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Rectal perforation during defecography: extraluminal barium impaction removed by TEM (Transanal Endoscopic Microsurgery)

AIM: *Defecography is the standard diagnostic technique for the diagnosis of functional disorders of the posterior pelvic compartment. However it has some limits as radiation exposure, low-contrast resolution, some degrees of embarrassment and discomfort for the patients. Furthermore it often fails to directly visualize the changes that affect the pararectal space.*
Here we present a never described case of rectal perforation after defecography with barium impaction removed by TEM (Transanal Endoscopic Microsurgery).
CASE REPORT: *We present a case of a 50 years old woman with extraluminal barium impaction due to perforation occurred during defecography. Both pelvic MR and endoanal ultrasound confirmed the presence of the extramural rectal mass below rectal mucosa. It was completely and safely removed using transanal endoscopic microsurgery (TEM).*
RESULTS: *The barium impaction has been radically removed using transanal endoscopic microsurgery. The post-operative period was uneventful and the patient was discharged 3 days after the operation. She is asymptomatic after 6 months from surgery.*
CONCLUSION: *Defecography is not completely safe and its use must be indicated only in selected cases. When a patient has complications during or after this investigation he must be referred to a specialistic centre where a tailored treatment can be performed. It is mandatory that the indication for defecography and other diagnostic functional investigations is given by a colorectal specialist.*

KEY WORD: Barium Impaction, Defecography, Rectal Perforation, TEM (Transanal Endoscopic Microsurgery)

Introduction

Defecography is considered the gold standard for the imaging of the functional disorders of the pelvic floor [1], allowing a real time evaluation of the dynamic and morfologic factors of defecation. However it has some limits as radiation exposure, low-constrast resolution, bidimensional imaging and some degrees of embarrassment and discomfort for the patients.
Sometimes, especially in young women, a MR defecography could be preferable for the absence of ionising radiation, also if the better position (horizontal vs sitting) of the patient during the investigation is still debated as well as its true usefulness in patients with obstructed defecation syndrome (ODS) is unclear [2].

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Finally, results of both defecography and MR defecography must be considered with caution because is still unclear their influence on surgical decision.
To our knowledge this is the first described case of rectal perforation occurred during defecography with extraluminal barium impaction removed using TEM.

Case Report

A 50 years old female with symptoms of obstructed defecation performed a defecography because of a clinical diagnosis of obstructed defecation. During the introduction of the contrast medium through the dedicated rectal probe she complained of severe rectal pain and bleeding that required to stop the investigation.

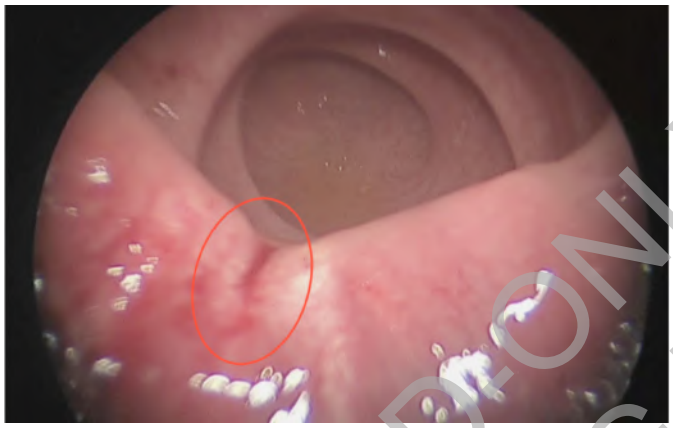


Fig. 1: Linear ulceration (circled in red), probably due to the introduction of the rectal probe.

