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Transrectal ultrasonography of perianal fistulas: a single center experience from a surgeon's point of view

I. KARANIKAS[1], C. KOUTSERIMPAS[1], P. SIAPERAS[1], A. SKARPAS[1], J. KAROUBALIS[2], G. VELIMEZIS[1]

SUMMARY: **Transrectal ultrasonography of perianal fistulas: a single center experience from a surgeon's point of view**

I. KARANIKAS, C. KOUTSERIMPAS, P. SIAPERAS, A. SKARPAS, J. KAROUBALIS, G. VELIMEZIS

Aim. *Two-dimensional transrectal ultrasonography can nowadays be safely used for preoperatively evaluation of perianal fistulas. The aim of this study is to demonstrate its efficacy by comparing the results of this imaging technique with the surgical findings, as well as recurrence rates.*

Patients and methods. *A 4-year retrospective study with a mean follow-up of 4.7 years was performed, including patients treated surgically for a perianal fistula at the surgical department of a tertiary secondary hospital. All these patients underwent preoperatively a transrectal ultrasound with H2O2 for surgery planning, while 12 of them had also a MRI-scan.*

Results. *The sample was consisted of 53 patients with a mean age of 32.4 years and a 0.3 female/male ratio. During the mean 4.7 years follow up 2 patients (3,8%) had a recurrence, while in none of these cases an anal-sphincter muscle trauma was noted. The operative findings were in all cases consisted with the transrectal ultrasonography results. The MRI-scan failed to demonstrate the presence of a fistula in 3 out of the 12 patients (25%).*

Conclusions. *Our data support that the use of ultrasound with H2O2 preoperatively, for a safe surgery planning, leads to an accurate surgical procedure and fewer recurrence rates.*

KEY WORDS: Endoanal ultrasound - Perianal fistula - Transrectal ultrasonography.

Introduction

Two-dimensional transrectal ultrasonography was firstly used from urologists, to evaluate the prostate. Nowadays it can also be safely used preoperatively, for staging perianal fistulas and abscesses (1).

Management of perianal fistulas remains even today to be challenging. The correct classification of the fistulas and their anatomical relationship with the anal sphincters is fundamental in choosing the adequate treatment (1, 2).

Furthermore recurrence can occur in various occasions, such as when the internal opening is not identified, the presence of chronic fistulous cavities and the occurrence of a septical process. For the avoidance of such events, various methods have been used preoperatively for the appropriate treatment-planning, such as fistulography, computed tomography (CT), magnetic resonance imaging (MRI) scan, and transrectal ultrasonography (2, 3, 4).

Two dimensional transrectal ultrasonography offers adequate information for decision making in the management of these patients, since it has been shown to be in compliance with intraoperative findings (1, 5, 6, 7).

Perianal fistulas are classified according to Park et al into inter-, trans-, extra-, and suprasphincteric (8). Regarding surgical treatment, according to recent recommendations a cutting seton can be used to treat trans-sphincteric fistula. Additionally, fistulectomy results in longer healing times and higher rates of impaired continence than fistulotomy, therefore, the fistula track is recommended to be laid open rather than excised (9, 10).

The purpose of this study is to present our experience, from a surgeon's point of view, regarding the

[1] 2nd Department of Surgery, "Sismanogleio" General Hospital of Athens, Athens, Greece
[2] Department of Gastroenterology, "Georgios Gennimatas" General Hospital of Athens, Athens, Greece

Corresponding author: Christos Koutserimpas, e-mail: chrisku91@hotmail.com

efficacy of preoperative transrectal ultrasonography by comparing the results of this imaging technique with the surgical findings.

Patients and methods

From January 2008 until December 2011, 53 patients treated surgically at the 2nd Department of General Surgery in "Sismanogleio" General Hospital of Athens Greece for a perianal fistula were studied retrospectively. All these patients underwent preoperatively transrectal ultrasonography with H2O2 for surgical planning.

"Sismanogleio" hospital of Athens, Greece is a 450-bed secondary general hospital on the northern sector of the region of Athens (approximately 6.000.000 urban and suburban population). The present patient sample can be considered representative of the Athenian population.

