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The Gonzalez hernia revisited: Use of the ischiorectal fat pad to aid in the repair of rectovaginal and rectourethral fistulae

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ABSTRACT

Introduction: During the development of the posterior sagittal approach to anorectal malformations a vital technical challenge was a precise midline dissection, which if off, allowed for the ischiorectal fat pad to bulge into the wound. This occurrence became affectionately known as a "Gonzalez hernia", after a trainee of Dr Pena's (and a co-author of this paper). We describe here an innovative use of the ischiorectal fat pad to aid in the repair of acquired rectovaginal and rectourethral fistulae.
Methods: Patients with recurrent vaginal or urethral fistulae were selected for review. The ischiorectal fat pad was deliberately mobilized (via a posterior sagittal or transanal approach) and used to buttress the repair of the posterior vagina or urethra.
Results: The ischiorectal fat pad technique was used in 9 patients. All had an acquired fistula (6 rectovaginal fistula, 3 rectourethral fistulas). We used the posterior sagittal approach in 7 and in 2 the transanal approach. Six patients had had at least two prior attempts at fistula repair. Six patients had a stoma, and 3 did not. There were no recurrences in greater than six month follow-up.
Discussion: The ischiorectal fat pad is easily visualized and mobilized, either via a posterior sagittal or transanal approach, providing excellent coverage with native, well-vascularized tissue, in an area that is difficult to heal. It is an excellent option for recurrent rectovaginal and rectovaginal fistulae and may have other additional creative applications.

1. Background/purpose

Acquired rectovaginal fistulae are difficult problems in colorectal surgery. They may occur following repair of an anorectal malformation, in the setting of HIV disease, as a consequence of birth trauma, or as a manifestation of Crohn's disease. Rectourethal fistulae may be persistent, acquired or recurrent in patients with an anorectal malformation and re-do posterior sagittal anorectoplasty (PSARP) is an ideal approach for their repair [1].

During the development of the PSARP [2], as Pena was promoting his novel technique, a common occurrence was for the operating surgeon to stray off the midline during the posterior sagittal dissection. A consequence of this was a very typical outpouching of the ischiorectal fat pad. At the National Institute of Pediatrics (Mexico), where Pena developed his technique, this became affectionately known as a "Gonzalez hernia," after Dr Guillermo Gonzalez, one of his trainees and a co-author of this paper [3].

We recognized the potential value of the ischiorectal fat pad to aid in the repair of recurrent rectovaginal and rectourethral fistulae, as well as for other conditions involving the presacral space and report our technique here.

2. Methods

Patients with recurrent vaginal or urethral fistulae were selected for review. IRB approval was obtained.

2.1. Operative technique

The ischiorectal fat pad is intentionally mobilized, either via a posterior sagittal or transanal approach, and used to buttress the repair of the posterior vagina or urethra. Using the posterior sagittal approach, the ischiorectal fat pad is easily identified and mobilized to provide an interposing layer. The midline incision was respected as always, but the thin fascia covering the ischiorectal fossa was incised to expose the fat below. The fat pad is selected at the center of the ischiorectal fossa, and therefore there is no potential for injury to muscles or nerves. Using the transanal approach (as employed, for example, in a redo Hirschsprung disease repair and for a rectovaginal fistula repair), an incision parallel

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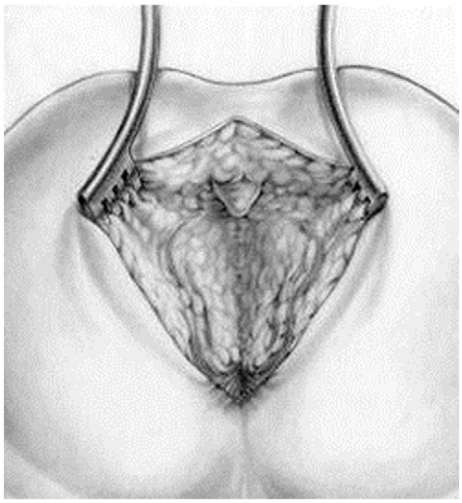

Fig. 1. Schematic of the posterior sagittal anorectoplasty demonstrating the midline incision and the ischiorectal fat pad.

to the muscle fibers reveals the ischiorectal fat pad below the muscle layer. The area outside of the rectum is visible thru a transanal approach. The incision is placed parallel to the muscle fibers and then spread, and just below the muscles the surgeon encounters a bulge of fat which is the ishiorectal space. Through the separated muscle plane, the ischiorectal fat pad can be mobilized to provide coverage of the anterior rectal space (Figs. 1–4).

