G Chir Vol. 34 - n. 11/12 - pp. 332-336
November-December 2013

focus on

Surgical repair of rectocele. Comparison of transvaginal and transanal approach and personal technique

V. LEANZA, E. INTAGLIATA, G. LEANZA, M.A. CANNIZZARO, G. ZANGHÌ, R. VECCHIO

SUMMARY: **Surgical repair of rectocele. Comparison of transvaginal and transanal approach and personal technique.**

V. LEANZA, E. INTAGLIATA, G. LEANZA, M.A. CANNIZZARO, G. ZANGHÌ, R. VECCHIO

Rectocele is defined as a herniation of the rectal wall inside the vagina due to a defect of the recto-vaginal septum. It is traditionally considered a posterior compartment damage with weakness of posterior vaginal wall support resulting in a bulging of the rectum into the vaginal cavity. One of the main causes of rectal prolapse is the operative vaginal birth, although the evidence of the defect may occur after many years The treatment of rectocele is surgical, and the approach can be transperineal, transvaginal, and transanal or, in selected cases, transperitoneal through open or laparoscopic techniques.

In this study we compare two transvaginal surgical techniques - i.e. the perineal body anchorage to the posterior septum and the traditional Denonvilliers' transversal suture after removing of the vaginal skin, with the mostly performed transanal procedure, the STARR - comparing the data from the literature on their results. Mean hospital stay, rectal symptoms, dyspareunia, quality of life, recurrence rate and post-operative complications have been considered.

Both transvaginal and transrectal surgical techniques are effective to solve posterior compartment defect and to improve the quality of life. Vaginal approach may interfere with the sexual activity; furthermore it is associated with minimal postoperative pain than the transanal approach. Better anatomic results are assured after endovaginal surgery, while better rectal function prevail after the transanal approach. Vaginal techniques are more suitable to gynecologists, whereas the transrectal ones are usually performed by colo-proctologists or general surgeons.

KEY WORDS: Rectocele - Rectal prolapsed - STARR.

Introduction

Rectocele is defined as a herniation of the rectal wall inside the vagina due to a defect of the recto-vaginal septum. It is traditionally considered a posterior compartment damage with weakness of posterior vaginal wall support resulting in a bulging of the rectum into the vaginal cavity (1, 2).

The treatment of rectocele is surgical, and the approach can be transperineal (3, 4), transvaginal (3, 5), and transanal (3, 6-8) or, in selected cases, transperitoneal through open or laparoscopic technique. Associated repair of anterior and\or central compartment could be required (9-13).

The trans-abdominal techniques are the rectopexis with or without mesh, and the colo-rectum resection. With the advent of laparoscopic surgery, whose techniques are already standardized for several abdominal operations (14-16), the trans-abdominal repair of rectocele can be performed with this mini-invasive approach, whose specific advantages are well recognized (17-19).

The transperineal techniques are the Alteimer's rectosigmoidectomy and the Delorme's surgical procedure.

The main transvaginal techniques are the perineal body anchorage (PBA) to the posterior septum and the traditional Denonvilliers' transversal suture (TDTS) after removing of the vaginal skin.

The transanal procedures are the Sullivan - Khubchandani technique, the stapled transanal rectal resection (STARR), and the trans-STARR technique.

In this study we report the transvaginal surgical techniques we routinely perform, and the transanal procedure (STARR), comparing the data from the Literature on their results. Mean hospital stay, rectal symptoms, dyspareunia, quality of life, recurrence rate and post-operative complications are discussed.

University of Catania, Catania, Italy
Department of Surgery

Correspondence to: Intagliata Eva, evaintagliata@vodafone.it

Patients and methods

Transvaginal surgical techniques

PBA technique

The patient is placed in a dorsal lithotomy position. A transverse incision is made at the muco-cutaneous junction and thereafter the posterior vaginal wall is opened under the mucosa, transversally, in all the extent of bulge. The rectal wall and recto-vaginal connective tissue are separated from the vaginal wall by both sharp and blunt dissection, avoiding rectal injury. If an enterocele sac is shown, it is dissected, opened, and closed with a tobacco bag suture. Then the rectovaginal fascia is sutured at the perineal body with separated delayed absorbable stitches. The perineorrhaphy is performed with one or two horizontal sutures. Excess vaginal mucosa is then excised, aiming at a two or three finger width vaginal caliber and the vaginal wall is closed with running delayed absorbable sutures (Figure 1a).