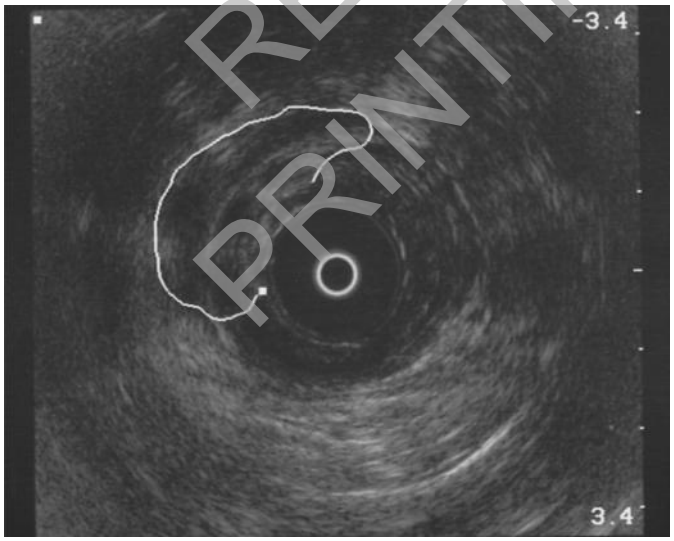
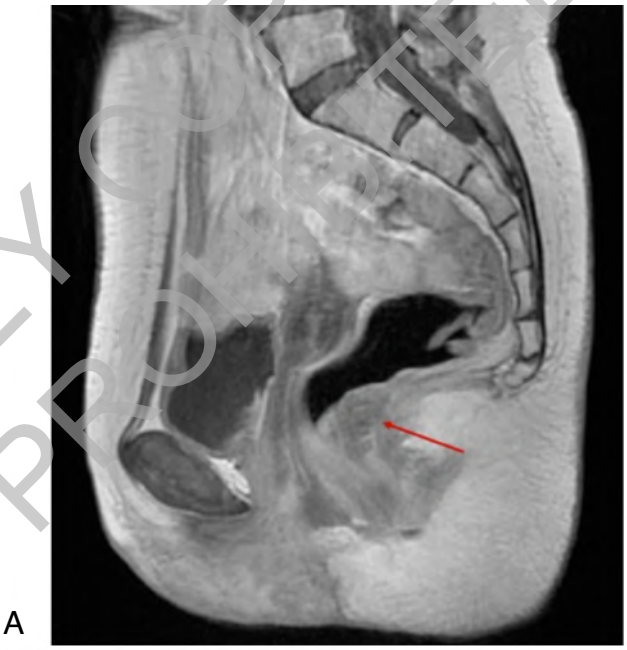


Fig. 2: Endoanal ultrasound (patient in left lateral position) showing a posterior extraluminal mass.

Because of the persistence of the symptoms, after a surgical examination, she was hospitalized in a Department of General Surgery.
An urgent plane abdominal X-ray excluded a free abdominal perforation. Blood tests were normal. The next day she had an evaluation in anesthesia that highlighted the suspected perforation at the level of the puborectalis muscle, posteriorly. A small amount of barium was removed too. The outcome of the patient was satisfactory and she was discharged after two weeks, after a repeated radiological evaluation.
She was admitted in our department after 4 months because of a persistent chronic rectal pain, rare bleeding, and difficult defecation.



