Case reports

Persistent dyschezia after double stapled transanal rectal resection for outlet obstruction: four case reports

FILIPPO PUCCIANI - MARIA NOVELLA RINGRESSI - JACOPO GIANI

Dipartimento di Area Critica Medico-Chirurgica - Università di Firenze

Abstract: Sometimes dyschezia may be due to rectocele and/or recto-anal intussusception. Stapled transanal rectal resection (STARR) is a surgical option for dyschezia caused by rectocele and/or recto-anal intussusception. We reported four cases of patients evaluated for persistent symptoms of impaired defecation after STARR. Goals of the study were to identify the causes of failure, to outline an effective rehabilitative treatment program and to evaluate the post-rehabilitation results. Four females (mean age: 48.5 ± 3.3 years old), who had a previous STARR and who were symptomatic for dyschezia, underwent clinical evaluation, defecography, and anorectal manometry. A rehabilitative treatment was successively planned on the basis of the diagnostic instrumental data. A post-rehabilitative clinical evaluation was performed and the instrumental data of patients were compared with those of ten healthy women (mean age 54 years, range 43-67) with normal bowel habits. Clinical evaluation, defecographic X-rays, and anorectal manometry made diagnosis of outlet obstruction, supported by pelvic floor dyssynergia. The pelvic floor dyssynergia was also preoperatively present in all patients. An appropriate cycle of rehabilitation was outlined for each patient. After the rehabilitation the patients were clinically evaluated and Agachan constipation score lowered in all 4 cases. The persistent dyschezia after STARR was caused by pelvic floor dyssynergia, which was present pre-operatively. Rehabilitation was a useful therapeutic option in these patients.

Key words: Obstructed defecation; Chronic constipation; Rehabilitation; Biofeedback.

INTRODUCTION

Dyschezia, which presents with symptoms of outlet obstruction and difficult defecation including straining, feeling of incomplete evacuation after defecation, and manual manoeuvres to facilitate defecation,[1] is sometimes due to an intussusception extending into the anal canal (i.e. recto-anal intussusception) and/or to anterior rectocele. After failed first line medical and/or rehabilitative therapy, both diseases may be treated with surgical repair, but there is little agreement on the best approach. A recent technique, the double stapled trans-anal rectal resection (STARR), has been proposed for obstructed defecation due to recto-anal intussusception and rectocele.[2] The first stapler is used anteriorly, to correct rectocele and reduce intussusception, the second stapler is fired posteriorly, to complete the resection of intussusception.

In this study we present four cases of failed treatment, i.e. post-operative persistent difficulty in defecation following STARR. The aims of the study were to identify the causes of failure, outline an effective rehabilitative treatment program and evaluate post-rehabilitation results.

METHODS

Between June 2003 and January 2007, 4 females (mean age: 48.5 ± 3.3 years old), suffering from obstructed defecation that was not cured by conservative therapy, underwent a STARR in different surgical units. Some months after surgery, these patients came to the Surgical Clinic of the University of Florence (Italy) for persistent difficulty in defecation. All four patients were routinely studied for obstructed defecation by means of clinical evaluation, anorectal manometry, and defecography. The diagnostic tools suggested a rehabilitative program, which was performed in accordance to the pathophysiological profile of each patient. In order to attain the goals of the study, defecographic and manometric data were compared to the normal values of 10 healthy women (age range 43-67 years; mean age 54 years) with normal bowel habits and who were never seen by a doctor for intestinal problems. The patients were clinically re-evaluated after the rehabilitation.

In accordance with the ethical guidelines of our University, all four of the participants gave a written consent to use their clinical data with full knowledge of the procedures to be undertaken.

Clinical evaluation

A clinical questionnaire, concerning births, previous pelvic or anorectal surgery, concomitant diseases and bowel habits was administered to all the patients. A four weeks diary was used to evaluate the obstructed defecation [3] and the Agachan score gave objective evaluation of chronic constipation.[4]

A clinical examination was performed focusing on perineum, anus, rectum, and vagina. In particular, perineal descent, size and extension of rectocele, presence of genital prolapse by means of Pelvic Organ Prolapse Quantification (POPQ) examination,[5] were noted.