The transrectal ultrasonography, which is protocol-based in our institution regarding perianal fistulas, was performed in all the patients by a gastroenterologist-expert in this field, and all the surgical procedures by a consultant surgeon. Perianal fistulas were divided into inter-, trans-, extra-, and suprasphincteric types according to Parks et al. (8). In patients with trans-sphincteric types cutting seton was performed, while in the rest fistulotomy.

Additionally 12 patients an MRI-scan had been performed by other physicians prior to ultrasound examination.

The patients' follow up ranged from 2.8 to 7 (mean 4.7) years. The efficacy of the method was studied in terms of surgical findings, recurrence, complications and in comparison to MRI scan findings.

Informed patient consent has been obtained from all patients. The present study was approved from the hospital's scientific committee.

Statistical analysis was performed using Epiinfo version 7.1.2.0 (Center for Diseases Control and Prevention, Atlanta, GA, USA).

Results

A total of 53 patients with a mean age of 32.4 years and a 0.3 female/male ratio, were included. Prior to transrectal ultrasound, a MRI scan had been performed in 12 patients. According to the transrectal sonography fistulas were classified as transsphincteric (N=24; 45%), intersphincteric (N=26; 49%), suprasphinteric (N=2; 4%) and extrasphinteric (N=1; 2%).

Regarding the surgical procedure, patients with transphincteric underwent cutting seton division (N=24; 45%), while the rest, inter-, supra- and extasphinteric (N=29; 55%) underwent fistulotomy.

During the mean 4.7 years follow up, 2 patients (3,8%) had a recurrence, while in none of these cases an anal-sphincter muscle trauma was noted.

The operative findings were in all cases corresponded to the transrectal ultrasonography results. The MRI-scan failed to demonstrate a clear presence of a fistula in 3 out of the 12 patients (25%).

Discussion

The major role of imaging modalities in evaluating perianal fistulas is to recognize the anatomic relationship of the fistula and to demonstrate the extent of inflammation, internal opening, and fluid collection (11). To reduce the rate of recurrence and postoperative fecal incontinence, it is important to evaluate the anatomic details and the presence of anal sphincter defects before surgery (12).

The study's data support that the use of transrectal ultrasonography preoperatively leads to an accurate surgical procedure and low recurrence rates. The reported recurrence rates seem to be even lower than those described in the literature (13, 14). Furthermore, the relationship of the fistula and the anal sphincter-muscles was studied preoperatively so that a serious complication such as the damage of these muscles was avoided in all cases.

MRI is considered to be an accurate modality for depicting primary tracts, showing 87% sensitivity and 69% specificity in a recent meta-analysis (15). Several comparison studies of TRUS and MRI have shown conflicting results (16-19). The present study showed that transrectal ultrasonography was more accurate in diagnosing perianal fistulas than the MRI, since MRI failed to diagnostically in 3 out of 12 cases. This could be explained by the presence of recent inflammation in the perianal area. On the other hand, the transrectal ultrasonography was accurate in all cases, even in the presence of inflammatory process. It is of note that the experience of the gastroenterologist or radiologist who perform the transrectal ultrasonography is of great importance.

Of course the present study has some drawbacks.

It is a retrospective study, coming from a single center and not all the patients had also a MRI scan. Therefore, an absolute comparison of the two methods cannot be made. The purpose of this study was to highlight the transrectal ultrasonography as a powerful tool in the hands of the surgeon for the preoperative planning of perianal fistulas in every day practice.

Transrectal ultrasonography can accurately assess the anal sphincter and provide critical information helpful for planning the appropriate treatment of perianal fistulas and fecal incontinence. Therefore, we propose the preoperative evaluation of perianal fistulas with transrectal ultrasonography as common practice, which has to be performed by experts in the field of imaging, as it provides advantages in terms of diagnostic accuracy, duration of the examination and cost effectiveness. Especially during the last years of economic crisis and austerity in Greece, it seems that evaluation of perianal fistulas with ultrasonography, performed by an expert, is much more cost-effective when compared to the MRI.

Authors' contributions

CK, IK, PS, AS for the literature search and analysis, and manuscript writing. IK, JK and GV for the final manuscript revision. All authors have read and approved the final manuscript.

Disclosure of interest

The Authors report no conflict of interest.