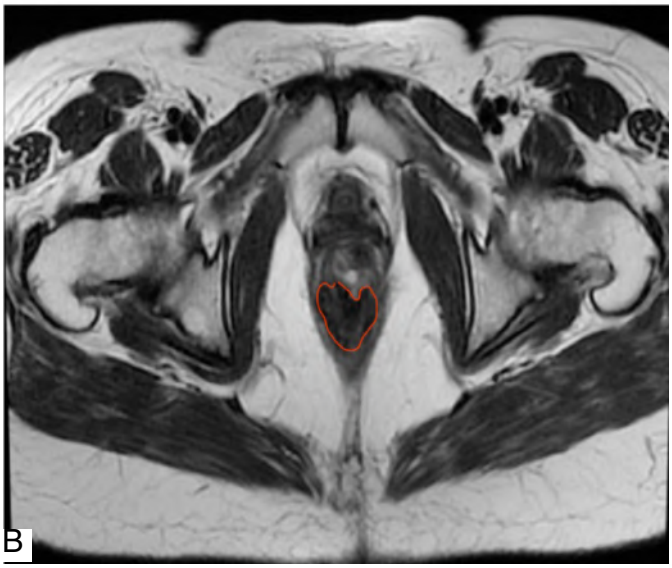


Fig. 3: A) Sagittal T2-weighted MR image showing a retrorectal mass with inflammatory thickening of the rectal wall (red arrow); B) Axial T1-weighted MR image. Red Line circling the retrorectal mass.

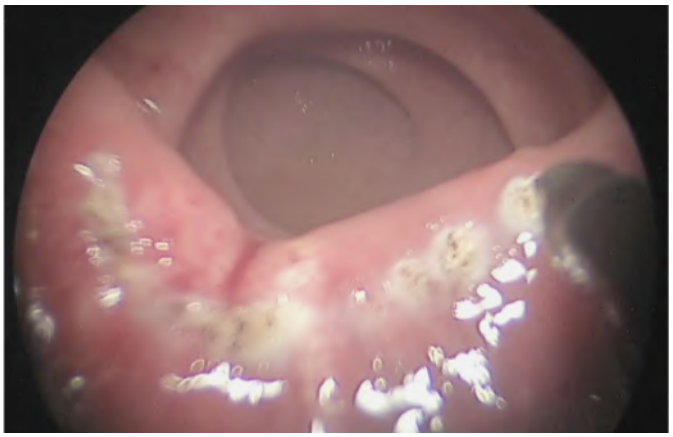


Fig. 4: Endorectal view during the TEM: marking the area to be removed.

At digital examination a hard posterior extraluminal rectal mass could be felt at 7 cm from the anal verge. In the same area a linear painful ulceration was observed, probably due to the introduction at this level of the probe for defecography (Fig. 1).
Endoanal ultrasound revealed an hypoechogenic area of chronic inflammation just above the puborectalis muscle, under the rectal mucosa, involving all the posterior semicircumference (Fig. 2).
To establish the possible involvement of the muscolatura propria of the rectum and of its mesorectum, a pelvic MR was performed, confirming the presence of a retrorectal mass with concomitant thickening of the rectal wall (Figs. 3a and 3b).
The patient was submitted to TEM (Transanal Endoscopic Microsurgery) that could removed the whole impaction (Figs. 4, 5A, 5B). Post-operative period was uneventful and the patient was discharged after 3 days. She is asymptomatic after 6 months from surgery.

