REV ARGENT COLOPROCT | 2022 | VOL. 33, N° 2
DOI: 10.46768/racp.v33i02.132

CASE REPORT

Traumatic cloaca repair. Presentation of a case and review of the literature

Rubén Balmaceda,[1] Martín Galvarini,[1] Leonardo Affroti,[1] Javier Kerman,[1] Claudio Fermani,[3] Andrés Kerman[2]

[1]Staff Surgeon and [2]Head of General Surgery Service, Sanatorio Argentino, San Juan, Argentina.

[3]Head of Coloproctology Section, Hospital L. Lagomaggiore, Mendoza, Argentina.

ABSTRACT

Traumatic cloaca is a complete disruption of the anterior aspect of the anal canal and rectovaginal septum, usually as a complication of vaginal delivery. It is a rare but disabling condition. Although the treatment is always a surgical repair, there is no consensus on the best technique to use. We found no evidence in favor of the use of flaps and midline closure has similar or lower morbidity than complex repairs. Performing an ostomy has no advantages and worsens the quality of life. After surgical repair, there is evidence of worsening long-term continence.

We present a 17-year-old primiparous patient with severe fecal incontinence due to traumatic cloaca. Surgical repair, performed with the technique by planes, was deferred for 9 months. During the procedure, the remaining rectovaginal septum was dissected and both puborectalis muscles sutured to the midline to reconstruct the perineal body. The overlapping technique was used to repair the anal sphincter and finally the anal and vaginal mucosa and skin were closed. No defunctioning ostomy was performed. The patient presented good postoperative evolution, being discharged after 4 days. At long-term follow-up, she has good continence.

Keywords: *Traumatic Cloaca; Obstetric Sphincter Injury; Anal Incontinence; Childbirth Complications; Perineal Tear*

INTRODUCTION

Obstetric anal sphincter injuries, caused by dystocic vaginal deliveries, are the leading cause of anal incontinence in young women.[1] Postpartum perineal tears have been classified by Sultan[2] according to their depth in four grades, grade 4 being the rupture of the entire sphincter complex and the anal mucosa. Traumatic cloaca is the most severe form of perineal tear and is defined as an injury involving the posterior vaginal wall, the lower and middle thirds of the rectovaginal septum, the perineal body, the sphincter complex, the anoderm, and the rectal mucosa, resulting in a common opening for the urethra, vagina, and anus[3] (Fig. 1).

Although several etiologies have been described, dystocia is the most common. The incidence is around 3 cases per 100,000 vaginal deliveries and the risk factors are primiparity, median episiotomy, use of forceps and high birthweight.

These injuries cause severe fecal incontinence and repeated vulvovaginal infections, which generates disability and serious psychosocial disorders. Affected patients often have a poor quality of life and incur large healthcare-related costs.[1,4]

The treatment of traumatic cloaca should always be surgical, trying to restore normal anatomy, however, there is still no consensus on the best technique to use. Other aspects of treatment include hygienic-dietary measures, biofeedback and psychological support, generally used to delay the patient until definitive treatment.

The most common techniques are those that use flaps, to avoid closing the surgical wound in the midline and reduce dead space. On the other hand, some authors recommend techniques without the use of flaps, based on the fact that the injury mechanism is a "linear" wound without tissue loss, with lateral displacement of the skin and muscle planes.

We present a patient with severe obstetric trauma and a traumatic cloaca successfully repaired with a layered technique without the use of flaps.

CASE

A 17-year-old woman attends the gynecology service due to anal incontinence and vaginal discharge. She reported having had a vaginal delivery 7 days earlier at another institution. The delivery had been dystocic, with a high birthweight newborn, and forceps had been used. She had no previous chronic illnesses. On physical examination, she had a Body Mass Index of 49.9 (weight 147 kg, height 172 cm), normal vital signs and no systemic inflammatory response syndrome. Examination revealed a large wound covered with granulation tissue in the perineal body region. The anal sphincter was hypotonic and the anus was open with a disruption of its anterior wall, involving the perineal body, the sphincter complex, the lower and middle thirds of the rectovaginal septum, the vaginal mucosa, and the rectal mucosa up to 2 cm pro-

The authors declare no conflicts of interest.

