy (LVR)

## Advantages

- ✦ Correct the leading cause (full thickness intussusception)
- ✦ Correct concomitant middle pelvic compartment prolapse
- ✦ Preserve rectal ampulla
- ✦ Avoid autonomic nerve damage
- ✦ Mini invasive

# Lap Ventral Mesh Rectopexy (LVR)

## Indications

- ✦ External rectal prolapse
- ✦ High grade intussusception with incontinence
- ✦ High grade intussusception with rectocele
- ✦ High grade intussusception with enterocele



# Treatment of Overt Rectal Prolapse (Longo)

Primary rectal prolapse	Rectal prolapse without failure of the muscle layer or elongation of the rectum	SIR
Primary rectal prolapse	Rectal prolapse with rectal elongation and failure of the muscle layer	Altimeier Anterior resection SIR + ATARR
Secondary rectal prolapse	Totally reducible by vaginal suspension	POPS
Secondary rectal prolapse	Partially reducible by vaginal suspension	POPS + STARR

# Conclusion

## Rectal Prolapse Treatment

### ❑ Transabdominal approach

- Lap vetera mesh rectopexy for female patients  $\pm$  concomitant prolapses
- Resection rectopexy for constipated patients
- Mesh rectopexy / suture rectopexy for incontinent patients
- POPS and SIR are promising new techniques

### ❑ Transanal approach

- Altemeier's procedure for strangulated prolapse
- Delorme's procedure  $\pm$  levatorplasty for old frail constipated patients
- STARR for small occult (internal ) rectal prolapse
- Transtar for large internal rectal prolapse or rectocele

# Conclusion

## Biofeedback rehabilitation

- ❑ A Course of pelvic floor training may help patients with pelvic floor dysfunction
- ❑ Teaches the patient to relax the pelvic floor muscles during straining at defecation
- ❑ Trains patients to suppress the non-relaxing activity of pelvic floor & to coordinate relaxation with pushing during defecation



# Thanks





# ***Thanks***





# Thanks

