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Obstructed Defecation Syndrome After Delivery Trauma

Shaban Mehrvarz,[1] Seyed Mohsem Towliat,[2] Hassan Ali Mohebbi,[2] Soleyman Heydari,[2,*] Mahdi Farahani,[2] and Hamid Reza Rasouli[1]

[1]Trauma Research Center, Baqiyatallah University of Medical Sciences, Tehran, IR Iran
[2]Department of Surgery, Faculty of Medicine, Baqiyatallah University of Medical Sciences, Tehran, IR Iran

*Corresponding author: Soleyman Heydari, Department of Surgery, Faculty of Medicine, Baqiyatallah University of Medical Sciences, Tehran, IR Iran. Tel: +98-2181263550, Fax: +98-2188053766, E-mail: heydari.dr@gmail.com

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Abstract

Background: Obstructed defecation syndrome (ODS) occurs in about 7% of adults; it seems that the etiology of pelvic floor disorders is multifactorial. Pregnancy and childbirth damage to the pelvic nerve and muscles are proposed causes for this condition. The precise role of vaginal delivery (VD) is not clearly defined, although in recent studies association of pelvic floor disorder with Operative vaginal delivery and episiotomy has been proposed.

Objectives: In this prospective study, we assessed the outcome of stapled transanal rectal resection (STARR) in females with one of the two modes of delivery (VD or caesarean section (C/S).

Patients and Methods: We used Longo's ODS score for the assessment of the severity of pelvic floor malfunction. Stapled Trans Anal Rectal Resection (STARR) procedure was performed using two circular staplers. Follow-up was done 12 months after the discharge. To assess the role of episiotomy in patient with VD, we divided them into two subgroups; females who had VD with episiotomy (Vd + epi) and females who had VD alone. Data were analyzed using SPSS version 20 software. P values less than 0.05 were considered statistically significant.

Results: In 30 consecutive females undergoing STARR for the treatment of ODS, who enrolled in this prospective study, 19 (63.3%) had Vaginal Delivery VD and 11 (36.7%) had Cesarean Section (C/S). The ODS score before the surgery was higher in females who had C/S, although there was no significant difference between VD and C/S groups in terms of the percentage of the ODS score improvement after the STARR surgery.

Conclusions: Higher ODS score in females who had C/S showed that C/S could not protect the pelvic organ from pregnancy and delivery trauma. It seems that episiotomy has a protective effect during VD; it can reduce the severity of trauma in pelvic organs during childbearing.

Keywords: Defecation, Cesarean Section, Vaginal, Episiotomy, Trauma

1. Background

Obstructed defecation syndrome (ODS) is a serious problem which affects the quality of life. Main symptoms of this condition are excessive straining, incomplete defecation and constipation requiring use of enema or laxative or digital manipulations.

ODS is a condition that affects the pelvic floor muscle and causes some structural and functional problems. Rectocele and intussusceptions are known as the two most important causes of this condition.

ODS occurs in about 7% of adults. Based on previous studies, it seems that the etiology of pelvic floor disorders is multifactorial. It has been reported with a male-to-female ratio of 1:2.2. Pregnancy and childbirth damage to the pelvic nerve and muscles are proposed causes for this condition. Although the precise role of vaginal delivery (VD) is not clearly defined, in recent studies, the association of pelvic floor disorder with operative VD and episiotomy (VD + epi) has been implicated (1-3).

Important delivery-related damages to pelvic floor organs are as follows:

1- Rectocele
2- Rectal prolapse
3- Intussusception
4- Urinary stress incontinence
5- Anal sphincter trauma

Previous epidemiologic analyses suggest that vaginal obstetric risk factors include:

1- Vaginal delivery
2- Episiotomy
3- Instrumental delivery
4- Macrosomic infant
5- Increased maternal age at the time of delivery

Non-obstetric risk factors include prior hysterectomy, aging, spinal anesthesia, and menopause.

Stapled transanal rectal resection (STARR) is a new technique for the treatment of various conditions of ODS like rectocele and intussusception. This procedure was described by Antonio Longo. He proposed the use of two cir-

cular staples to remove rectocele anteriorly and correct intussusceptions posteriorly. This is a simple technique that has been confirmed as a safe procedure with acceptable results for the treatment of ODS (4-6).