Rubén D. Balmaceda
rubenbalmaceda1@hotmail.com

Received: *May 2021.* ***Accepted:*** *June 2021.*

Rubén Balmaceda - https://orcid.org/0000-0002-9504-166X, Martín Galvarini - https://orcid.org/0000-0002-1833-3298, Leonardo Affroti - https://orcid.org/0000-0003-4804-323X, Javier Kerman - https://orcid.org/0000-0003-1052-891X, Claudio Fermani - https://orcid.org/0000-0002-2528-528X, Andrés Kerman - https://orcid.org/0000-0002-9495-0060

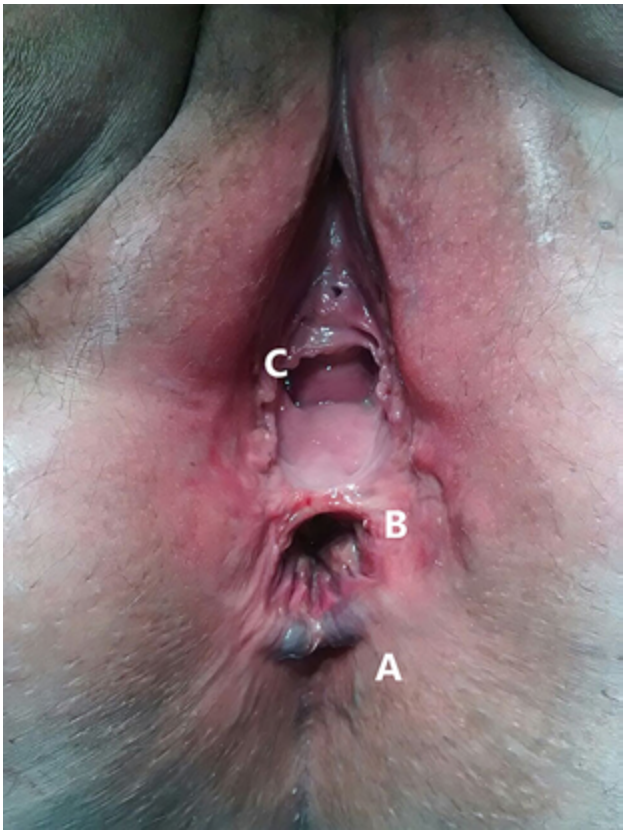

Figure 1: External appearance of the traumatic cloaca. Note the disappearance of the perineal body and the common opening of the vagina and rectum. A) Retracted sphincter complex in the posterior anal canal. The pectinate line and anal columns can be easily seen. B) Free edge of the remaining rectovaginal septum. C) Intact structures of the anterior vagina.

ximal to the pectinate line (Fig. 1). There was also fecal contamination of the vagina with vaginitis. The rest of the physical examination was normal.

Endoanal ultrasound and anorectal manometry were performed. A 10 MHz rotating probe (B-K Medical®, Herlev, Denmark) was used for ultrasound. During the ultrasound examination, an anterior defect was observed in both, the internal (IAS) and the external anal sphincter (EAS), with an angle of 134°.

A 4-channel hydropneumocapillary pump (Biomedik®, Neuquén, Argentina) and a water perfusion probe (Mui Scientific®, Ontario, Canada) were used for anorectal manometry. The resting pressure was 25 mmHg, the squeeze pressure 45 mmHg and the length of the anal canal 10 mm.