Defecography

The radiological assessment was carried out at rest, during contraction, and during expulsion of the barium in according to the methods suggested by the Italian Working Team.[6] All the X-rays showed latero-lateral views. Radiological measurements included the anorectal angle (measured and expressed in degrees between the longitudinal axis of the anal canal and the tangential line to the posterior rectal wall) and pelvic floor descent (defined as the vertical distance between the pubococcygeal line and the anorectal junction). The latter was expressed in mm. A qualitative evaluation was made by noting the barium trapping, recto anal intussusception and the persistence of the puborectal indentation during evacuation. A rectocele was also identified as a herniation of the anterior wall of the rectum into the vagina; the size was measured in mm and was defined as the distance between the tip of the rectocele and the longitudinal axis of the anal canal.

Anorectal manometry

Anorectal manometry was carried out according to the previously described technique.[7] Anal resting pressure (ARP) was carried out four times with the stationary pull-through technique and recorded in mmHg. Computerized analysis identified the maximal anal pressure (Pmax) and the mean pressure (Pm) of the anal canal. The maximal voluntary con-

traction (MVC) was evaluated by asking the subject to voluntarily contract the anal sphincter as long as he could. The computer quantified the amplitude in mmHg. Straining test was performed and anal relaxation (AR) during attempted defecation was evaluated by asking the subject to voluntarily strain and relax the anal sphincters. A relaxation value >75% from the basal line was considered normal. The recto-anal inhibitory reflex (RAIR) was elicited four times in the proximal sphincter by inflating a balloon (40 ml of air) in the rectum. Forty ml of air is considered the normal value necessary to induce complete relaxation. RAIR was noted for its presence.

The conscious distension volume threshold was identified as the first perceived transient sensation [conscious rectal sensitivity threshold (CRST)]. Values were expressed in ml. The maximal tolerated volume (MTV), also expressed in ml, was considered an expression of the rectal reservoir capacity. Compliance of the rectum (expression of the ratio mmHg/ml of inflated air) was measured by means of the pressure/volume curve.

Rehabilitation

The data of computerized anorectal manometry, carried out in all of the patients prior to the rehabilitation cycle, were used to guide rehabilitation. Signs of pelvic floor dyssynergia suggested the use of pelviperineal kinesitherapy and biofeedback, according to bimodal rehabilitation programme.[8] Impaired (≤ 20 ml) or delayed (> 80 ml) CRST (normal values: 40.0 ± 10.0 ml) were treated using volumetric rehabilitation.[9] Impaired MTV (≤ 130 ml or > 240 ml; normal values: 201.3 ± 19.4 ml) and impaired compliance of the rectum (ratio mmHg/ml > 0.5) were considered manometric signs for rehabilitative treatment using volumetric rehabilitation.[9] Electrostimulation was used as the preliminary step for biofeedback and kinesitherapy when the patients needed to better feel the anoperineal plane.[9] The sequence of rehabilitative program was adjusted according to the manometric reports of each patient. Therefore, it was aimed at the mechanisms of impaired defecation. This model resulted in individualized cycles of rehabilitation that were specifically designed for each subject.

CASES REPORTS

The clinical evaluation and diagnostic data of all the four women are reported in tables 1-4.

Case 1. – A.R. - Female - 48 years old. One childbirth with episiotomy. I grade uterine prolapse. In 1998, the patient underwent a Sarles operation for a rectocele, but difficult evacuation continued. A later defecography (2001) showed a descending perineum with an anterior rectocele (Ø 4 cm), recto-anal intussusception (13 mm) and the persistence of puborectal indentation at evacuation. The patient received no further anorectal manometry or other functional evaluations of her bowel habits. Nevertheless, in June 2003, the woman underwent STARR for dyschezia and outlet obstruction. Unfortunately, symptoms of difficult evacuation did not disappear even if defecatory frequency was higher than before surgery (8 times/week versus 3 times/week) and fecal soiling began. In November 2003, the patient came to our outpatient unit. She had a high residual fiber diet and good intake of water (> 1.5 l/die). The details of the clinical evaluation are reported in table 1. The patient underwent defecography and anorectal manometry: the instrumental data are reported in tables 2 and 3. Defecography showed a descending perineum with persistent puborectalis indentation during evacuation: no rectocele nor rectal invagination were noted, but barium trapping was 50%. Anorectal manometry showed a reduced ARP and a low amplitude of MVC. Impaired AR was noted at attempted defecation. Rectal capacity (MTV: 110 ml) and compliance ($\Delta p/\Delta v > 0.6$) were impaired.

