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ISSUES IN CLINICAL MANAGEMENT

Local anesthesia: An appropriate technology for simple fistula repair

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KEYWORDS

Developing countries;
Lidocaine;
Local anesthesia;
Nigeria;
Obstetric fistula;
Vesico-vaginal fistula;
Simple fistula

Abstract

Objectives: To assess the efficacy of local infiltrative anesthesia with lidocaine hydrochloride in patients undergoing the surgical repair of a simple vesico-vaginal fistula. **Methods:** The study was carried out with 21 patients undergoing the repair of a simple midvaginal vesico-vaginal fistula. The patients' perception of pain was evaluated intraoperatively. **Results:** Most patients indicated that the anesthetic agent provided adequate analgesia, and all fistulas were repaired successfully without postoperative complications. **Conclusion:** Repairing simple vesico-vaginal fistulas is feasible with a local infiltrative anesthetic.

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1. Introduction

The management of obstetric fistulas continues to pose a serious challenge throughout the world because too few surgeons are trained in fistula repair [1], and this problem is worse in the countries with the greatest numbers of women affected with fistulas [1]. In Nigeria, for example, only 2500 of the million women with fistulas have been treated [2–5], and obviously a huge number of women worldwide are competing for few treatment opportunities. Along with properly trained surgeons, other personnel is lacking, especially anesthetists, in a context of overwhelming poverty preventing women from seeking treatment [4,6]. These 2 factors, poverty and a scarcity of trained staff, are the core problems limiting the number of repairs.

The results of spinal anesthesia for the repair of obstetric fistulas were reported to be similar to those obtained with general anesthesia, which is more expensive [7]. Spinal anesthesia can be administered by the surgeon [8], which is another advantage over general anesthesia. However, it is associated with complications that include severe hypotension; spinal headache; and sometimes total spinal anesthesia, with associated respiratory embarrassment if the phrenic nerve is involved [9,10]. These complications may be accentuated when the repair is performed in the lithotomy position. Managing any of these complications may not be feasible outside a tertiary institution, and deaths might ensue at district hospitals.

In addition, most of the women with fistulas are young, poor, and already ostracized by their families [6]. They must be offered subsidized care, but that care must not be overly burdensome to the sponsors (governmental or non-governmental organizations). Supplying spinal needles and bupivacaine for anesthesia adds to the financial and logistic burden, and thus further prolongs the time patients must wait before treatment.

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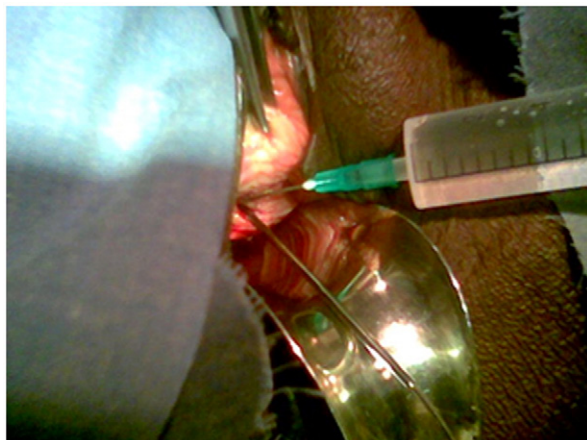


Figure 1 A probe is inserted through the fistula and the area is infiltrated with a 1% lidocaine solution before repair.

In many developing countries, the repair of vaginal lacerations, including episiotomies, is performed using a local anesthetic agent. Local anesthesia has also been used to perform such major procedures as laparoscopy or cesarean deliveries [11–13]. The agent commonly used is lidocaine hydrochloride, with or without epinephrine [11–13], with results reportedly similar to those of general anesthesia, especially when an opioid analgesic/sedative is concurrently administered [12]. Infiltrative anesthesia is easy to administer and adverse reactions are negligible, making its use practicable in settings without an anesthetist. The content of a bottle of lidocaine can be distributed among at least 3 patients undergoing fistula repair, making the cost per patient negligible. There is therefore a need to explore this approach in Nigeria as part of the effort to provide fistula repair to all the women who need the service, irrespective of their place of residence or socio-economic status.