Incontinence severity and quality of life were assessed using the Cleveland Clinic Incontinence Score (CCFS) and the Spanish version of the Fecal Incontinence Quality of Life Scale (FIQLS), respectively.[6,7] The CCFS was 19/20, constituting severe incontinence. In the FIQLS, the patient obtained 13 points in lifestyle, 11 in behavior, 10 in perception and 4 in shame, which denoted a serious alteration in her quality of life. It was decided to defer surgery for at least 6 months until complete epithelialization of the wound, indicating hygienic-dietary measures and vaginal ovules in the meantime. The surgery was performed 9 months after the first consultation. No oral bowel preparation was used, only a 500 cc saline enema in the operating room. Antibiotic prophylaxis was performed with 200 mg of ciprofloxacin and 500 mg of metronidazole intravenously, 30 minutes before the skin incision and was maintained for the first 72 hrs postoperatively.

After spinal anesthesia, the patient was placed in the lithotomy position and a sterile field was made with povidone-iodine. Surgery began with a transverse incision over the free edge of the remaining rectovaginal septum, with a slight concavity curve toward the anus at both ends. The dissection of the rectovaginal space was continued up to the level of the puborectalis muscle, respecting the vaginal and rectal mucosa (Fig. 2). At the lateral and posterior edges of the incision, the subcutaneous tissue was dissected until the cut ends of the sphincter complex were found, and then mobilized 3 cm without excising the scar or attempting to dissect the EAS from the IAS. Next, reconstruction was performed in layers starting from the back to the front: first, the anal mucosa was closed with running polyglactin 910 3-0 suture. The sphincter complex was then repaired with the overlapping technique, calibrating the anal canal with the surgeon's index finger (Fig. 3). The overlap was made with 3 interrupted "U" sutures of polyglactin 2-0 in the form of "shirt over pants". Perineoplasty was performed by suturing both puborectalis muscles to the midline with 3 interrupted polyglactin 2-0 sutures, then the transverse perineal muscles were dissected in a more superficial plane and sutured to the midline with polyglactin 3-0 suture. The vaginal mucosa was closed with running polyglactin 3-0 suture. The initial transverse incision was converted to a vertical skin wound, which was closed with continuous absorbable suture, leaving small openings for fluid drainage (Fig. 4).

In the postoperative period, dressing and systemic antibiotics were indicated for 72 hours. Bed rest was prescribed for the first 24 hours, after which the patient was allowed to stand and ambulate, although sitting and squatting positions were avoided. Fluid intake was started 4 hours after the procedure, no constipation or laxatives were indicated during hospitalization. She was discharged on the fourth postoperative day after the first fecal evacuation. A week later, the patient attends a control visit where a small hematoma is drained from the anterior end of the wound with local anesthesia. One month after surgery, the patient persisted with seropurulent perianal discharge and a subcutaneous perianal fistula was found that closed spontaneously at two months.

