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CLINICAL ARTICLE

Characteristics, management, and outcomes of repair of rectovaginal fistula among 1100 consecutive cases of female genital tract fistula in Ethiopia

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ABSTRACT

Objective: To characterize the incidence, presentation, management, and outcomes of rectovaginal fistula (RVF) in Ethiopia. *Methods:* In a retrospective study, demographic and clinical data were obtained for all women with genital tract fistulas admitted to the Barhirdar Hamlin Fistula Hospital, Ethiopia, for fistula repair surgery between January 2005 and October 2008. *Results:* Of 1100 cases, 1057 were suitable for analysis. Vesicovaginal fistula (VVF) without RVF was present in 933 (88.3%) cases, combined VVF and RVF in 79 (7.5%), and isolated RVF in 45 (4.3%). Only 4 (0.4%) women had isolated RVFs that could be attributed to prolonged obstructed labor; the remaining 41 RVFs were due to trauma (including sexual trauma), iatrogenic causes, infection, perineal tears, or previous failed repairs. All RVFs were managed with a flap-splitting operative technique, without grafts or diverting colostomies. Overall, 120 (98.4%) of 122 RVFs repaired at the study hospital remained closed at discharge. Combined VVF and RVF was associated with a longer labor ($P < 0.001$), more stillbirths ($P = 0.028$), a larger and lower VVF ($P < 0.001$ for both), and more vaginal scarring than was isolated VVF ($P < 0.001$). *Conclusion:* An obstetric RVF represents a more severe injury process than does a VVF. RVFs rarely occur without a VVF if due to obstructed labor. However, they can be managed successfully without diverting colostomies or grafts.

1. Introduction

Worldwide, approximately 2 million women are living with an obstetric fistula [1]. The cause is usually a long obstructed labor, and the most common injury is a genitourinary fistula. Several other injuries can accompany an obstructed labor; thus, the term "obstructed labor injury complex" has been adopted to encompass these pathologies [2]. Perhaps the second most common injury is a rectovaginal fistula (RVF) (Fig. 1), which affects between 6% (oral communication, B. Hancock, 2010) and 22% [3] of women with obstetric fistula. RVFs usually occur in combination with a genitourinary fistula and rarely occur in isolation; 22% of genitourinary fistulas are accompanied by an RVF, whereas only 6.8% of RVFs occur singly [3]. Nevertheless, these figures include RVFs of differing origins—e.g. those arising from sexual trauma—and therefore, the true number of RVFs due to obstructed labor remains unknown. Furthermore, the characteristics, presentation, types of injuries, and outcomes of surgery for RVF have not been described. Additionally, the optimum method of repairing a RVF, and the advantages and disadvantages of a diverting colostomy have not been investigated [4]. Therefore, the aim of the present study was to gather data to improve understanding of RVFs.

2. Materials and methods

A retrospective study was undertaken of all women with genital tract fistulas who were admitted to the Barhirdar Hamlin Fistula Hospital, Barhirdar, Ethiopia, for fistula repair surgery between January 1, 2005, and October 31, 2008. Institutional approval was obtained from the Hamlin Fistula Ethiopia Internal Research Committee on June 1, 2014. Because the study was a review of patient records, no formal ethics approval or patient consent were required.

All patients were examined by the physician (A.B.) before surgery. Patients with an RVF underwent bowel preparation with a fluid diet, water enemas morning and evening, and one dose of 4 g tinidazole the day before surgery. All surgeries were performed or supervised by A.B. Patients were placed under epidural anesthesia and the operation was performed vaginally using the traditional flap-splitting technique, sufficiently mobilizing flaps of the bowel and vagina to advance the bowel and repair the defect without tension. The repair was performed using a two-layered closure in the muscularis of the bowel and applying everting mattress sutures to the vagina. In patients with inadequate remaining vaginal tissue, either a gluteal or perineal flap was performed to cover the defect. No patient had a defunctioning colostomy before, during, or after the procedure.

Most vesicovaginal fistulas (VVFs) and accompanying RVFs were operated on simultaneously. However, when the operating time required to repair both fistulas would exceed 1.5 hours (the comfortable

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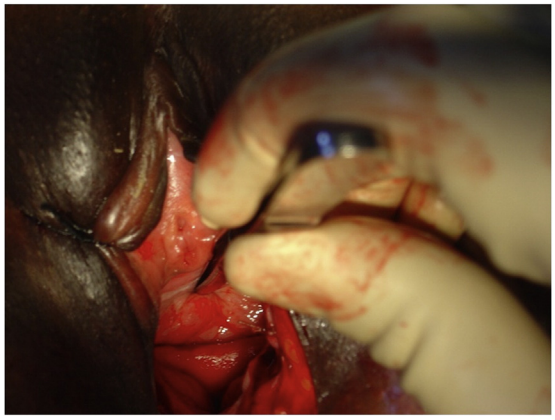

Fig. 1. Medium-sized rectovaginal fistula. The forceps are retracting the anterior vaginal wall. An incision in the left vagina opens a closed scarred vagina to reveal the fistula covering most of the posterior vaginal wall. No posterior vaginal epithelia are observed, only the rectal and anal mucosa.

operating time afforded by the epidural anesthetic because conversion to general anesthetic was not available), the surgeries were performed separately. Patients who underwent two separate surgeries as a result of a fistula recurrence were excluded from analyses so as to not include their data twice.

