



Role of Endoanal Ultrasonography in Grading Anal Sphincter Integrity in Rectal Prolapse and in Predicting Improvement in the Continence State after Surgical Treatment

By

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Background

- Rectal prolapse is the descent of the full-thickness or the mucosal layer of the rectal tissue through the anal canal.
- Patients with rectal prolapse present with a mass protruding through the anus during defecation, rectal bleeding, obstructed defecation in 15-65% of patients, and fecal incontinence (FI) in up to 88% of patients.

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- ▶ FI in patients with rectal prolapse is mostly explained by the long-standing stretch of anal sphincters, hence assessment of the anal sphincters preoperatively can be useful in planning treatment.
 - ▶ Preoperative evaluation of the continence state is usually carried out by symptom questionnaires, anorectal manometry, endoanal ultrasonography (EAUS), and pudendal nerve terminal motor latency.



Aim of the study

- ▶ In the present study we aimed to examine the utility of EAUS in identifying different patterns of anal sphincter integrity in patients with rectal prolapse and in predicting improvement in the continence state postoperatively.
- ▶ We postulated that patients with rectal prolapse may have difference degrees of anal sphincter affection according to the duration of symptoms and type of prolapse which may explain the variable improvement in FI after surgery.

Methods

- ▶ **Study design:** Retrospective review of prospective data of patients with rectal prolapse.
- ▶ **Setting:** Colorectal Surgery Unit of Mansoura University Hospital.
- ▶ **Duration:** January 2010 to December 2017 were reviewed.
- ▶ **Patients included :** Patients with internal or external rectal prolapse, whether primary or recurrent, who underwent surgical treatment