Consent for publication

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References

1. Dudukgian H, Abcarian H. Why do we have so much trouble treating anal fistula? World J Gastroenterol. 2011;17:3292-3296.
2. Kuijpers HC, Schulpen T. Fistulography for fistula-inano: is it useful? Dis Col Rectum. 1985;28:103-4.
3. Schratter SA, Lochs H, Vogelsang S, Schurawitzki H,nHerold C, Schratter M. Endoscopic ultrasonography versus computed tomography in the differential diagnosis of perianorectal complications in Crohn's disease. Endoscopy. 1993;25:582-6.
4. Lunniss PJ, Barker PG, Sultan AH, et al. Magnetic resonance imaging of fistula-in-ano. Dis Colon Rectum. 1994;37:708-18.
5. Nwaejike N, Gilliland R. Surgery for fistula-in-ano: an audit of practise of colorectal and general surgeons. Colorectal Dis. 2007;9:749-753.
6. Navarro-Luna A, García-Domingo MI, Rius-Macías J, Marco-Molina C. Ultrasound study of anal fistulas with hydrogen peroxide enhancement. Dis Colon Rectum. 2004;47:108-114.
7. Pascual Migueláñez I, García-Olmo D, Martínez-Puente MC, Pascual Montero JA. Is routine endoanal ultrasound useful in anal fistulas? Rev Esp Enferm Dig. 2005;97:323-327.
8. Parks AG, Gordon PH, Hardcastle JD. A classification of fistula-inano. Br J Surg. 1976;63:1-12.
9. Perez F, Arroyo A, Serrano P, et al. Fistulotomy with primary sphincter reconstruction in the management of complex fistula-in-ano: prospective study of clinical and manometric results. J Am Coll Surg. 2005;200:897-903.
10. Filingeri V, Gravante G, Baldessari E, et al. Radiofrequency fistulectomy vs. diathermic fistulotomy for submucosal fistulas: a randomized trial. Eur Rev Med Pharmacol Sci. 2004;8:111-6.
11. de Miguel Criado J, del Salto LG, Rivas PF, del Hoyo LF, Velasco LG, de las Vacas MI, et al. MR imaging evaluation of perianal fistulas: spectrum of imaging features. Radiographics. 2012;32:175-194.
12. Felt-Bersma RJ. Endoanal ultrasound in perianal fistulas and abscesses. Dig Liver Dis. 2006;38:537-543.
13. Whiteford MH, Kilkenny J, Hyman N, Buie WD, Cohen J, Orsay C, Dunn G, Perry WB, Ellis CN, Rakinic J, et al. Practice parameters for the treatment of perianal abscess and fistula-in-ano (revised) Dis Colon Rectum. 2005;48:1337-1342.
14. Ortíz H, Marzo J. Endorectal flap advancement repair and fistulectomy for high trans-sphincteric and suprasphincteric fistulas. Br J Surg. 2000;87:1680-1683.
15. Siddiqui MR, Ashrafian H, Tozer P, Daulatzai N, Burling D, Hart A, et al. A diagnostic accuracy meta-analysis of endoanal ultrasound and MRI for perianal fistula assessment. Dis Colon Rectum. 2012;55:576-585.
16. West RL, Zimmerman DD, Dwarkasing S, Hussain SM, Hop WC, Schouten WR, et al. Prospective comparison of hydrogen peroxideenhanced three-dimensional endoanal ultrasonography and endoanal magnetic resonance imaging of perianal fistulas. Dis Colon Rectum. 2003;46:1407-1415.
17. West RL, Dwarkasing S, Felt-Bersma RJ, Schouten WR, Hop WC, Hussain SM, et al. Hydrogen peroxide-enhanced three-dimensional endoanal ultrasonography and endoanal magnetic resonance imaging in evaluating perianal fistulas: agreement and patient preference. Eur J Gastroenterol Hepatol. 2004;16:1319-1324.
18. Hunerbein M, Pegios W, Rau B, Vogl TJ, Felix R, Schlag PM. Prospective comparison of endorectal ultrasound, three-dimensional endorectal ultrasound, and endorectal MRI in the preoperative evaluation of rectal tumors: preliminary results. Surg Endosc. 2000;14:1005-1009.
19. Sudol-Szopinska I, Kucharczyk A. Upper rectal fistulas: endoanal ultrasonography vs MR. J Ultrason. 2014;14:142-51.