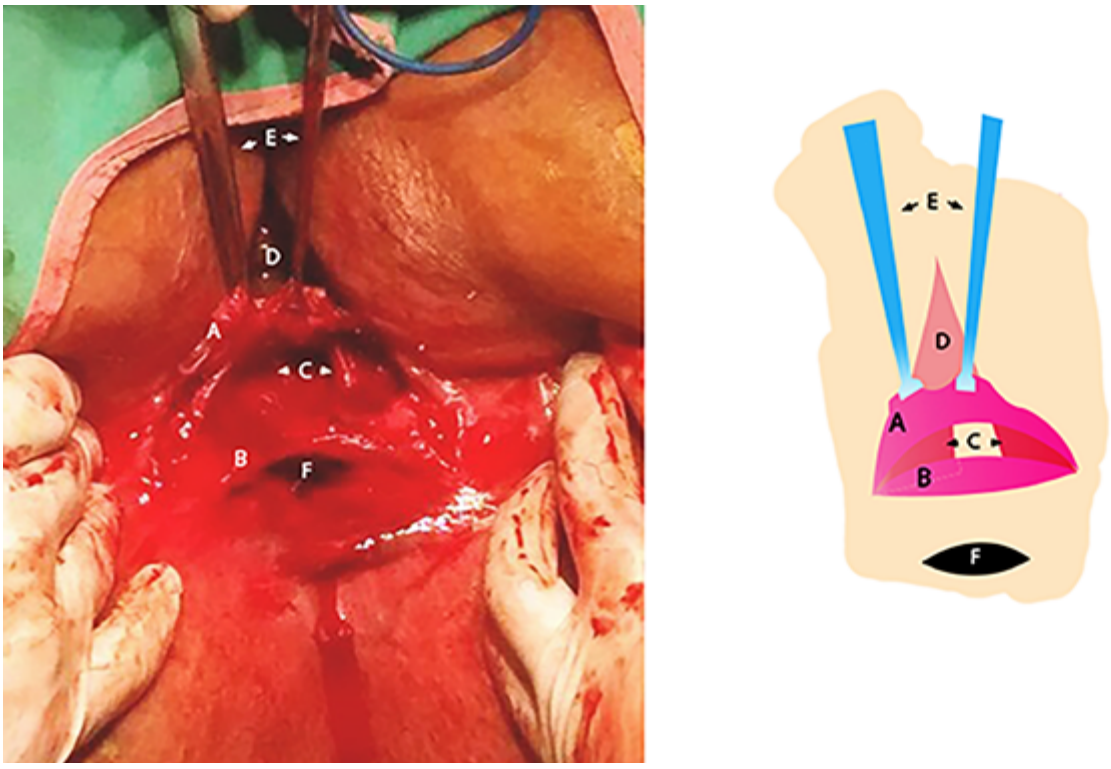

Figure 2: Dissection of the rectovaginal septum. A) Vaginal mucosal flap. B) Rectal mucosa flap. C) Puborectalis muscles. D) Vagina. E) Allis forceps. F) Anus.

Four months after repair, the patient had a normal physical examination, with no fistula or wound dehiscence. At that time the CCFS was 2, with episodes of gas incontinence less than twice a month. Their quality of life improved significantly as indicated by the FIQLS at 4th month, with an increase of 19 points on the lifestyle scale, 23 on the behavior scale, 16 on the depression scale, and 7 on the shame scale. The patient resumed her sexual activity without dyspareunia or pelvic pain. No endoanal manometry or postoperative ultrasound was performed. She was not referred for pelvic floor rehabilitation due to provider issues. After 6 years of follow-up, she maintains a stable CCFS, similar to that of the first postoperative months.

DISCUSSION

Traumatic cloaca is a rare complication of vaginal delivery and causes great psychosocial disturbance in affected patients. Reconstructive surgery is mandatory and shows good aesthetic and functional results, however, there is no clear evidence on which is the best technique.

Publications prior to the year 2000 usually use the flapless midline plane closure technique, such as the one described in this study.[3,8] Venkatesh and Ramanujam[8] reported 44 patients that underwent closure by planes, with only two complications, one anovaginal fistula and one minor wound infection, and 11% mild liquid or gas incontinence. In a previous communication, Abcarian et al.[3] reported 43 patients, with only two postoperative subcutaneous fistulas, without any dehiscence and with excellent functional results. Defunctioning ostomy was not used routinely in any of these series and both reports recommend leaving the skin partially open for drainage of secretions. The series by Hollingshead et al.[5] presents 29 patients closed without flaps, 59% with defunctioning ostomy. These authors do not perform repair of the puborectalis plane. The reported complication rate was 17%, with one rectovaginal fistula and 4 wound dehiscences, and functional results were good (mean St. Mark's score of 5). According to these publications, flaps would not be necessary since the obstetric injury is a break and separation of the midline without loss of tissue. Similar results have been reported in more recent publications.[9,10]

Other authors used dermal flaps to cover the skin defect, while the deep plane repair was similar to that described above. One of the largest series published with flaps is that of Kaiser[11], which includes 12 patients repaired with an "X" flap. This group did not routinely use an ostomy. They report 3 rectovaginal fistulas and 8 superficial infections of the surgical site. However, they do not report the overall rate of complications. The functional result was excellent with a mean CCFS of 1.5 at one month. This series also found that complications were significantly more frequent among women with a high BMI, similar to that of our patient.