2. Methods

The trial was conducted from February 2004 to May 2006 with 21 women who had simple vesico-vaginal fistulas (VVF) at the University College Hospital, Ibadan and VVF Center Birnin-Kebbi, Nigeria.

2.1. Preoperative protocol

First, a detailed history was taken and a general physical examination performed. Then, because our patients cannot afford the cost of an examination under anesthesia prior to surgery, they underwent a gynecologic examination without anesthesia in the consulting room or the examination room adjacent to the surgical ward. On rare occasions, when discomfort or fibrosis prevented adequate fistula evaluation, patients were offered analgesic sedation with an opioid (100 mg of pethidine or a 30- or 60-mg dose of pentazocine), with or without conscious sedation with diazepam, during the gynecologic examination or during surgery. We have not had to perform a separate examination under general anesthesia in the more than 500 cases managed over the last decade.

The inclusion criteria were a midvaginal fistula of a diameter no larger than 2 cm; normal vaginal capacity with no or minimal

fibrosis; and an intact sphincter mechanism. After the details of the procedure were clearly explained, written consent was obtained from each of the adult patients meeting the inclusion criteria and from family members of the 3 patients younger than 18 years. Each patient was also informed about the type of anesthesia she was to receive during the procedure, and that an opioid analgesic (as described) would be given only on request at no extra cost. The request was to be based on the level of pain perceived by each patient.

2.2. Surgical procedure

The patients' vagina and vulva were cleaned with an antiseptic solution and sterile drapes were placed around the perineum. The posterior vagina wall was retracted with a Sims or an Auvard speculum. A local infiltration with 1% lidocaine (Xylocaine; AstraZeneca, Wilmington, DE, USA), with or without epinephrine, was administered around the edges of the urinary fistula, about 2 cm circumferentially. Between 10 and 20 mL were used for the infiltration (Fig. 1). An intramuscular injection of 30 to 60 mg of pentazocine or 100 mg of pethidine was offered to the few patients who expressed discomfort during repair.

The vital signs (respiration, pulse, and blood pressure) were checked after the infiltration, and a physician or nurse checked the patient for any discomfort every 15 min until completion of the procedure.

The fistulas were repaired by routine dissection (Fig. 2). The bladder was then closed in a single-layer using size 2-0 Vicryl (Ethicon Inc, Somerville, NJ, USA) or chromic catgut sutures, and the vaginal wall was closed using interrupted size 0 chromic catgut or size 2-0 Vicryl sutures. Postoperative bladder drainage by transurethral Foley catheter was maintained for 10 days. Other routine postoperative care was also performed.

3. Results

The age of the patients who underwent a fistula repair during the study period ranged from 14 to 45 years. The repair was successful in all patients, and all had their catheter

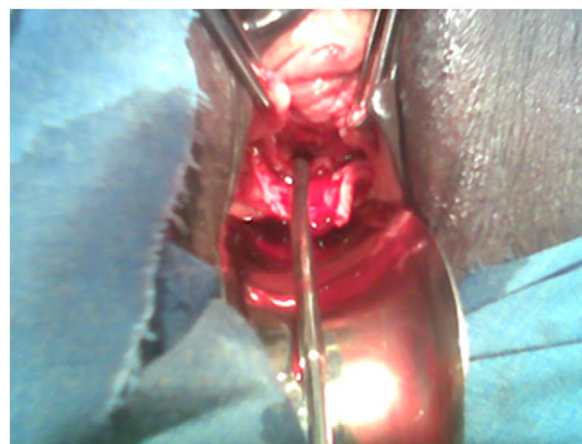


Figure 2 Dissection of the anterior vaginal wall after anesthetic infiltration of the area and insertion of a uterine sound through the fistula.

removed 1 day prior to their discharge from the hospital. Blood loss during surgery was between 120 and 200 mL by visual estimation (mean blood loss, 150 mL). Only 4 patients needed to complement the local lidocaine infiltration with opioid analgesics. Neither during the immediate postoperative period nor during the follow-up did any of the patients report any complications from the infiltration (e.g., convulsions or arrhythmia).