Due to the pathophysiological profile of her bowel dysfunction conservative rehabilitation therapy was recommended and commenced. The sequence was electrostimulation, to better perceive the anoperineal plane, volumetric rehabilitation, to restore the rectal capacity and impaired compliance and pelviperineal kinesitherapy and biofeedback, to coordinate pelvic floor activity during defecation and restore sphincteric endurance. Rehabilitative therapy was very useful. Difficult defecation disappeared and the patient had no further episodes of fecal soiling. The clinical goals were obtained (table 4).

Case 2. – M.L. - Female - 49 years old. Two childbirths (1980 and 1983) with II grade perineal tears. In 1985, sacral trauma and fracture of the coccyx. Previous surgery in 1996 (Milligan-Morgan hemorrhoidectomy) and 2000 (right ovariectomy). Dyschezia began at a young age, worsened after each childbirth and fracture of the coccyx. In June 2003, a defecography was performed. Rectocele (Ø 3.3 cm) and recto-anal intussusception (rectoanal infold-

TABLE 1. – *Clinical evaluation in outpatient unit*.

	Age	***Births***	***Previous surgery***	***Perineal descent***	***Rectocele***	***Genital prolapse POPQ***	***Agachan score***
Case 1	48	1	Sarles operation	Present	–	Stage I	16
Case 2	49	2	Haemorrhoidectomy Right ovariectomy	–	–	–	20
Case 3	51	–	Haemorrhoidectomy				
	–	–	–	18			
Case 4	46	1	–	Present	Present	Stage II	18

TABLE 2. – *Defecography.*

		Case 1	***Case 2***	***Case 3***	***Case 4***	***Controls***
Anorectal angle (degrees)	resting	96	91	96	100	94 ± 3
	evacuation	100	95	92	102	110 ± 3
Pelvic floor descent (mm)	resting	59	22	16	52	17 ± 7
	evacuation	96	20	19	89	25 ± 2
Rectocele size (mm)		0	0	0	15	0
Barium trapping (% retained volume)		50%	40%	50%	40%	10%
Recto-anal intussusception		absent	absent	present	absent	0
Puborectalis indentation		present	present	present	present	0

TABLE 3. – *Anorectal manometry.*

	Case 1	*Case 2*	*Case 3*	*Case 4*	*Controls*
P_{max} (mmHg)	54.6	74.0	84.9	63.4	78.01 ± 10.2
P_m (mmHg)	25.9	42.7	47.8	31.3	41.8 ± 6.6
MVC (mmHg)	99.6	114.4	136.8	95.9	124.1 ± 13.7
Anal relaxation (%)	37%	absent	absent	absent	> 75%
RAIR	present	present	present	present	present
CRST (ml)	40	50	< 20	40	40.0 ± 10.0
MTV (ml)	110	190	80	200	201.3 ± 19.4