2. Objectives

In this prospective study, we assessed the outcome of STARR within females with one of the two modes of delivery -VD or caesarean section (C/S).

3. Patients and Methods

This study was performed from April 2010 to March 2012 at the department of colorectal surgery of the Baqiyatallah Hospital in Tehran. Thirty consecutive female patient underwent STARR for the treatment of ODS and were enrolled in this prospective study. They were divided into two groups; the first group of 19 (63.3%) had VD and the second group of 11 (36.7%) had C/S.

Preoperative workup consisted of interview and physical examination including proctoscopy, colonoscopy, anorectal manometry, and defecography. Clinical and paraclinical findings and data were assessed via database software. We used Longo's ODS score for the assessment of the severity of pelvic floor malfunction. Patients with higher scores had more severe disease.

3.1. Surgical Procedure

Pidrolax® (polyethylene glycol) solution was used for preoperative bowel preparation. Before the induction of anesthesia, patients received metronidazole 500 mg in combination with cefotaxime 2 g, intravenously. Under general or spinal anesthesia, patients were placed in the lithotomy position. The STARR procedure was performed using two circular PPH-01 staplers and bleeding from the staple line was controlled with 2 - 0 absorbable polyglactin sutures. All the procedures were conducted by an experienced surgical team.

Follow-up consisted of direct physical examination at 2, 6 and 12 months after discharge. We used a questionnaire to collect data. All the patients were able to contact their physicians via cellphones during the entire follow-up period.

3.2. Statistical Analysis

Descriptive statistics such as mean, standard deviation, frequency and percentage were used to summarize the distribution data in the sample. The quantitative variables were compared between the groups using Mann-Whitney U-test; for qualitative data, the chi-squared test and in the absence of circumstances Fisher's exact test was used. For the comparison of data before and after the surgery, Wilcoxon test or McNemar's test depending on quantitative or qualitative variables was used, respectively. Data were analyzed using SPSS version 20 software (SPSS, Chicago, IL, USA). P values less than 0.05 were considered statistically significant.

4. Results

Thirty consecutive female patients with ODS were enrolled; the first group of 19 (63.3%) had VD and the second group of 11 (36.7%) had C/S. The mean ages within the VD and C/S groups were 54.63 ± 3.00 and 54.00 ± 3.32 years, respectively.

Follow-up consisted of direct visit and physical examination at 2, 6 and 12 months after discharge. We decided to report the long-term results because of their importance and removed the short-term results. The results at two and six months after surgery were very similar to that of at 12 months; so, we avoided reporting short-term results.

Of the total cases with VD, 8 (26.7%) had history of episiotomy and 3 (10%) had history of first or second-degree perineal rupture during delivery (Table 1). Follow-up was performed one year after surgery. In this study, the ODS score before surgery was higher within females who had C/S, but there was no significant difference between VD and C/S groups in terms of the percentage of ODS score improvement after STARR surgery (ODS score 4.1 vs. 4.82, Table 1).

To assess the role of episiotomy in patient with VD, we divided them into two subgroups; females who had VD with episiotomy (VD + epi) and females who had VD without episiotomy (VD). We calculated the preoperative conditions and results of the surgery between the two groups. There were similar demographic conditions, but we found better results within the females who had VD + epi (ODS score before and after the surgery: 2.62 vs. 5.18, respectively) with significant differences (Table 2).

The overall improvement rate was 70.47% (range: VD: 65.25% and vd + epi: 78.17%); the three groups are compared in Table 3. Higher percentage means better improvement after surgery.

Table 1. Demographic Data of the Two Groups[a,b]

Variable	Group		P Value	Total
	VD	C/S		
Number of subjects	19 (63.3)	11 (36.7)	< 0.001	30 (100)
Age, y	54.63 ± 3.0	54.0 ± 3.32	0.61	54.4 ± 3.08
Improvement, %	70.03	71.19	> 0.05	70.47
ODS score (before surgery)	13.68 ± 2.49	16.73 ± 1.67	0.001	14.80 ± 2.65
ODS score (after surgery)	4.10 ± 2.37	4.82 ± 1.72	0.372	4.37 ± 2.15

[a]Abbreviations: C/S, Caesarean section; ODS, Obstructed Defecation Syndrome; VD, vaginal delivery.
[b]Data are presented as mean ± SD or No. (%).