TDTS technique

The patient is placed in a dorsal lithotomy position. a transverse incision is made at the muco-cutaneous junction and thereafter the posterior vaginal wall is incised at the midline. The rectal wall and recto-vaginal connective tissue were separated from the vaginal wall by both sharp and blunt dissection. If an enterocele sac is present, it is repaired as well. At this point, in spite of the previous technique, the Denonvilliers' recto-vaginal fascia is linked at the midline with interrupted delayed absorbable sutures. Longitudinal suture of the posterior vaginal skin after removing the redundant tissue, is performed (Figure 1b).

Transanal surgical technique

Stapled trans-anal rectal resection procedure (STARR)

It is indicated in patients with outlet obstruction due mostly to rectal intussusception and rectocele. After dilating the anus, the posterior rectal wall is retracted and three purse-string sutures, incorporating the mucosa, submucosa and rectal muscle wall, are placed along the anterior rectal wall, up to the edge of the rectocele. A 33-mm circular stapler is introduced and the rectal mucosa is pulled into the device. The posterior vaginal wall is checked just prior to firing the stapler so as to not include it the resection. 3.0 Vicryl sutures are used to reinforce the staple line or for hemostasis. The same procedure is repeated on the posterior rectal wall. The same procedure can be accomplished through a single circular stapler device.

Discussion

Mild rectocele is often unrecognized. However, when symptomatic, its functional impact can be very limiting to women in their daily activities (20). A patient may recognize a rectocele as a symptomatic vaginal bulge that may be associated with obstructive defecatory disturbance, whose incidence reported in the Literature ranges from 30-50% (20-23). It can be associated with a variety of complaints such as obstructive defecation, incomplete rectal emptying, incontinence of gas or feces, bleeding (24-26), looseness with intercourse, perineal pressure, rectal pain, extreme straining to defecate, extended evacuation time, long interval between two evacuations (5-10 days), perineal pain/discomfort when standing, and fragmented defecation (21, 22). Evacuation is often digitally supported in advanced clinical grading (21).

One of the main causes of rectal prolapse is the operative vaginal birth, but the evidence of the defect may occur after many years (27). Other possible causes are chronic increase in abdominal pressure (i.e. constipation), prolonged orthostatic posture, or congenital or inherited weakness in the pelvic support system. The objective diagnosis of rectocele is most commonly made by the gynecologists and the general surgeons. Pelvic exam may reveal a tissue bulging into the posterior compartment of the vagina. Digital rectal exam is useful to evaluate the posterior vaginal wall weakness and the defect at the anterior wall of the rectum. Defecography is a useful imaging modality since it can detect the presence of a rectocele, quantify its size and the degree of rectal emptying as well as identify a non-relaxing pubo-rectalis muscle and assess the rectal empting capacity.