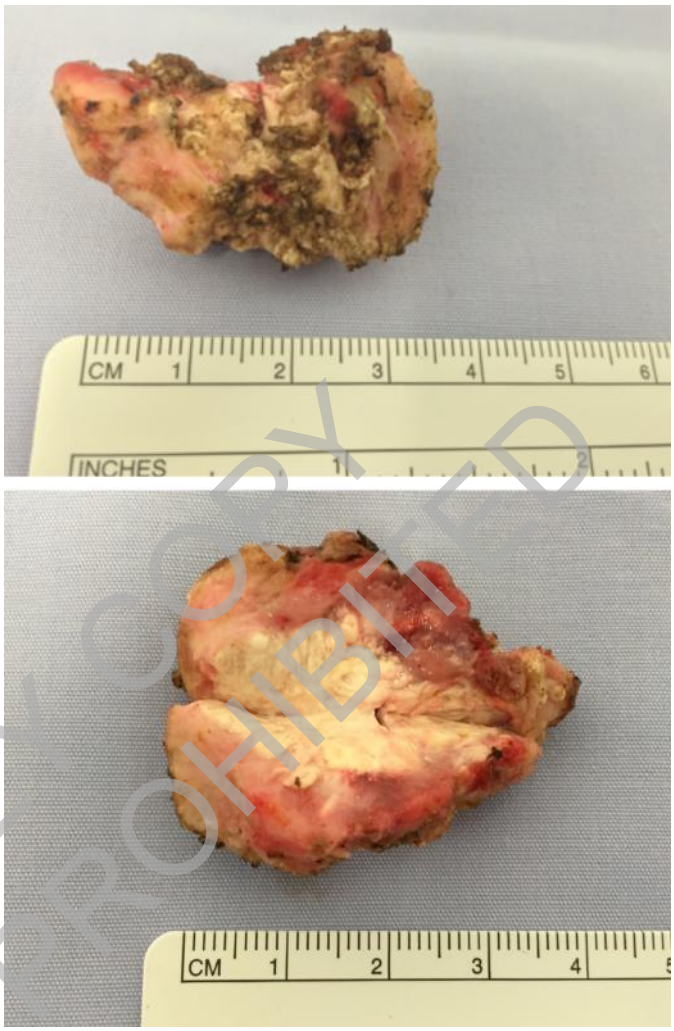


Fig. 5: A) Resection specimen completly removed; B) Sectioned surgical specimen showing the barium impaction.

Discussion

Defecography was described by Mahieu et al. [3] more than 30 years ago but despite other new alternatives, such as dynamic perineal ultrasound or MR defecography, it is still considered the gold standard diagnostic procedure for posterior compartment disorders as chronic constipation, anorectal painand anal incontinence.
Its use has rapidly spread not only among colorectal specialists bringing to an exaggerate use of the investigation, often requested without a specific clinical reason.
TEM was initially proposed in 1983 by Buess [4] as a minimally invasive technique for excision of adenomas and early rectal carcinomas and after many years it has maintained its functional and oncological advantages, being the right selection of cases the main factor for its satisfactory results.
Its use has been always growing and recently its range of uses has expanded, going by the removal of rectal neoplasms even up to recent evidences on the treatment of internal rectal prolapse [5], myxoid pseudocysts [6] or retrorectal tumors [7].
In our opinion TEM is the best option in cases, such as this, in which a magnified endoscopic view of the rectum is mandatory to manage a difficult lesion.

Conclusions

The use of imaging investigations for the diagnosis of rectal functional disorders should be limited because their real value in deciding a subsequent possible surgery is still on debate [8]. Particularly, defecography can have some degrees of side effects and complications [9,10] and should be performed only on indication of a colorectal specialist.

Riassunto

OBIETTIVO: La Defecografia è l'esame diagnostico utilizzato di routine per la diagnosi dei disordini funzionali del compartimento pelvico posteriore. Tuttavia ha diversi limiti quali l'esposizione alle radiazioni ionizzanti, la bassa risoluzione, l'imbarazzo ed il discomfort provocato al pazienti e talvolta fallisce nella visualizzazione dinamica dello lo spazio pararettale.
CASO CLINICO: Presentiamo il caso di una donna di 50 anni con raccolta extraluminale di bario causata da una perforazione avvenuta durante defecografia. Sia la risonanza magnetica della pelvi che l'ecografia endoanale hanno confermato la presenza di una massa rettale extramurale.
RISULTATI: La raccolta di bario è stata rimossa radicalmente usando la TEM. Il decorso post-operatorio è stato regolare e la paziente è stata dimessa 3 giorni dopo l'intervento. A 6 mesi dall'intervento chirurgico continua ad essere asintomatica.
CONCLUSIONI: La defecografia non è completamente sicura ed deve essere eseguita solo in casi selezionati. Se si verifica una complicanza durante o dopo questo tipo di esame deve essere inviato ad un centro di riferimento con esperienza in questo tali tipi di problematiche. L'indicazione all'esecuzione di una defecografia o ad per altri esami funzionali deve essere posta da un chirurgo specialista in chirurgia colorettale

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