Obstetric rupture of the rectovaginal septum and sphincter complex despite an intact perineum: report of three cases

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Summary

Obstetric injury comprising tearing of the rectovaginal septum, rectal mucosa, and anal sphincter complex with limited or no involvement of the perineal body may implicate the sudden appearance of an elbow, foot or head in the anal orifice during the second phase of labour. This complex type of obstetric injury is highly uncommon and reports have rarely been published. There are no guideliness as to how to respond to this obstetric emergency and there is no time for consultation. In order to reach clinical recommendations on repair and management of this unexpected obstetric injury for the midwife or obstetrician, we report three such cases. The three described cases with their corresponding sequence of events and interventions illustrate that successful repair of these types of injury can often be achieved. To minimize factors leading to long-term complications, repair requires the involvement of an experienced gynaecologist and sometimes even a colorectal surgeon.

Key words: Labour; Rectovaginal septum; Perineal body; Anal sphincter.

Introduction

Tearing of the rectovaginal septum, rectal mucosa, and sphincter complex during the second stage of labour with limited or no involvement of the perineal body is highly uncommon and reports have rarely been published. There are no guidelines as to how to respond to this obstetric emergency and there is no time for consultation. What should we advise the midwife or obstetrician who as a 'once in a lifetime experience' is unexpectedly confronted with such obstetric injury? In order to reach clinical recommendations on repair and management, we report three such cases and review the appropriate literature.

Case Report

Case 1

A 32-year-old nulliparous woman presented at term with signs of fetal distress during labour. After hospital arrival, the fetal heart-rate tracing did not demonstrate any abnormalities so that spontaneous labour was allowed to progress to full dilatation. During active pushing, an elbow appeared in the right upper quadrant of the anal orifice. After performing a mediolateral episiotomia, the elbow was pushed back and redirected into the vagina. During the next contraction, a healthy infant was delivered with a birth weight of 4,080 g and an Apgar score of 9/10/10 at 1, 5, and 10 min, respectively. Inspection under spinal anaesthesia revealed a ruptured distal rectovaginal septum as well as a laceration of the internal and external anal sphincter, with a largely intact perineal body (Figure 1A). Anatomical repair was conducted in collaboration with the colorectal surgeon on call by suturing of the rectovaginal septum and side-to-side approximation of the sphincter complex (Figure 1B). The postpartum course was uneventful and the woman was discharged from hospital in good clinical condition. At subsequent follow-up visits, vaginal and rectal examination were performed to ascertain integrity of the repair. The rectovaginal septum appeared well-healed and assessment of sphincter tone revealed a normal rectal tone and positive anal wink. The patient demonstrated no signs of anal sphincter dysfunction.

Case 2

A second case concerned an elderly primigravid woman, pregnant after a period of unwanted infertility. After 39 weeks of pregnancy, spontaneous labour commenced. Simultaneous to vaginal crowning of the fetal head, hairs appeared in the anal orifice. During the next contraction the baby, weighing only 2,700 g, was born in the occiput anterior position without requiring an episiotomy. The surgeon on call was consulted, after which the still-intact perineal body of the perineum was cut for better exposure and anatomically restored as a fourth degree rupture. During inspection the anal sphincter appeared to have ruptured prior to the perineal incision. Repair followed under general anaesthesia according to the standard method for fourth degree lacerations: closure of the vaginal mucosal apex using a continuous inverting 3-0 Vicryl suture on an atraumatic needle up to the mucocutaneous junction, closure of the rectum mucosa with interrupted 3-0 Vicryl sutures, followed by reinforcement using a series of interrupted sutures in the surrounding perirectal fascia. The retracted ends of the sphincter were sutured in an end-to-end fashion using 3-0 Vicryl. The levator ani muscles were sutured in the midline, after which the repair was completed in a similar manner as in a second degree laceration. At follow-up six weeks later the patient reported good continence for stools and flatus.

Case 3

A third case occurred during delayed progress in the second stage of labour of a primigravid woman with the child in complete breech presentation. In between contractions, a sudden copious outflow of amniotic fluid was emitted from the anal orifice, shortly after which a foot prolapsed out of the anus.

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Fig. 1A

Fig. 1B

Figure 1 . — Laceration of the internal and exernal anal sphincter with rupture of the distal rectovaginal septum and largely intact perineal body (A). After anatomical repair consisting of suturing of the rectovaginal septum and side-to-side approximation of the sphincter complex (B).

Fig. 2

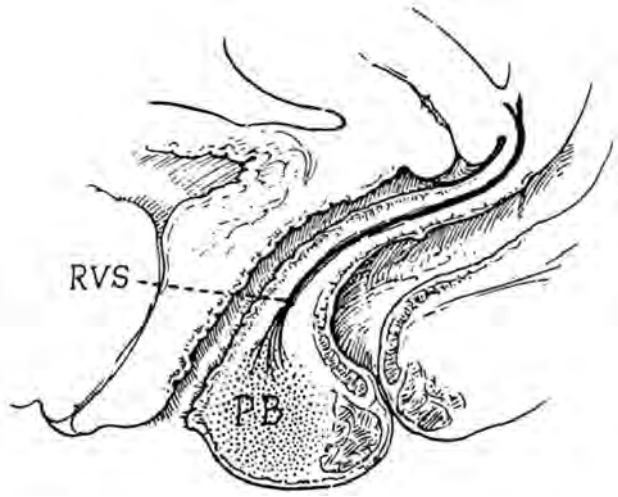

Figure 2. — Sagittal section illustrating the relationship between the rectovaginal septum *(RVS)* as it blends with the superior border of the perineal body *(PB)*. (Nichols DH, Randall CL: Vaginal Surgery, 3rd edn, p 42. Baltimore, Williams & Wilkins, 1989).