3. Results

The ischiorectal fat pad was used in 9 patients (age range, 2–10 years). Nine had an acquired fistula (6 rectovaginal, 3 rectourethral). The posterior sagittal approach was used in eight patients and the transanal approach in two patients. Six patients had had at least two prior attempts at repair, which had all been performed via a perineal approach. In six patients a covering stoma was already present, and in three patients no stoma was used. In all 9 cases the repairs were successful, with no recurrences after at least six months' follow-up.

Fig. 2. The ischiorectal fat pad as seen during a posterior sagittal anorectoplasty for repair of a rectourethral (bulbar) fistula.

4. Discussion

Acquired rectovaginal and rectourethral fistulae are relatively common in adult patients but not routinely encountered in pediatric surgical practice. Rectovaginal fistulae most commonly occur as a result of obstetric complications. This is particularly the case in the developing world, where obstructed labor significantly increases the risk of rectovesical and rectovaginal fistulae [4–6]. Second only to obstetric trauma as a cause of rectovaginal fistulae in adult women is Crohn's disease. These fistulae are particularly prone to treatment failure, with recurrence rates of 25–55% [7–9].

In the pediatric population, infection with HIV is becoming an increasingly important cause of acquired rectovaginal fistulae. While the pathogenesis remains unclear, the presenting features are consistent, with the majority affected being under one year of age [10,11]. The fistula tends to arise at the level of the dentate line [12]. Although improvement in the patient's immune status may result in healing of the fistula, in many the fistula persists. There also remains a small subset of female patients that have had an unsuccessful primary repair of an anorectal malformation, leading to fistula formation [13,14]. The standard approach to fistula repair has been via a PSARP approach, and there is also a role for laparoscopy [15].

Despite the excellent exposure granted by the PSARP in the management of males with anorectal malformations, acquired, persistent or recurrent rectourethral fistulae may form [16]. Affected infants or small children may present in a number of ways, including pneumaturia or urinary tract infection and sepsis. Unfortunately, this complication appears to most commonly result from an inadequate operative technique [17]. As with the primary repair, the re-do PSARP approach should enable the surgeon to accurately identify the fistula

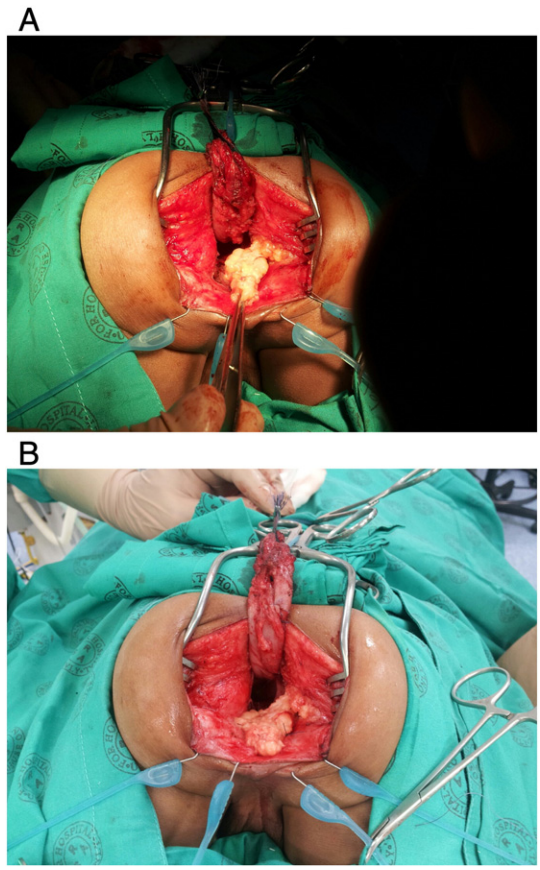

Fig. 3. A. The ischiorectal fat pad is used to cover a repaired posterior urethra in a case of a persistent rectourethral (bulbar) fistula. B. Same patient as seen in Fig. 3A. The operative approach is a posterior sagittal anorectoplasty with full mobilization of the rectum.

