



Editorial

Advanced ultrasound for benign anorectal conditions: is it worthwhile?



Ultrasonographic assessment of benign anorectal disorders is used to identify the anatomy of fistulous tracts, to evaluate the integrity of the anal sphincters in fecal incontinence, and the presence of rectocele, intussusception, enterocele, or dyssynergy in evacuation disorders (ED). However, despite its potential benefits, colorectal surgeons have not widely embraced this imaging modality, and often prefer magnetic resonance imaging (MRI). As a consequence, it is crucial to question the true value of ultrasound in clinical practice and determine if it can be deemed mandatory.

1. Fistulas and abscesses

Three-dimensional endoanal ultrasound (3D-EAUS) has been demonstrated to be a helpful non-invasive diagnostic procedure for detecting various characteristics of fistulas or abscesses (Level of Evidence 2, Grade of Recommendation B).^{1,2} Imaging can prevent difficulties or unexpected findings during surgery allowing us to evaluate preoperatively the internal opening, the primary fistula anatomy, the presence of secondary tracts, and the involvement of the anal sphincters. EAUS assists in determining the optimal timing and modality of surgical treatment.³ Abscesses typically manifest as anechoic or hypoechoic inhomogeneous areas, occasionally containing hyperechoic spots caused by debris or gas. Intersphincteric, ischioanal, and supralelevator collections may exhibit a horseshoe-shaped configuration. Anal fistulas appear as hypoechoic tracts, crossing the subepithelium, the internal anal sphincters (IAS), or the external anal sphincters (EAS), depending on the type of fistula. Distinguishing granulated tracts from scars can be challenging as they often have similar echogenicity. Straight fistulas are easily detected, whereas smaller and oblique tracts may pose more difficulty in visualization. Secondary or horseshoe tracts, when present, are also described according to Park's classification. The exact location of the internal opening can be determined by using Cho's criteria, despite the dentate line cannot be identified on EAUS.^{3,4} Ding et al.⁵ reported that 3D-EAUS had a favourable impact on the outcome of surgical treatment, mainly in the complex fistula. The authors recommend routinely performing ultrasounds in the clinical setting. Another study⁶ corroborated these findings, suggesting that 3D-EAUS is a safe and reliable modality that may assist surgeons in planning precise and definitive surgeries by accurately defining all characteristics of the fistula. The use of multiplanar reconstruction in endoanal ultrasound allows for the assessment of the percentage of muscle involved by the fistula and quantifies how much sphincter muscle may be safely divided.⁷ Ultrasound is also employed in post-treatment follow-up to identify the healing tissue and detect any potential failure or recurrence.⁸ Compared to MRI, several studies reported no significant statistical differences in the accuracy rates

between the two techniques in terms of Parks classification, branches, and internal openings.^{1,2} In conclusion, there is reliable evidence supporting the inclusion of 3D-EAUS in the preoperative diagnostic work-up for perianal sepsis.

2. Perineal tears and fecal incontinence

Obstetric anal sphincter injury (OASI) is the major cause of fecal incontinence (FI) in women. According to the Sultan classification, OASI is divided into four degrees.⁹ Major lesions (OASI 3c) involve both EAS and IAS. From the upper anal canal, which is always involved, tears may go down along the EAS until created a cloacal-like defect (complete tear, OASI 4).¹⁰ 3D-EAUS has been recommended by the International Consultation on Incontinence (ICI 7th Edition, 2023) as the gold standard technique for the assessment of anal sphincter integrity. It allows the visualization of the circumferential and longitudinal extension of the muscular defects by using multiplanar reconstructions. Faltin et al.¹¹ demonstrated that performing primary repair based on EAUS assessment led to a reduction in the severity of FI. Ultrasound is useful to detect missed tears (previously defined occult injuries), undiagnosed at childbirth in up to 33% of primiparous.⁹ In 71.5% of cases, missed sphincter injuries were associated with FI, at least in the early postpartum period (Level of Evidence: 1b). In a meta-analysis including 16,110 females and 103 studies, Sideris et al.¹² revealed a significant correlation between ultrasound diagnosed OASIs and FI (Level of Evidence: 1a). However, there is limited evidence in the form of systematic reviews or randomized controlled trials to determine the optimal approach post-OASI. Reid et al.¹³ reported a high rate of sphincter defects (ranging from 54% to 93%) detected by ultrasound after primary repairs. These data emphasize the importance of complete sphincter reconstruction after repair. Additionally, ultrasound plays a role in determining the mode of delivery in subsequent pregnancies. After OASI, a vaginal birth may be offered to asymptomatic women with normal investigations (EAUS and anal manometry), while the cesarean section is recommended in women with symptoms of FI, defects larger than 30° to the EAS, or low resting or squeezing anal pressures. In the EPIC (Etude de Prévention de l'Incontinence par Césarienne) multicenter trial, women with asymptomatic OASI and no residual defects detected by EAUS were randomized to either a planned cesarean section or a vaginal birth. At 6-month postpartum follow-up, no significant differences were found in terms of anal and urinary continence or sexual functions between the two groups. Based on these findings, there was no sufficient evidence to recommend cesarean birth for symptomatic women with OASI and no residual defects detected by EAUS (Level of Evidence: 1b).¹⁴

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3. Evacuation disorder

Evacuation disorder (ED) is a difficulty in evacuating or emptying the rectum associated with straining efforts at defecation, the sensation of incomplete evacuation, or the need for digital assistance. The underlying pathophysiological contributing to these obstructed symptoms are multifactorial and can involve both morphological or functional disorders (perineal descent, rectoceles, rectal intussusception, rectal prolapse, enterocele, pelvic floor dyssynergy). Evacuation proctography (EP) remains the established diagnostic method for posterior compartments in women with ED, because of the evidence in the literature, although it tends to overstate every anatomical abnormality as a pathological condition. Moreover, EP is an invasive procedure that can be embarrassing for patients and involves the use of ionizing radiation. A recent Cochrane¹⁵ demonstrated that dynamic transperineal ultrasonography (TPUS) fulfilled the criteria of a triage test in females with evacuation disorders as a positive test confirmed the diagnosis of rectocele, enterocele, and intussusception while a negative test excluded pelvic floor dyssynergy. TPUS was superior to EP in correctly identifying healthy women, reducing the need for further testing. As a consequence, a positive ultrasound test was highly suggestive of a posterior compartment disorder. TPUS did not meet the criteria to replace EP, however, the optimal cost-benefit ratio can be obtained by using TPUS as a screening test in women with obstructed defecation and EP as a second-line assessment.

Accurate preoperative diagnosis is crucial for planning the initial surgical treatment of anorectal benign conditions in females. Inadequate staging can lead to surgical failures, and subsequent surgeries are often more challenging and carry greater risks. Studies have shown that ultrasound plays a significant role in guiding treatment decisions, especially when interpreted by clinicians in conjunction with a comprehensive clinical history and physical examination. Therefore, ultrasonographic imaging can be recommended as a standard modality in clinical practice and should be included in the diagnostic workup of anorectal disorders.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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