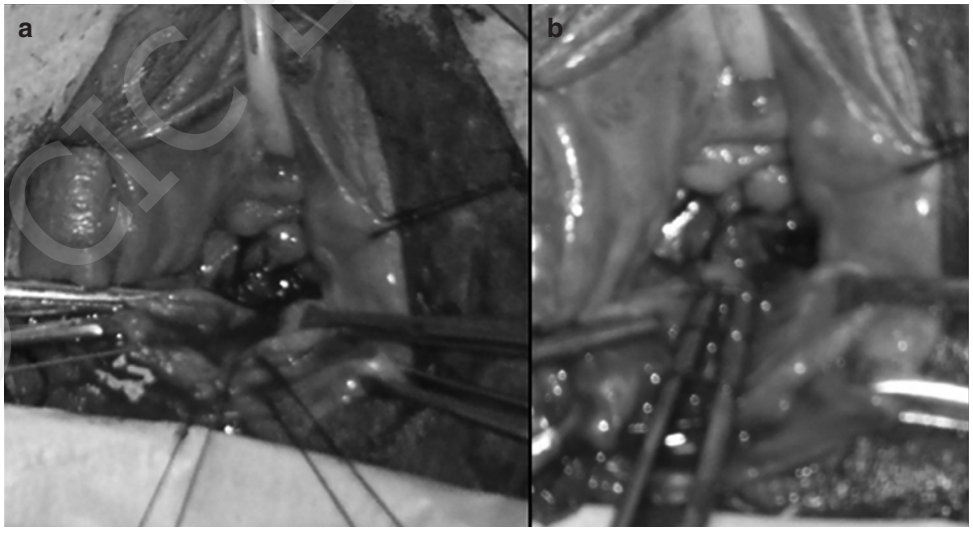

Fig. 1 - a) Perineal body anchorage, b) Traditional Denonvilliers' transversal suture.

Conservative management is almost always attempted before surgical repair (26). The surgical indication to rectocele repair is controversial, but most surgeons advocate it when a rectocele is symptomatic and of large dimension (>3 cm), or if the rectum fails to empty sufficiently on defecography (21).

Although many Authors have reported satisfactory anatomic results after surgery, conflicting results on bowel and sexual function have been observed after transvaginal approaches. The major concern regarding the adverse effects of the vaginal approaches is dyspareunia and sexual dysfunction (28-31). Various series report the improvement of sexual function after vaginal surgery (5, 32-34). Kahn and Stanton (30) reported that the preoperative percentage of sexual dysfunction raised from 18% to 27% in their follow-up of 171 patients treated by vaginal approach, and Paraiso and coworkers (28) noted a 12% postoperative dyspareunia rate. An improvement in symptoms related to defecation was noted in both transvaginal techniques, ranging from 70 to 95% (35-37). When compared with the preoperative situation, need to digitally assisted rectal emptying is statistically significantly reduced, ranging from 3 to 7% (35). Objective measurement at defecography during the follow-up shows a significant decrease in rectocele depth. The recurrence rates of rectocele ranges from 5.7-7% after the transvaginal techniques (35). Complications as rectal stenosis with constipation, anal incontinence, risk of infection, recto-vaginal fistula, fecal urgency, incontinence to flatus or feces, infection and rectovaginal fistula have not been reported in the Literature after transvaginal surgery. The integrity of the rectal mucosa after transvaginal approaches and differently than after STARR, significantly reduces the incidence of bacterial contamination. Besides, at our opinion, the major exposure of the operative field permits a suitable modulation of the redundant posterior vaginal skin.

The recent use of a transanal stapler aims at facilitate the surgical repair of a rectocele (38). STARR is considered an effective and safe procedure for the treatment of obstructed defecation syndrome due to rectal intussusception, rectocele and small rectal prolapse. In comparison with the vaginal approach, the transanal one allows also the treatment of anorectal pathologies such as hemorrhoids and intussusception (39, 40). The major exclusion criteria for performing the transanal techniques, are enterocele (40), high rectoceles (38), and puborectalis dyssynergia (3). The association of both endovaginal and endorectal procedures increases the risk of infection (38). Obstructed defecation, fecal urgency, incontinence to flatus, and risk of infection or vaginal fistula are reported after stapled technique, but not after transvaginal procedures. Improvement of rectal symptoms related to the correction of both intussusception and rectocele is very satisfactory (35, 39-44). The Literature does not report cases of post-operative dyspareunia following transanal correction (38, 40, 45). Improvement in the quality of life after STARR ranges between 50% and 100%. Need to digitally rectal empting ranges between 16,6 and 27% after transanal surgery (35, 46). Pre- and post-operative results showed a more significant improvement on the base of defecography in the transvaginal approach (35). The STARR technique showed a bleeding rate ranging from 3,3 to 26,6% (3, 40, 44, 47). Recurrence rate is less than 40% (35, 44). The rate of postoperative pain is low (40, 43, 44, 47), with a significant difference in patients receiving transanal repair who have more persistent pain (38). There is no case of sexual dysfunction (38, 40, 45). No worsening of eventual preoperative anal incontinence is reported (41), or if any, it is often mild and transitory (43). Fecal urgency' rate ranges from 1,1 to 34% among the STARR patients (38, 44, 46, 47). Postoperative incontinence to flatus is reported in 6 to 26,7% of the cases (38, 44, 47). The risk of serious complications as sepsis and rectovaginal fistula after STARR should not be underestimated, since the operation involves a full-thickness resection of the rectal wall (40).