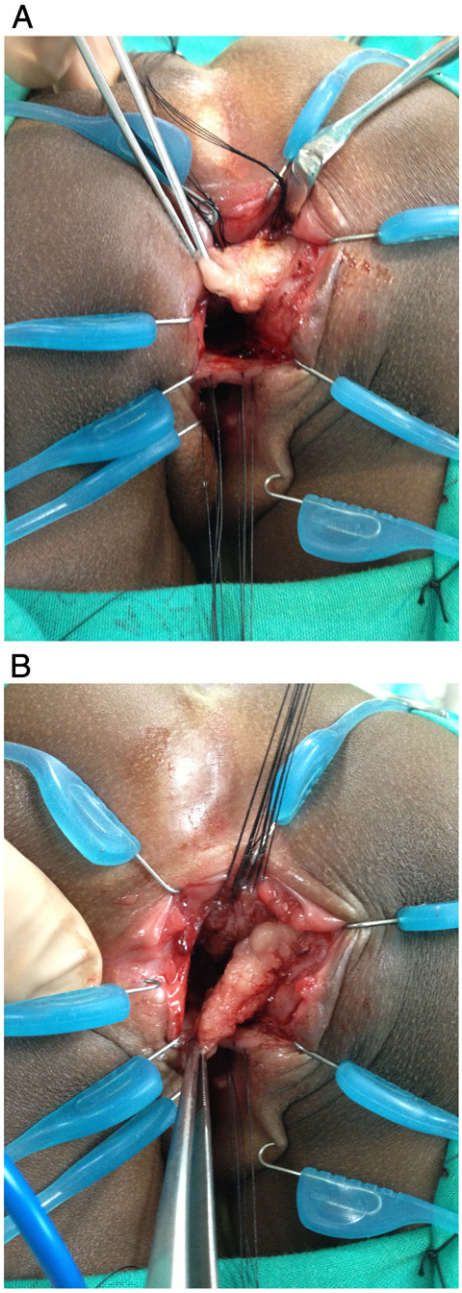

Fig. 4. A. The ischiorectal fat pad is used to cover a repaired posterior vaginal wall in a case of a rectovaginal fistula associated with HIV disease. B. Same patient as seen in Fig. 4A. The operative approach is transanal.

and provide a secure repair, albeit with the inherent difficulties of a repeat operation [13,18].

In both pediatric and adult patients, multiple techniques have been employed in an attempt to successfully repair acquired or recurrent fistulae. Cui et al. described the use of a vital bulbocavernosus graft in nine patients with rectovaginal fistulae [19], and demonstrated no recurrences during the follow-up period of up to five years. The use of an interposing gracilis muscle flap has also been described in nine adults with either a rectovaginal or rectourethral fistula, with the repair proving successful in seven patients, with over 5-year follow-up [20]. Excision of the fistulous tract has been described in women with rectovaginal fistulae, with early success rates approaching 95% [21]. An innovative use of an endorectal pull-through via a posterior sagittal approach, with extra-anal anastomosis, has been used successfully in 3 children with post-operative rectovaginal or rectourethral fistulae [22].

The Martius flap was first described by Heinrich Martius in 1928 to bolster the repair of a vesicovaginal fistula. The most useful areas for application are the trigone, the bladder neck, and the urethra. Some authors have suggested that the flap is so important it should be used in any case of vesicovaginal fistula repair [23]. The ischiorectal fat pad offers the same benefits and is easily mobilized with either the posterior sagittal or transanorectal exposure.

The use of the ischiorectal fat pad has been described in the management of adult patients with rectourethral and rectourethral fistulae [24], and like our report; the support and blood supply that the fat pad provided to the locally based pedicle interposition flaps ensured a well-perfused and reliable buttress. We did not routinely image these patients once the area had healed, but suspect that the fat pad remained alive and would show up as a tissue plane between the successfully separated structures.

Our experience has shown that the ischiorectal fat pad is easily visualized and mobilized, either via a posterior sagittal or transanal approach. It provides excellent coverage of native well-vascularized tissue, in an area that is traditionally difficult to heal. It is an important addition to the techniques required for the difficult repair of recurrent rectourethral or rectovaginal fistulae. It might be used for other creative purposes such as to heal a repaired dural sac.

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