Spanos et al.[12] published a case of cloaca repaired with

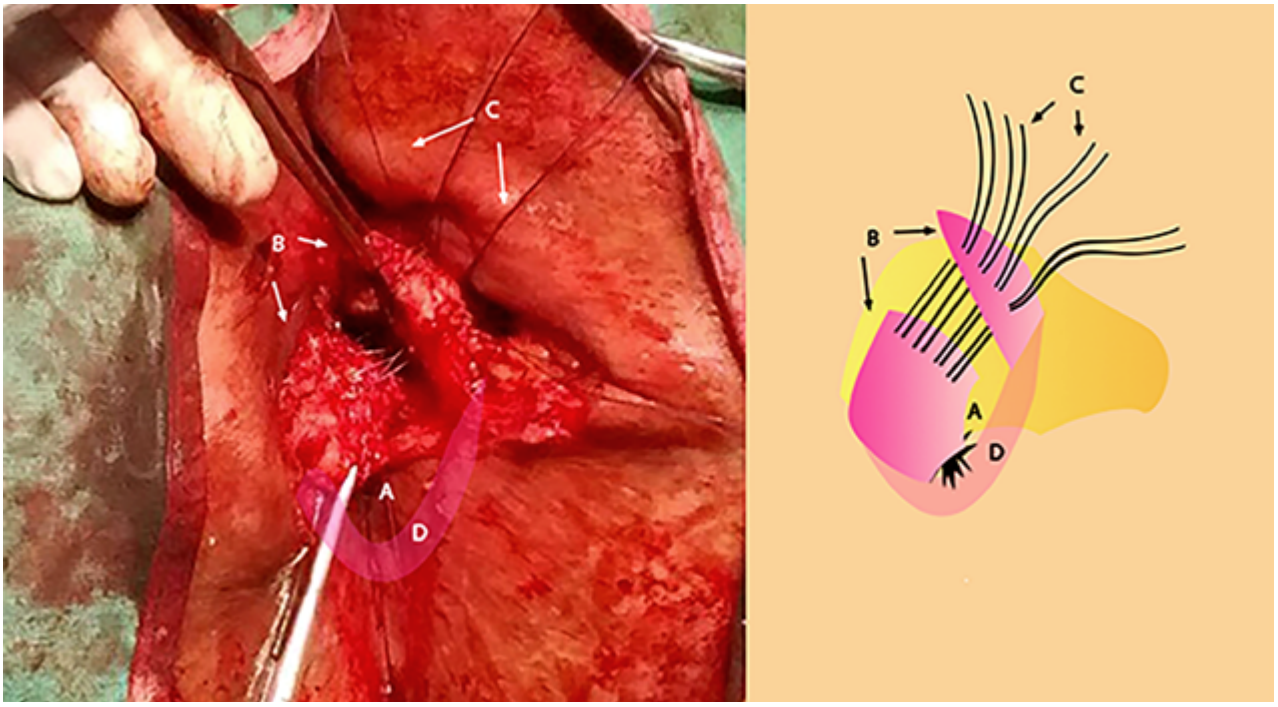

Figure 3: Repair of the sphincter complex. A) Anus. B) Ends of the anal sphincter. C) Interrupted stiches of absorbable suture. D) Protrusion of the anal sphincter in the posterior anal canal.

Figure 4: External appearance in the immediate postoperative period. Note the increased distance between the anus and vagina, separated by a sagittal wound.