ing: 12 mm) combined with paradoxical puborectalis contraction at fecal evacuation were diagnosed. In November 2003 the patient, after a failed rehabilitative cycle with biofeedback, underwent a STARR. The dyschezia however persisted and in March 2004 the patient came to our outpatient unit. The clinical evaluation is reported in table 1. The patient had low intakes of vegetal fiber and water (< 1 l/die). Stool frequency was 1-2 times/week and the stools were dry and hard. A diagnostic work up was made. A colonoscopy showed a "melanosis coli" due to laxative abuse. Colonic transit time was impaired in the recto-anal region with persistence of 75% of the radiopaque markers after 5 days. Defecographic and manometric data are reported in tables 2 and 3. Defecography confirmed the presence of puborectalis indentation at evacuation; neither recto-anal intussusception nor a rectocele were found. Anal endosonography showed a small hypoechoic area (width 27°, length 1.4 cm) in the anterior wall of the external anal sphincter. Anorectal manometry reported anal contraction during attempted defecation. The conclusive diagnosis, based on defecographic and manometric reports, was pelvic floor dyssynergia.[10] Preliminarily, a high residual fiber diet and hydration (> 1.5 l/die) were prescribed. A successive cycle of pelvic floor rehabilitation was performed: bimodal rehabilitation, including pelviperineal kinesitherapy and biofeedback, was used.[8] At the end of the therapeutic program, bowel function was normal (Tab. 4). Stool frequency was daily, and there were no longer any symptoms of difficult defecation.

Case 3. – C.V. - Female - 51 years old. Nulliparous. Previous Milligan-Morgan hemorrhoidectomy (1994). Dyschezia began 5 years ago, and worsened until digital evacuation was found to provide relief. In December 2003, a defecographic evaluation showed impaired emptying of the rectum with increased puborectalis indentation at evacuation, rectocele (Ø 3.8 cm) and recto-anal intussusception (recto-anal infolding: 16 mm). The patient had no further functional evaluation and in June 2004 underwent STARR after unsuccessful rehabilitative therapy with biofeedback. A few days after surgery, the 5-6 bowel movements/day were already characterized by urgency and symptoms of incomplete rectal emptying requiring digitation. During the next months, this defecation behavior continued and for this reason, in October 2004, the patient came to our outpatient unit. The frequency of bowel movements was high (5-8/day) but excreta were few for each stool, sometimes with digital evacuation. Preliminary endoscopic evaluation was negative for organic lesions of the colon and rectum. A new defecography was performed and radiological pictures showed an increased puborectalis indentation at evacuation combined with a recto-anal intussusception (Tab. 2). Anorectal manometry showed anal contractions during attempted defecation and impaired values for rectal sensation (CRST < 20 ml), rectal capacity (MTV= 80 ml) and rectal compliance ($\Delta p/\Delta v > 0.5$) (table 3). On the basis of the pathophysiological data (impairment of functional rectal properties and the presence of pelvic floor dyssynergia), a rehabilitative program was outlined. Volumetric rehabilitation, used to restore normal rectal volumes of sensation, capacity and compliance, was the first step of the rehabilitative program. Bimodal rehabilitation (i.e. pelviperineal kinesitherapy and biofeedback) was the second rehabilitative step. At the end of the rehabilitation cycle the patient was better: the number of bowel movements was about twice a day, but some degree of urgency persisted (Tab. 4). Rectal emptying was complete and digital evacuation was no longer necessary.

TABLE 4. – *Agachan score*.

	Pre-rehabilitation cycle	*Post-rehabilitation cycle*
Case 1	16	3
Case 2	20	3
Case 3	18	6
Case 4	18	5

Case 4. – P.G. - Female - 46 years old. One childbirth. Uterine prolapse (II grade). From the time the patient was in her twenties, chronic constipation was treated with laxatives. In 2002, a gastroenterological evaluation diagnosed "descending perineum syndrome: rectocele", suggesting rehabilitative therapy. The patient, however, received no treatment. Symptoms of difficult defecation worsened over time until digital evacuation was practiced and in July 2004 a new defecography was performed. The radiological report confirmed the abnormal and mobile descending pelvic floor with the persistence of puborectalis indentation at evacuation and the appearance of a rectocele (Ø 3.4 cm). Anorectal manometry pointed out low ARP and absent sphincter relaxation at attempted defecation.