Intuitively, the foot was pushed back. Subsequently, a median episiotomy was performed and extended through the anal sphincter into the rectovaginal perforation. Following this intervention the child was born rapidly and in good condition. The fourth degree lesion was sutured under general anaesthesia. The technique applied was the same a described in case 2, both cases dating back to the time before the introduction of the overlapping method of sphincter repair. At follow-up there was complete anatomical and functional recovery.

Discussion

Perineal injury remains the commonest form of maternal obstetric injury. The perineal body is a fibromuscular elastic structure found in the midline between the rectum and the vagina and is a point of convergence of a number of structures - the external anal sphincter, the perineal membrane, the superficial and deep transverse perineus muscles, the bulbocavernous muscle, some fibers of the levator ani (puborectalis and pubococcygeus muscles), and the posterior vaginal muscles. The apex of the perineal body is continuous with the rectovaginal septum (the fascia of Denonvilliers), as illustrated in Figure 2.

Third-degree (injury to the perineum involving the anal sphincter complex) or fourth-degree perineal tears (including the anorectal epithelium), as classified by Sultan [1, 2], are not uncommon during vaginal delivery. Reported incidence figures vary between 0.5% and 2.5%, with 75% of the cases involving nulliparous women. Alongside nulliparity, the relative risk of suffering obstetric anal sphincter injuries increases with fetal weight, induction of labour, epidural analgesia, shoulder dystocia, a narrow suprapubic arch, persistent occipitoposterior position, prolonged second stage of labour, and forceps or vacuum delivery [1, 3-5]. Satisfactory healing is reached in 90-95% of cases, when repaired promptly at the time of labour [6]. Anal sphincter tears are, however, an important risk factor for long-term anal sphincter dysfunction: up to 60% of women who experience a sphincter tear are reported to experience symptoms of dyspareunia, perineal pain, or anal incontinence [7].

Obstetric injury comparable to our three cases is highly uncommon and reports have rarely been published. A medline search from 1970 through January 2010 using the keywords *labour, delivery, rectovaginal septum, perineal injury*, and *anal sphincter,* revealed numerous reports of fourth degree anal sphincter injuries and rectovaginal tears, all involving the perineal body [1, 3, 4, 6] (Figure 2). Only two case reports describe obstetric injuries involving (averted) transperineal deliveries with rectovaginal septum injury. Stern *et al*. described a transperineal delivery with tearing of the anal sphincter [8] whereas Kovoor *et al*. presented a case of an averted delivery of the fetal head through the perineal body [4]. In both cases the rectal mucosa remained intact. To our knowledge, tearing of the rectovaginal septum and sphincter complex including the rectal mucosa during the second stage of labour with limited or no involvement of the perineal body, as reported in our three cases, has not been described to date. In case 1, tearing commenced in front of the anal sphincter and soon extended through the sphincter into the rectal mucosa. The latter two cases, however, demonstrated a different sequence of events with an initial transmural rupture of the rectovaginal septum, extending into the sphincter complex.

In the three described cases, the obstetricians' response varied from no episiotomy to a mediolateral episiotomy or median episiotomy into the rectovaginal rupture. It is important to realise that even with a rectovaginal rupture with an intact perineum, the anal sphincter will usually have suffered a complete rupture. As our first case demonstrated, leaving the larger portion of the perineum intact can allow successful repair, but hampers recognition of involved structures so that the presence of the sphincter injury may be overlooked. Hence, the obstetrician may perform a median episiotomy extending into the rectovaginal perforation, thus producing a clear operation field similar to the 'familiar' fourth degree perineal rupture. Assistance of a colorectal surgeon in these cases is strongly recommended.

The complication risk after tearing of the rectovaginal septum and sphincter complex is substantial. Persistent faecal incontinence is a known complication of anal sphincter injury of obstetric origin [3]. An incidence of 3% of persistent incontinence to solid stool after repair of a third degree perineal rupture is mentioned [9]. However, the true incidence is unknown as detection bias exists in many studies. A rectovaginal rupture accompanying anal sphincter injury will further increase the expected complication risk. Despite the knowledge that rectovaginal septum defects of obstetric origin are generally surrounded by highly vascularised tissue and may therefore heal well after repair [10], approximately 1% to 2% of third to fourth degree perineal injuries will result in a rectovaginal fistula [11]. Failure of a repair may be due to poor surgical technique including a lack of tension free repair. Hematoma formation, wound infection, faecal impaction, as well as an unrecognised second sphincter injury have also been suggested to be potential causes [12]. In case of incontinence or pain at follow-up, referral to a specialist gynaecologist or colorectal surgeon for endoanal ultrasonography and anorectal manometry should be considered. A small number of women may require referral to a colorectal surgeon for consideration of secondary sphincter repair.

Obstetric injury comprising anal sphincter and rectovaginal septum defects are complex types of injury which may lead to a disappointing outcome with a negative impact on the patient's physical and emotional health [3, 13]. To minimise factors leading to long-term complications, repair requires the involvement of an experienced gynaecologist and sometimes even a colorectal surgeon. As our three cases with their corresponding interventions have demonstrated, successful repair can often be achieved.

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