"X" flaps with a small dehiscent wound and good continence at 3-month follow-up. Hakelius[13] and Merces et al.[14] report 13 and 6 cases, respectively, using Z-plasty, with a wound complication rate of 30% in both publications. In the series by Hakelius,[13] 23% of the patients complained of soiling and urgency in the postoperative period. A recent Argentine publication by Moreira Grecco et al.4 reported 3 cases with the "V" flap technique, with 33% of defunctioning ostomy, without postoperative complications and with a notable improvement in the quality of life of the patients.

More complex flap techniques have been described for traumatic cloaca repair. One report, showed no postoperative complications with the use of the "lotus flower" flap and defunctioning ostomy.[15] A series of 4 cases by Draganic and Solomon16 reported the "island" flap technique with ostomy in 3 of the 4 patients, with 100% minor wound complications.

In all publications that report the use of complex flaps, the functional results are acceptable, with a postoperative CCFS of around 3. Table 1 summarizes the available bibliography.

Moreira Grecco et al.[4] do not report the total number, they report 3 rectovaginal fistulas and 8 superficial wound infections.

Flap techniques are more complex to perform and likely take longer in the operating room. Currently available publications have not shown a lower complication rate with these techniques than with the closure by planes. Series with a high rate of ostomy did not have better results than those that did not use it, and patients with an ostomy have worse quality of life and morbidity related to their construction and closure.

In this case report, a midline closure technique was used, without flaps or defunctionalizing ostomy. The patient only presented minor complications during the first postoperative month (wound hematoma and subcutaneous fistula), which could be managed on an outpatient basis without deterioration in the quality of life.

Authors who support the use of flaps argue that the longitudinal closure is not free of tension and that the vaginal introitus may be reduced in size, causing chronic

TABLE 1: SUMMARY OF CLOACA TRAUMATIC CASE SERIES

Author	Year	N	Flap	Ostomy (%)	Complications (%)	Postoperative incontinence (%)
Hakelius[13]	1979	13	Z-plasty	No	30	23
Abcarian[3]	1989	43	No	No	5	No
Venkatesh[8]	1996	44	No	No	5	11
Dragagnic[16]	2001	4	Island	Yes (75)	100	No
Kaiser[11]	2008	12	X	No	92	No
Merces[14]	2008	6	Z-plasty	No	30	Low
Holligshead[5]	2009	29	No	Yes (60)	17	Low
Moreira Grecco[4]	2015	3	V	Yes (33)	0	No

perineal pain and dyspareunia.[11,17] However, in the series by Kaiser,11 using flaps, 33% of the patients had dyspareunia that resolved spontaneously. In other series that do not use flaps.[9] as in the present case, no dyspareunia was reported. Even more, between 50 and 100% of patients with preoperative perineal symptoms improved after surgery.[5,8] In the present case, the patient did not present perineal pain and returned to sexual activity 4 months after the procedure without discomfort.

Most of the available publications refer to an improvement in anorectal manometric tests after surgery.[4,5,11] In our group we do not routinely use these tests, as long as the incontinence scores are acceptable.

To our knowledge, there are no data on the use of pelvic floor rehabilitation in patients with repaired perineal cloaca; however, there is evidence in favor of the use of biofeedback after sphincteroplasty for grade 3 and 4 perineal tears.[18] The mechanism of traumatic cloaca incontinence is the injury to the sphincter complex, so we believe that fisiotherapy is essential after these repairs, especially to prevent long-term functional failure. In the present case, the patient did not receive coverage from the provider to carry it out.

There is little information on the long-term functional outcome of traumatic cloaca repair. Only the series by Hollingshead et al.[5] has a 10-year follow-up of 3 of their patients, of whom two presented a worsening in continence. The present case has a 6-year follow-up with stable CCFS from the first months after surgery.

CONCLUSION

Presentamos el caso de una mujer joven, con obesidad mórbida, con deformidad en la cloaca tras un parto distócico, reparada con éxito mediante la técnica de cierre por planos a la línea media, sin colgajo ni ostomía.

