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ORIGINAL ARTICLE

# Factors influencing post-operative short-term outcomes of vesicovaginal fistula repairs in a community hospital in Liberia☆

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**Summary**
*Objectives:* To assess factors influencing short-term outcomes of vesicovaginal fistula (VVF) repairs in community-dwelling women of Liberia, Africa.
*Methods:* Forty patients who underwent VVF repairs were analyzed. Primary outcome was continence status at 14 days post repair. Factors influencing continence status were characterized.
*Results:* The mean duration of leakage was $9.6 \pm 8.3$ years, (3 months—28 years). Thirteen (33%) had previous repairs, and 6 (15%) had multiple fistula sites. Twenty-eight (70%) were continent at catheter removal. First time repairs had a higher continence rate compared to women with previous repairs, 78% and 54% respectively ($p = 0.15$). Seven (47%) juxtaurethral repairs were considered failures, while only one (9%) juxtacervical fistula remained incontinent ($p = 0.069$). Controlling for duration of leakage, women with previous repairs were significantly less likely to be continent ($p = 0.04$; adjusted OR = 0.07; 95% CI: 0.005, 0.83).

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*Conclusions:* Patients with previous VVF repairs and juxtaurethral fistulae experience lower success rates; surgery remains an effective treatment for many VVF patients.


## Introduction

Obstetric fistulae are a known and debilitating complication of obstructed childbirth, and can lead to social isolation. With medical advancement and access to emergency healthcare, obstetric fistulae are almost nonexistent in developed nations; however, they continue to be a source of significant suffering for families in the developing world, particularly in the uneducated and poor [1,2]. The incidence of VVF is unknown in developing countries due, in part, to poor record-keeping. Estimates of 50,000—100,000 new fistula cases per year have been reported from several African countries where large, dedicated VVF centers exist [3]. A conservative estimate reports that 3.5 million women in the developing world have unrepaired obstetric fistulae [4] and no published reports on post-operative outcomes of fistula repairs have been identified from Liberia.

Liberia has suffered through nearly 20 years of civil war that has markedly impacted its health care infrastructure and resources, and is now heavily dependent on foreign aid. There are an estimated 103 Liberian physicians to care for the country's 3.5 million people. Most physicians in Liberia are expatriates working with various humanitarian, nongovernmental organizations or with the United Nations [5,6].

As a result of limited health care resources in Liberia, fistulae remain a common complication of obstructed childbirth. Like many in developing countries of Africa, Liberian women may suffer with untreated vesicovaginal and rectovaginal fistulae for years. From limited data in other African countries, surgical success is reported to be between 72% and 92%, with greater success for first time repairs and in those with minimal scarring at the time of repair [7,8,1]. Unfortunately, the difficulty of post-operative follow-up, as well as financial constraints in these rural areas, results in few long-term outcome data on post surgical VVF repair. In this report, our goal was to assess peri-operative and patient characteristics — such as fistula location, duration of leakage, previous repairs, use of peri-operative antibiotics, and duration of leakage — that may influence short-term outcomes of obstetric VVF repair in rural Liberia.

## Study design, materials and methods

All women in this study underwent surgery at Ganta United Methodist Hospital (GUMH), drawn by public service radio announcements as well as other communication efforts made prior to the surgical team's arrival. Temporary medical licenses were obtained from the Liberian Medical Board, and permission to conduct our research was obtained by GUMH's administrators. Institutional Review Board committee approval was obtained from the University of Alabama at Birmingham. Data were collected from operations performed during two surgical mission trips, in June 2008 and January 2009. Retrospective chart reviews were performed on patients treated in June 2008 and prospectively reviewed in patients undergoing fistula repair in January 2009. Patients from Liberia and bordering Guinea were evaluated sequentially based on arrival at the hospital. A thorough history and physical examination were performed with assistance and translation from an experienced nurse trained to care for VVF patients. Individuals with a fistula diagnosed by physical examination were scheduled for repair and included in the study. The preoperative physical examination included adjunctive testing such as localization of the fistula using methylene blue stained saline. In several patients being evaluated where clinical history was suspicious for stress urinary incontinence, detrusor over activity and/or small capacity bladder, simple cystometrics were performed to further evaluate bladder function, if a fistula was identified in those women, this did not alter their treatment. Women were hospitalized for evaluation and surgical planning. Spinal anesthesia and mild sedation were administered at the time of surgery by anesthesia staff. Most patients underwent a transvaginal approach in steep Trendelenburg position, using wide mobilization with a 2-layer bladder closure in the majority of cases. A complete 2-layer closure was not possible in cases where the tissue had severe scarring from previous repairs. Foley