Conclusions

Both transvaginal and transrectal surgical techniques are effective to solve posterior compartment defect and to improve the quality of life. Vaginal approach may interfere with the sexual activity; furthermore it is associated with minimal postoperative pain. Better anatomic results are assured after endovaginal surgery, while better rectal function prevails after the transanal approach. Vaginal techniques are more suitable to gynecologists, whereas the transanal one is usually performed by colo-proctologists or general surgeons. Although gynecologists prefer the transvaginal techniques and the general surgeons the transanal route, a multidisciplinary approach, however, is preferable (48).

References

1. Leanza V, Dati S. Central compartment prolapse: What is the best route? Urogynaecologia International Journal 2009;23 (2):117-122.
2. Leanza V, Cassaro N, Di Prima F. Hydronephrosis and vault prolapse. Urogynaecologia International Journal 2009;23(2):129-132.
3. Rosen Ada. Obstructed defecation syndrome: diagnosis and therapeutic options, with special focus on the STARR procedu-

re. IMAJ 2010;12:104-106.

4. Van Laarhoven Cj, Kamm Ma, Bartram Ci, Halligan S, Hawley Pr, Phillips RK. Relationship between anatomic and symptomatic long-term results after rectocele repair for impaired defecation. Dis Colon Rectum 1999;42:204-11.
5. Porter We, Steele A, Walsh P, Kohli N, Karram MM. The anatomic and functional outcomes of defect-specific rectocele repairs. Am J Obstet Gynecol 1999;181:1353-8.
6. Block JR. Transrectal repair of rectocele using obliterative suture. Dis Colon Rectum 1986;29:707-11.
7. Khubchandani It, Sheets Ja, Stasik Jj, Hakki AR. Endorectal repair of rectocele. Dis Colon Rectum 1983;26:792-6.
8. Sehapayak S. Transrectal repair of rectocele: an extended armamentarium of colorectal surgeons. A report of 335 cases. Dis Colon Rectum 1985;28:422-33.
9. Leanza, V. Tension-free mini-invasive anti-incontinence procedures: Comparison among three main pathways. Open Women's Health Journal 2012;6(1):30-35.
10. Zanghì G, Di Stefano G, Leanza V, Arena M, Di Dio D, Basile F. Incisional hernia in day surgery: our personal experience. Il Giornale di chirurgia 2012;33(6-7):218-220.
11. Gasbarro N, Leanza V. Sospensione dell'utero e della cupola vaginale prolassati all'arco tendineo dei muscoli elevatori dell'ano (proposta di una nuova tecnica). [Uterine and vaginal suspension in uterovaginal prolapsed from the tendineous arch of the levator ani muscle (proposal of a new technique)]. Giornale Italiano di Ostetricia e Ginecologia 2009;31(11-12):469-472.
12. Leanza, V, Dati S. Central compartment prolapse: What is the best route? Urogynaecologia International Journal 2009;23(2):117-122.
13. Leanza V, Cassaro N, Di Prima F. Hydronephrosis and vault prolapse. Urogynaecologia International Journal 2009;23(2):129-132 .
14. Vecchio R, MacFadyen BV. Laparoscopic common bile duct exploration. Langenbecks Arch Surg 2002;387(1):45-54. Epub 2002 Apr 10. Review. DOI 10.1007/s00423-002-0289-7.
15. Vecchio R, Marchese S, Swehli E, Intagliata E. Splenic hilum management during laparoscopic splenectomy. J Laparoendosc Adv Surg Tech 2011;21(8):717-20. doi: 10.1089/lap.2011.0165. Epub 2011 Jul 21.
16. Barbaros U, Dinççağ A, Sümer A, Vecchio R, Rusello D, Randazzo V, Issever H, Avci C. Prospective randomized comparison of clinical results between hand-assisted laparoscopic and open splenectomies. Surg Endosc 2010;24(1):25-32. doi: 10.1007/s00464-009-0528-x. Epub 2009 Jun 24.
17. Vecchio R, Marchese S, Intagliata E, Swehli E, Ferla F, Cacciola E. Long-Term Results After Splenectomy in Adult Idiopathic Thrombocytopenic Purpura: Comparison Between Open and Laparoscopic Procedures. J Laparoendosc Adv Surg Tech 2013;23(3):192-8. doi: 10.1089/lap.2012.0146.