Table 2. Results of the Vaginal Delivery Group[a,b]

Variable	Group		VD (Total)	P Value
	VD + epi	VD		
Number of subjects	8 (42.1)	11 (57.9)	19 (100)	NS
Age, y	55.5 ± 2.45	54.0 ± 3.32	54.63 ± 30	NS
Improvement, %	78.17	65.26	70.03	NS
ODS score (before surgery)	12 ± 1.30	14.91 ± 2.41	13.68 ± 2.49	0.01
ODS score (after surgery)	2.62 ± 1.40	5.18 ± 2.40	4.1 ± 2.37	0.02

[a]Abbreviations: ODS, Obstructed Defecation Syndrome; VD, vaginal delivery without episiotomy; VD+ epi, vaginal delivery with episiotomy.
[b]Data are presented as mean ± SD or No. (%).

Table 3. Comparison of Improvement Rate in the Three Groups

Group	Values[a]	Improvement Rate, %
Cesarean section	11 (36.7)	71.19
Vaginal delivery	11 (36.7)	65.26
Vaginal delivery + episiotomy	8 (26.6)	78.17
Total	30 (100)	70.47

[a]Values are presented as No. (%).

5. Discussion

ODS is a multi-organ problem; there are several surgical methods for correction of pelvic floor disorders (PFD), but all are very invasive with important complications. To achieve the best outcome and appropriate treatment, we must use a specific surgical option (7). We used STARR for the treatment of this condition because it has shown excellent results in several studies with the lowest complications and has become the best surgical choice for treatment for ODS (rectocele and rectal intussusception) (4, 5, 8).

It has been seen that pregnancy and VD have adverse effects on pelvic floor function by damaging nerve and muscles (9, 10). Straining for deification during pregnancy and using strong abdominal muscle force for VD can weaken the muscles of the pelvic floor.

Episiotomy has not been associated with any PFD (10). In 449 females, Handa showed that midline episiotomy may be associated with increased risk of sphincter injury and incontinence, but episiotomy in the posterolateral perineum may be protective (11). In our study, none of the patients had forceps delivery, but some studies have reported that using forceps and perineal laceration (not episiotomy) 5 - 10 years after the first VD were associated with PFD and they recommended minimizing forcep deliveries for prevention of pelvic organ prolapse as well as anal and urinary incontinence (3, 12, 13).

The results of our study are compatible with a report from Brazil. Murad-Regadas and collogues showed no correlation between the delivery mode and parity with the prevalence of rectocele, intussusceptions and anismus in females with ODS (14).

Murad-Regadas reviewed 370 female patients with ODS by echo-defecography; the distribution of pelvic floor dysfunctions showed no specific pattern across the nulliparous. The C/S and VD groups and suggested that there was no significant correlation between ODS and VD (15). Current evidence implicates that VD is the safest mode of delivery for a vast majority of females. C/S is associated with some serious complications including thromboembolic and cardiopulmonary diseases, endometritis, wound infection, hysterectomy and incisional hernia. Maternal death following C/S is several times more than VD (1). Elective C/S must not be used as a routine delivery mode and must be reserved for high-risk patients.

In this study, the ODS score before surgery was higher in females who had C/S, but there was no significant difference between VD and C/S groups in terms of the percentage of ODS score improvement after STARR surgery (Table 1). However, we found better results in females who had VD with episiotomy (Table 2). It seems that using episiotomy has protective effects during VD; on the other hand, it reduced the severity of trauma in pelvic organs during childbirth.

We know that ODS is more common in females than in males, but it is multifactorial; pregnancy and mode of delivery are not the only factors. Higher ODS scores in females who had C/S showed that C/S could not protect the pelvic organ from childbirth trauma.

According to this study, STARR can be used as a treatment of choice for ODS in females with childbirth trauma, because of its good results, low complication and less invasiveness.

Footnote

Authors' Contribution: Concept and design: Shaban Mehrvarz, Seyed Mohsen Towliat. Drafting of the manuscript: Hamid Reza Rasouli.

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