Assessments

- History taking
- Physical examination including DRE.
- Anal manometry
- EAUS



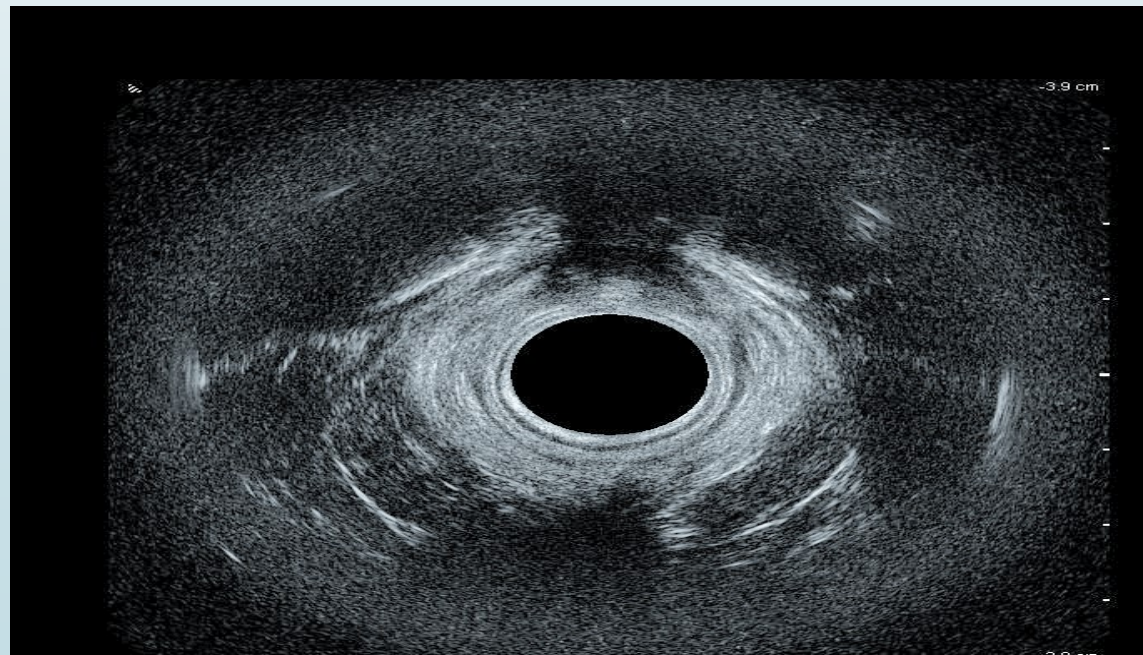