18. Vecchio R, Cacciola E, Cacciola RR, Marchese S, Intagliata E. Portal vein thrombosis after laparoscopic and open splenectomy. J Laparoendosc Adv Surg Tech. 2011;21(1):71-5. Epub 2010 Dec 29. doi: 10.1089/lap.2010.0325.
19. Vecchio R, Cacciola E, Martino M, Cacciola RR, MacFadyen BV. Modifications of coagulation and fibrinolytic parameters in laparoscopic cholecystectomy. Surg Endosc 2003;17(3):428-33. Epub 2002 Dec 4. DOI: 10.1007/s00464-001-8291-7.
20. Novara G, Ficarra V, Boscolo-Berto R, Secco S, Cavalleri S, Artibani W. Tension-free midurethral slings in the treatment of female stress urinary incontinence: a systematic review and meta-analysis of randomized controlled trials of effectiveness. Eur Urol 2007;52:663-78.
21. Samuelsson E, Victor A, Svardsudd K. Determinants of urinary incontinence in a population of young and middle-aged women. Acta Obstet Gynecol Scand 2000;79:208-15.
22. Hannestad YS, Rortveit G, Sandvik H, Hunskaar S. A community-based epidemiological survey of female urinary incontinence: the Norwegian EPINCONT study. Epidemiology of Incontinence in the County of Nord-Trondelag. J Clin Epidemiol 2000;53:1150-7.
23. Abrams P, Cardozo L, Fall M, Griffiths D, Rosier P, Ulmsten U, et al. The standardisation of terminology of lower urinary tract function: report from the Standardisation Sub-committee of the International Continence Society. Neurourol Urodyn 2002;21:167-78.
24. Norris JP, Breslin DS, Staskin DR. Use of synthetic material in sling surgery: a minimally invasive approach. J Endourol 1996;10:227-30.
25. Meschia M, Pifarotti P, Bernasconi F, Guercio E, Maffiolini M, Magatti F, et al. Tension-Free vaginal tape: analysis of outcomes and complications in 404 stress incontinent women. Int Urogynecol J Pelvic Floor Dysfunct 2001;12(Suppl 2):S24-S7.
26. Nilsson CG. Latest advances in TVT tension-free support for urinary incontinence. Surg Technol Int 2004;12:171-6.
27. Holmgren C, Nilsson S, Lanner L, Hellberg D. Long-term results with tension-free vaginal tape on mixed and stress urinary incontinence. Obstet Gynecol 2005;106:38-43.
28. Paraiso MF, Weber AM, Walters MD, Ballard LA, Piedmonte MR, Skibinski C. Anatomic and functional outcome after posterior colporrhaphy. J Pelvic Surg 2001;7:335-339.
29. Mellgren A, Anzen B, Nilsson BY, et al. Results of rectocele repair; a prospective study. Dis Colon Rectum 1995;38:7-13.
30. Kahn MA, Stanton SL. Posterior colporrhaphy: its effects on bowel and sexual function. Br J Obstet Gynaecol 1997;104:82-86.
31. Lopez A, Anzen B, Bremmer S, et al. Durability of success after rectocele repair. Int Urogynecol J 2001;12:97-103.
32. Cundiff GW, Weidner AC, Visco AG, Addison WA, Bump RC. An anatomic and functional assessment of the discrete defect rectocele repair. Am J Obstet Gynecol 1998;179:1451-1457.
33. Glavind K, Madsen H. A prospective study of the discrete fascial defect rectocele repair. Acta Obstet Gynecol Scand 2000;79:145-147.
34. Kenton K, Shott S, Brubaker L. Outcome after rectovaginal reattachment for rectocele repair. Am J Obstet Gynecol 1999;181:1360-1363.
35. Nieminem K, Hiltunen R, Laitinen J, et al. Transanal or vaginal approach to rectocele repair: a prospective, randomized pilot study. Dis Colon Rectum 2004;47(10):1636.
36. Kudish BI, Iglesia CB. Posterior wall prolapse and repair. Clin Obstet Gynecol 2010;53(1):59-71.
37. Schwandner T, Roblick MH, Hecker A, Brom A, Kierer W, Padberg W, Hirschburger M. Transvaginal rectal repair: a new treatment option for symptomatic rectocele? Int J Colorectal Dis 2009;24(12):1429-34. Epub 2009 Aug 11.
38. Roger Lefevre, G. Willy Davila. Functional Disorders: Rectocele. Clinics in colon and rectal surgery 2008; 21(2).
39. Reboa G, Gipponi M, Ligorio M, Marino P, Lantieri F. The