4. Discussion

The treatment of VVFs in developing countries is still shrouded with problems resulting from the failure of the different governments to recognize this condition as a public health challenge [4]. This failure is closely linked to the triad of poverty, illiteracy, and ignorance, and to the lack of access to affordable emergency obstetric care or fistula treatment [4]. A strategy to increase access to fistula treatment should include increasing the number of sites where fistulas are repaired; the training of more surgeons in fistula repair; and finding ways to offer treatment at the lowest possible cost [6].

Nigeria and the other developing countries harboring most of the women affected with fistulas have an urgent need of medical officers and other staff trained in the care of fistulas [14]; they also have a need to devise means of putting into practice affordable health care, including fistula care, in rural communities. Simple midvaginal fistulas should be managed at peripheral health care facilities, but these may not provide anesthesia. Trained medical officers should be allowed to repair these simple fistulas under local infiltrative anesthesia. Unlike spinal anesthesia, which may require monitoring by another skilled person, local infiltrative anesthesia is not associated with any serious risks.

From our experience using this simple method, it is possible to set up a fistula repair center designed for small midvaginal fistulas, thus removing their care from overburdened tertiary centers. The cost of 30 US cents per patient for local infiltrative anesthesia (lidocaine, syringe, and needle) is only about 1.9% of the cost for spinal anesthesia (a dose of bupivacaine and a spinal needle cost about 16 US dollars), which, in turn, is much less expensive than general anesthesia. As another skilled professional is not needed with local anesthetic infiltration, the cost of performing fistula repair using this form of anesthesia, even with supplementary sedation on request, will drastically reduce the cost and make surgical care affordable.

We recommend offering local infiltrative anesthesia to patients who have midvaginal VVFs no greater than 2 cm with no evidence of fibrosis, have no damage to the sphincter mechanism, and have not had more than 1 previous repair. Careful patient evaluation, preferably by the surgeon, is a prerequisite for selection. In addition, to ease patient discomfort and facilitate the repair, we recommend that analgesia with opioids (pethidine or pentazocine) be used routinely to alleviate anxiety and complement the anesthesia.

Presently, we are also conducting a comparative trial using operative time to determine which form of anesthesia to choose, local infiltrative or another. The pilot study's outcomes did not show operative time to be significant.

Objective assessment of pain perception by patients using a visual analog scale, assessment of satisfaction of the choice of anesthesia by patients, and, probably, a randomized controlled trial using different methods of anesthesia are still needed.

5. Conclusion

The outcomes of this study show that it is feasible to repair simple midvaginal fistulas at peripheral hospitals using inexpensive infiltrative anesthesia—which would leave fistula centers and tertiary institutions with only complex cases to manage. These findings should break the myth that fistula repair for all the women who need it is out of reach, a myth that may be the major barrier to reducing the backlog of cases.

Conflict of interest

None. There was no financial or personal commitment with any individual or organization that may have determined the design and eventual outcome of this study. We do not have any other potential conflict of interests to disclose.

Role of the funding source

The sponsor had no role in the design, data collection, analysis, and write up of this manuscript.

Acknowledgments

We thank the United Nations Population Fund (UNFPA) of both Nigeria and South Sudan for funding fistula camps, at which some of the patients in this study were treated. The Center for Population and Reproductive Health of the University of Ibadan supported this trial in part, with funds from The Bill and Melinda Gates Institute for Population and Reproductive Health, Johns Hopkins University, USA.

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