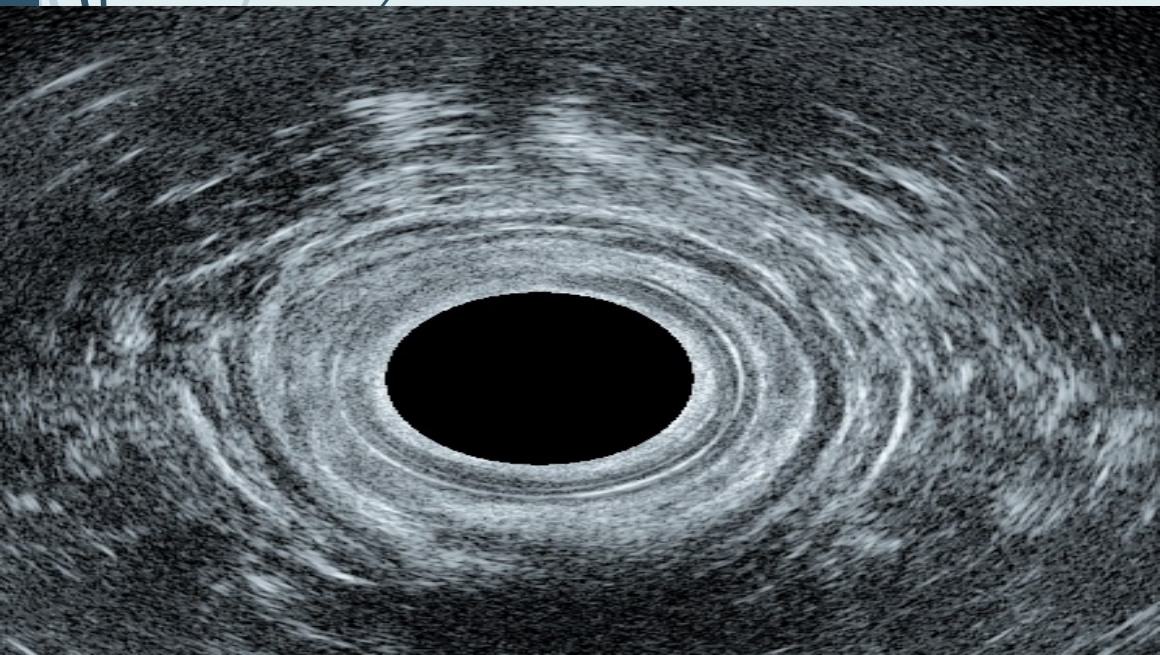
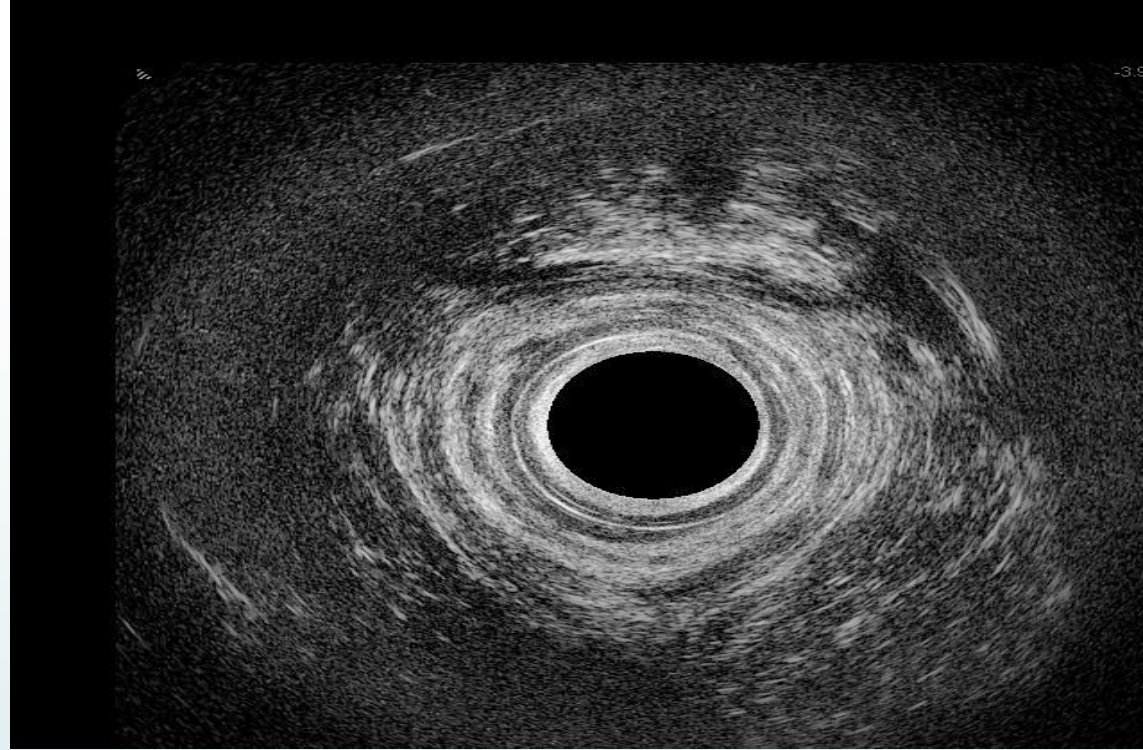
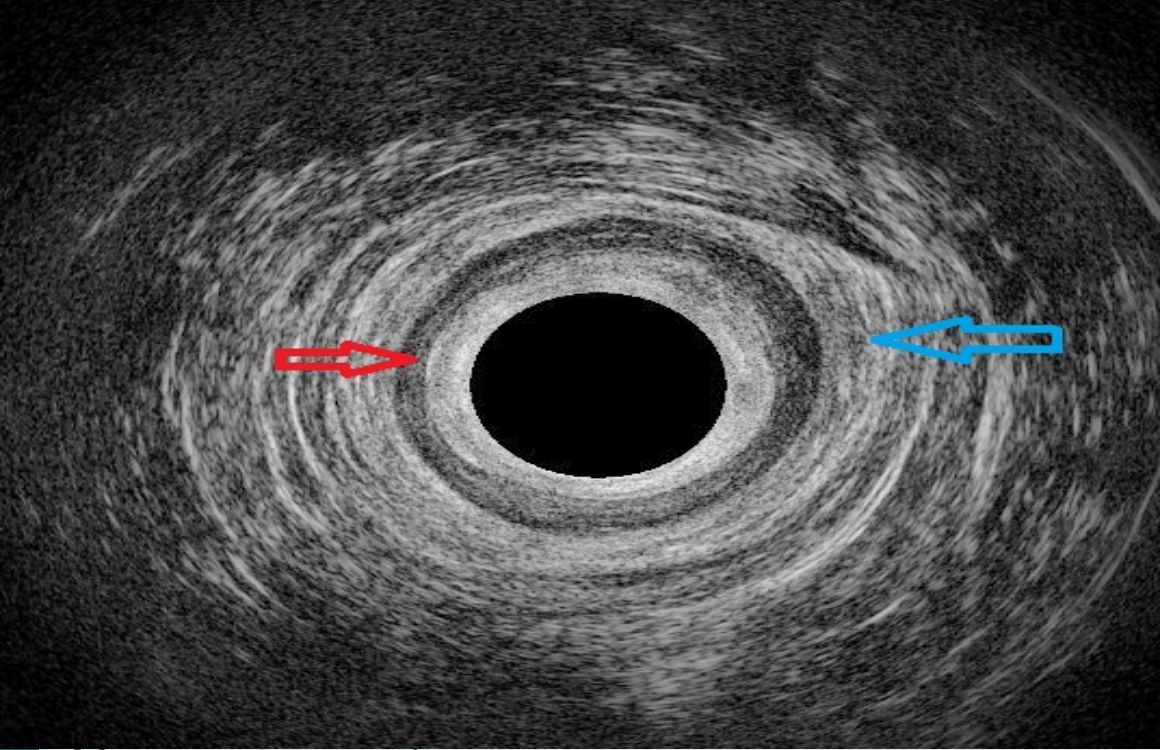
EAUS