Postoperative urinary catheters were used in all patients with a VVF, usually for 10 days. Patients were encouraged to drink when able after surgery. Patients with an RVF were given a thick-fluid diet on the first day after surgery, asked to eat a light meal on the second day, and encouraged to have a full meal on the third day. Other patients could return to a full diet the day after surgery. A laxative was administered daily for 7–10 days once a full diet was commenced, although this was ceased if a patient began to pass watery stools. All patients were discharged from hospital 12–18 days after the surgery (during which time a defect recurrence would have occurred) following final examination by the surgeon, nurse, or health officer within the unit. A rectal dye test was performed if the patient complained of any flatus, stool, or loose stool via the vagina.

Demographic and clinical data were obtained for all patients at discharge, including age, incident delivery, outcome of delivery, length of labor, mode and place of delivery, time between delivery and fistula presentation, types and classification of injuries according to the Goh classification system (urinary tract and bowel) [5], and type and result of surgery performed.

Results were statistically analyzed using SSPS version 22 (IBM, Armonk, NY, USA). The Kruskal-Wallis test, Mann-Whitney *U* test, χ^2 test, Fisher exact test, and linear trend test were used as appropriate. $P \leq 0.05$ was deemed statistically significant. Statistical comparisons were made between VVF combined with RVF versus obstetric VVF alone or isolated RVF.

3. Results

Among 1100 cases of fistula, 41 had incomplete records, and two had undergone repeat surgeries (their second admission was excluded from the analysis). Among the 1057 remaining women, 124 (11.7%) had RVFs. The 1057 patients were divided into three groups: 933 (88.3%) had VVF only, 79 (7.5%) had VVF combined with RVF, and 45 (4.3%) had an isolated RVF. Only 4 (0.4%) women had an isolated RVF that could be confidently attributed to prolonged labor; the remaining 41 isolated RVFs were either due to sexual trauma in young prepubescent girls (n = 16), accidental trauma (n = 2), iatrogenic causes following assisted deliveries (n = 6), a broken RVF from previous surgery performed elsewhere (n = 7), infection (n = 1), or a failed perineal tear repair (n = 9). Thus, the four cases of isolated RVF attributed to an obstructed labor could not be included in separate comparisons and were analyzed in conjunction with all isolated RVF cases.

Two women with combined VVF and RVF did not undergo repair at the Barhirdar Hamlin Fistula Hospital, one because of attachment of the RVF to the sacral promontory, for which suitable surgical instruments to vaginally reach the repair were not available, and the other because of diseased tissues on the fistula margin needing a biopsy and further management. Both cases were referred to the Addis Ababa Fistula Hospital, where adequate facilities were available.

There were no differences regarding age between groups (Table 1). The parity of women with combined VVF and RVF was significantly lower than that of women with VVF alone ($P < 0.001$). The length of labor was slightly longer in the combined VVF and RVF group than in the VVF group, although the median numbers of days in labor were the same for both groups (the quartiles differ as they are non-normal skewed data; Fig. 2). All patients with combined VVF and RVF had had a stillbirth. Further, patients with combined VVF and RVF were more likely to have no living children and less likely to have had a cesarean during the incident delivery than were patients with VVF alone (Table 1). There was no difference in time from injury to presentation in place of delivery between the groups (Table 1).

Compared with VVF alone, the VVF injury diameter was larger by 1 cm, there was more vaginal scarring (as measured by the Goh classification), and the VVF was more likely to be circumferential and lower in the urinary tract when a VVF and a RVF occurred concurrently (Table 2). Compared with the isolated RVF group, the combined group had larger rectal injuries and injuries that were higher in the reproductive tract (Table 2). The isolated group had less scarring, usually being caused by trauma or a poorly repaired fourth-degree perineal tear. Hence, the injury was not ischemic in nature and had no tissue destruction or loss.

All defects were closed successfully during surgery and all patients were discharged after 14–18 days. At discharge from the Barhirdar Hamlin Fistula Hospital, 120 (98.4%) of 122 RVFs remained closed; 76 (98.7%) of 77 combined VVF and RVF cases and 44 (97.8%) of 45 isolated RVF cases had been resolved, including all four RVFs due to pressure necrosis. Notably, one of these patients had a small breakdown of the RVF but maintained continence of feces and was only incontinent of flatus. Another had a small breakdown of the repair on day 7, which closed spontaneously within a week, and was therefore recorded as cured. Finally, there were no differences in closure rate between any of the groups.

4. Discussion

The present study has shown that an RVF in combination with a VVF is more frequent in primiparous women than is VVF alone. Additionally, when an RVF is present, the associated VVF is larger, more scarred, more likely to be circumferential, and located lower in the urinary tract. Despite successful bladder injury closure during surgery for women with a VVF and those with a combined VVF and RVF, there was a higher rate of ongoing urinary incontinence in the combined group. Therefore, the above factors can be considered prognostic indicators because they are associated with a higher rate of post-repair incontinence, as has been previously shown [6].

Interestingly, a VVF located low in the genitourinary tract was not accompanied by location of the RVF at the same level; indeed, the RVF was usually located higher in the vagina. The location of the injury when impacted in the pelvis during obstructed labor was probably both low anteriorly against the pubic symphysis and high posteriorly against the sacrum.

The present study has also shown that isolated RVFs due to an obstructed labor are rare: only 4 (0.4%) in 1016 consecutive obstetric fistula cases could be attributed to obstructed labor. Isolated RVFs seem to be more often caused by sexual trauma in Ethiopia.

RVFs were successfully closed in 98.4% of cases after their first operation, all without a diverting colostomy, even with defects up to 10 cm in diameter. This finding contrasts with a previous study that showed that 15% of RVFs were managed with a sigmoid loop colostomy before the repair [3]. This finding is of importance given the common practice

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