impact of stapled transanal rectal resection on anorectal function in patients with obstructed defecation syndrome. Dis Colon Rectum 2009;52(9):1598-604.

40. Edward Ram, Dan Alper, Eli Atar, Inna Tsitman, Zeev Dreznik. Stapled transanal rectal resection: a new surgical treatment for obstructed defecation syndrome. IMAJ 2010;12.
41. Boccasanta P, Venturi M, Stuto A, Corrado B. Stapled transanal rectal resection for outlet obstruction: a prospective multicenter trial. Dis Colon Rectum 2004;47:1285-1297.
42. Guarnieri A, Cesaretti M, Tirone A, Vuolo G, Verre L, Savelli V, Piccolomini A, Di Cosmo L, Carli AF, Burroni M, Pitzalis M. Stapled transanal rectal resection (STARR) in the treatment of rectocele: personal experience. Chir Ital 2008;60(2):243-8.
43. Zhao K, Ding JH, Song WL, Zhu J, Yin SH, Tang HY. Application of stapled transanal rectum resection in the treatment of obstructed defecation syndrome. Zhonghua Wai Ke Za Zhi 2009;47(24):1846-8.
44. Frascio M, Stabilini C, Ricci B, Marino P, Fornaro R, De Salvo L, Mandolfino F, Lazzara F, Gianetta E. Stapled transanal rectal resection for outlet obstruction syndrome: results and follow-up. World J Surg 2008;32(6):1110-5.
45. Mahmoud SA, Omar W, Farid M. Transanal repair for treatment of rectocele in obstructed defecation: manual or stapled. Colorectal Dis 2010 Nov 10.
46. Ellis CN. Stapled transanal rectal resection (STARR) for rectocele. J Gastrointest Surg 2007;11(2):153-4.
47. Bin Zhang, Jian-Hua Ding, Shu-Hui Yin, Meng Zhang, Ke Zhao. Stapled transanal rectal resection for obstructed defecation syndrome associated with rectocele and rectal intussusception. World J Gastroenterol 2010;16(20):2542-2548.
48. Migliore M, Vecchio I, Rampello L, Borrata F, Astuto M, Rampello L. Multisciplinary approach of non-thymomatous myasthenia gravis. Acta Medica 2012;28:211-213.