- ▶ EAUS was conducted Using a **FlexFocus 400** Ultrasound Scanner (BK Medical, Herlev, Denmark) with a rotating EndoProbe (BK Medical, Herlev, Denmark) and a 16-MHz 3D 2052 transducer.
- ▶ The examination was conducted in the left lateral position. After inserting the EndoProbe for 5 cm inside the rectum, it was gradually withdrawn to take images at three levels of the anal canal.

Grading of anal sphincter integrity


According to the preoperative sonographic examination of the anal sphincters, patients were classified into four grades as follows:

- ▶ Grade 0: Intact anal sphincters with normal thickness and echogenicity.
- ▶ Grade I: Attenuation of the IAS (thickness ≤ 2 mm) with no visible defects.
- ▶ Grade II: Single or multiple defects in the IAS with or without IAS attenuation.
- ▶ Grade III: Grade I or grade II + EAS affection.



Results


- ▶ Fifty-nine patients.
- ▶ Mean age of 36.2 ± 13.3 (range, 17-63) years
- ▶ 33 (56%) males and 26 (44%) females.
- ▶ Forty-one (69.5%) patients had external full-thickness rectal prolapse and 18 (30.5%) had grade III/IV internal rectal prolapse.

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- Thirteen (22%) patients had previous surgery for rectal prolapse.
 - Forty-four (74.5%) patients complained of FI preoperatively with a mean preoperative Wexner incontinence of 6.8 ± 5.4 .



According to the grade of anal sphincter integrity in EAUS, there were:

- 12 (20.3%) patients with grade 0 (intact both anal sphincters)
- 29 (49.1%) with grade I
- 7 (11.8%) with grade II
- 11 (18.6%) with grade III.

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- Procedures performed: 36 patients underwent Delorme procedure, 12 underwent laparoscopic ventral mesh rectopexy, 9 underwent transperineal mesh rectopexy, and two underwent resection rectopexy.
 - Median duration of follow-up: 18 months.
 - 10 (17%) patients experienced recurrence
 - 30 (68.2%) of 44 patients with preoperative FI reported significant improvement in the continence state.

Preoperative characteristics of patients according to the grade of anal sphincter affection

Variable	Grade 0 (n=12)	Grade I (n=29)	Grade II (n=7)	Grade III (n=11)	P value
Age (mean± SD)	36.3± 13.2	35± 10.9	34.7± 17.3	39.9± 17.6	0.77
Male/female	8/4	15/14	4/3	6/5	0.87
Duration of symptoms in months	8.3± 1.8	15.1±2.8	24± 2.3	35.3±6.5	<0.0001
Type of prolapse (internal/external)	8/4	9/20	1/6	0/11	0.003
Patients with fecal incontinence (%)	1 (8.3)	25 (86.2)	7 (100)	11 (100)	0.45
Previous surgery for rectal prolapse (%)	1 (8.3)	4 (13.8)	3 (42.8)	5 (45.4)	0.046
Approach to surgical treatment (abdominal/perineal)	5/7	7/22	1/6	1/10	0.32

Continence scores and anal pressures according to the grade of anal sphincter affection

Variable	Grade 0 (n=12)	Grade I (n=29)	Grade II (n=7)	Grade III (n=11)	P value
Mean preoperative incontinence score	0.16± 0.5	6.5±4.2	10.6± 3.3	12.5± 3.7	< 0.00001
Mean postoperative incontinence score	0	1.6±1.3	4.7± 3.2	7.3± 2.8	< 0.00001
Mean preoperative resting anal pressure (mmHg)	65.7±11.2	48.3±13.7	31.2± 9.6	35.2± 15.9	< 0.00001
Mean preoperative squeeze anal pressure (mmHg)	134±41.3	102± 35.3	76.3± 36.1	60.3±19.9	0.0006
Recurrence (%)	0	4 (13.8)	3 (42.8)	3 (27.2)	0.054

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Conclusions

- Preoperative EAUS is a useful tool for the assessment of anal sphincter integrity in patients with rectal prolapse.
- Four grades of anal sphincter integrity were recognized by EAUS, higher grades were associated with increased incontinence scores and lower anal pressures.
- EAUS may also be useful in predicting improvement of FI after surgical treatment of rectal prolapse as higher grades of sphincter affection are associated with less continence improvement than lower grades.

**Thanks for giving
us your time!**