Currently, there is no consensus among authors on which is the best surgical procedure to repair the traumatic cloaca, however, techniques without the use of flaps are less complex and would have the same morbidity. The bypass ostomy would not improve the complication rate of these repairs.

Treatment of traumatic cloaca is always surgical, and patients should be informed that continence may worsen in the long term.

REFERENCES

1. Goh JT, Tan SB, Natukunda H, Singasi I, Krause HG. Outcomes following surgical repair using layered closure of unrepaired 4th degree perineal tear in rural western Uganda. Int Urogynecol J 2016; 27: 1661-66.
2. Sultan A. Editorial: Obstetric perineal injury and anal incontinence. Clin Risk 1999; 5: 193-96.
3. Abcarian H, Orsay CP, Pearl RK, Nelson RL, Briley SC. Traumatic cloaca. Dis Colon Rectum 1989; 32: 783-87.
4. Grecco AM, Zapata G, Dip F, Gorosito F, Piskorz M, Olmos J. Experiencia inicial del impacto de la reparación con colgajos de cloaca traumática postparto en la calidad de vida. Rev Argent Coloproct 2015; 26: 39.
5. Hollingshead JR, Warusavitarne J, Vaizey CJ, Northover JM. Outcomes following repair of traumatic cloacal deformities. Br J Surg 2009;96: 1082-85.
6. Jorge JM, Wexner SD. Etiology and management of fecal incontinence. Dis Colon Rectum 1993; 36: 77-97.
7. Minguez M, Garrigues V, Soria MJ, Andreu M, Mearin F, Clave P. Adaptation to Spanish language and validation of the fecal incontinence quality of life scale. Dis Colon Rectum 2006; 49: 490-99.
8. Venkatesh KS, Ramanujam P. Surgical treatment of traumatic cloaca. Dis Colon Rectum 1996; 39: 811-16.
9. Valente MA, Khanduja KS. Layered surgical repair of traumatic cloacal deformities: technical details and functional outcomes. Tech Coloproctol 2012; 16: 153-56.
10. Spelzini F, Frigerio M, Manodoro S, Verri D, Nicoli E, Milani R. Repair of a traumatic cloaca after obstetric anal sphincter injury. Int Urogynecol J 2016; 27: 495-97.
11. Kaiser AM. Cloaca-like deformity with faecal incontinence after severe obstetric injury--technique and functional outcome of ano-

vaginal and perineal reconstruction with X-flaps and sphincteroplasty. Colorectal Dis 2008; 10: 827-32.
12. Spanos CP, Mikos T, Kastanias E, y Georgantis G. Surgical repair of traumatic cloaca. Arch Gynecol Obstet 2012;286: 815-18.
13. Hakelius L. Reconstruction of the perineal body as treatment for anal incontinence. Br J Plast Surg 1979; 32: 245-52.
14. Mercês RL, Pisi PH, Balestrim Filho A, Braga TA, Rocha JJ, Féres O. Surgical treatment of traumatic cloaca. Acta Cir Bras 2008;. 23 Suppl 1: 105-7; discussion 7.
15. Altomare DF, Rinaldi M, Bucaria V, Marino F, Lobascio P, y Sallustio PL. Overlapping sphincteroplasty and modified lotus petal flap for delayed repair of traumatic cloaca. Tech Coloproctol 2007; 11: 268-70.
16. Draganic B, Solomon MJ. Island flap perineoplasty for coverage of perineal skin defects after repair of cloacal deformity. ANZ J Surg 2001; 71: 487-90.
17. Narula H, Wadhawan H, Shorthouse A, Brown S. Traumatic cloacal defect, the warren flap rRevisited a description of the technique and review of the literature. Pol J Surg 2010; 82: 687-93.
18. Davis KJ, Kumar D, Poloniecki J. Adjuvant biofeedback following anal sphincter repair: a randomized study. Aliment Pharmacol Ther 2004: 20: 539-49.