A rehabilitation program with biofeedback proved unsuccessful and in February 2006 the patient underwent STARR. After surgery, bowel evacuation occurred daily, but the symptoms of dyschezia persisted, sometimes with post-defecatory fecal soiling. In January 2007, the patient was evaluated in our outpatient unit (Tab. 1). The diagnostic work up included defecography, anorectal manometry and neurophysiological tests (external anal sphincter electromyography, latency of pudendo-anal reflex, evoked sensory/motor potentials). The instrumental data are reported in tables 2 and 3. Pre and post operative defecography studies were similar but the rectocele was smaller (Ø 1.5 cm). Anorectal manometry confirmed the low ARP (Pm: 31.3 mmHg) and the absence of anal relaxation at straining. Neurophysiological tests excluded pudendal neuropathy. The patient was treated using bimodal rehabilitation which led to improved bowel function, requiring the use of a micro-enema once/week (Tab. 3).

DISCUSSION

Outlet obstruction is a complex disorder. A wide variety of non-specific symptoms are present and there is an overlap among the clinical profiles of functional (pelvic floor dyssynergia) and organic (rectocele and rectal intussusception) diseases.[11] Moreover, anatomic abnormalities, when present, are involved with functional disorders, such as pelvic floor dyssynergia, in the pathophysiology of this syndrome. Therefore, it follows that the surgical treatment of rectocele and/or recto-anal intussusception, after failed conservative treatment, is debatable. When to operate and which type of surgical technique to use are the two important questions, and both are without a decisive answer.[12] Three years ago, an Italian group published the results of a prospective multicenter trial on the new procedure, STARR, for outlet obstruction.[13] The level of evidence was II-2:[14] This was not a randomized clinical trial and there was no control group. The results were encouraging, but some symptoms of dyschezia persisted in a group of patients. For example, the

feeling of incomplete evacuation was present in 18.9% of the patients at a 12 month follow-up. In spite of the low evidence-based evaluation,[15] implementation of the technique has become widespread in Italy. Over a relatively short period of time (November 2003-January 2007), we evaluated four women affected by persistent dyschezia after STARR. Our case reports help to better understand the surgical failures. All four patients had pre-operative pelvic floor dyssynergia, combined in different ways with rectocele and recto-anal intussusception. These instrumental data could have been used as exclusion criteria for STARR[13] but surgeons intervened following "failed biofeedback". Surgery solved some pre-operative signs of obstructed defecation. In fact, post-operative evaluation showed a resolution of morphologic lesions (rectocele and/or rectoanal intussusception), but clinically there were unchanged symptoms of impaired defecation. A recent paper[16] underlined the symptomatic failure in 58.3% patients treated by STARR for obstructed defecation where the failure was due to pelvic floor dyssynergia. In our patients there was a similar pathophysiological pathway and it can be reasonably supposed that their pre-operative "failed biofeedback" could be due to a poorly performed pre-operative rehabilitation programme, since dyssynergic patients who do not respond to bimodal rehabilitation are very few.[8] We don't know if STARR was useful or not but, surely, a more complex rehabilitative programme would have been more helpful. Two patients required multimodal rehabilitation for the physiopathological complexity of the obstructed defecation.

In conclusion, this report advocates caution when considering surgery for patients affected by obstructed defecation with pelvic floor dyssynergia and emphasizes the importance of an effective rehabilitation program in the treatment of this condition.

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Correspondence to:
Prof. FILIPPO PUCCIANI
Dipartimento di Area Critica Medico-Chirurgica
Viale Morgagni 85 - 50134 Firenze
Phone 0039-055-7947083 - Fax 0039-055-42201333
E-mail: pucciani@unifi.it

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Repeat transanal advancement flap repair: impact on the overall healing rate of high transsphincteric fistulas and on fecal continence. *Mitalas LE, Gosselink MP, Zimmerman DD, Schouten WR. Dis Colon Rectum. 2007 Aug 14; epub*. Repeat transanal advancement flap repair increases the overall healing rate of high transsphincteric fistulas from 67 percent after one attempt to 90 percent after two attempts without a deteriorating effect on fecal continence (87 patients, median follow-up 15 months range 2-50).

9 – BEHAVIOUR, PSYCHOLOGY, SEXOLOGY

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10 – MISCELLANEOUS

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