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A Fictitious Replicated Display about the Effect of Physiotherapy and Health Education Programs on the Surgical Repair of Vesico-Vaginal Fistula

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ABSTRACT

Objectives: Surgery is the only effective therapy for the majority of Vesico-Vaginal (V-V) fistulae. The current research assessed the effect of a planned program of pre- and postoperative physiotherapy and health education on the outcome of V-V fistula surgery.

Methods: We examined the postoperative outcomes of two groups of women with V-V fistulae recruited and followed up on by two local nonprofit organizations at a hospital in Saudi Arabia on April-October 2021. The first group of women (n = 99) underwent fistula repair using conventional procedures. The second group (n = 112) had a standardized surgical technique as well as a systematic pre- and postoperative health education and physiotherapy regimen.

Results: The training had a strong favorable influence on overall recovery and urine incontinence in particular. The chances of recovery after physiotherapy were 2.7 times higher for women in the physiotherapy group than for control patients, and the likelihood of postoperative stress incontinence was significantly higher for patients in the control group than for those in the physiotherapy group (P value 0.001).

Conclusion: A planned program of health education and physiotherapy provided by skilled nurses and physiotherapists increases the chance of a satisfactory result after V-V fistula repair surgery.

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Introduction

A Vesico-Vaginal (V-V) fistula is often the consequence of an injury sustained during a delivery that has been aggravated by protracted or obstructed labor. Tissue ischemia caused by compression of the child's head creates a gap between the woman's vaginal tract and her urinary tract [1]. These V-V fistulae may vary greatly in terms of location, size, and intricacy. Fistulae may be juxta-urethral, mid vaginal, or juxta cervical inside the bladder, and they usually affect the continence mechanism. They may be basic or sophisticated, as well as single or many [2].

There is no universal agreement on how to classify V-V fistulae. Capes et al. Compare the two most often used categorization methods, Waaldijk and Goh [3-5]. While this condition is nearly non-existent in developed nations due to easy access to prenatal care, it is nevertheless prevalent in low-income countries, particularly in Sub-Saharan Africa and Southeast Asia [4,5]. The global yearly incidence is expected to be between 50 000 and 100 000 women. The prevalence may exceed 2 million women [6]. Some writers believe these figures are low due to challenges in acquiring good data from rural places where the issue is more likely to occur, but they demonstrate the disease's relevance in terms of public health. Living with an obstetric fistula has various and frequently severe ramifications for the woman's bodily integrity, as well as her emotional, psychological, family, and social well-being. Living with a fistula may have a detrimental influence on a woman's identity. A woman with a fistula may be accused of being "negligent," which has resulted in the death of her child and the development of her "disease." She is often abandoned by her husband, shunned by her town, and forced to fend for herself. This may lead to social isolation and possibly death; "I am nothing" is a common emotion among women who have a V-V fistula [7].

We think that the failure of certain repairs is due to women's lack of understanding about their position, which results in

mismanagement of abdominal pressure, particularly in the early postoperative days. Handicap International, a nonprofit organization (NGO) based in Brussels, Belgium, seeks to assist disadvantaged groups in their rehabilitation and return to society. During field trips, Handicap International specialists often come across women who have a V-V fistula. The organization is keen to enhance the treatment of these women and has so commissioned our group to conduct this research.

Material and Methods

Surgical missions to treat V-V fistulae are conducted four times a year at the Hospital of King Khalid Hospital, Riyadh. The patients are recruited by two researchers who coordinated the women's hospital appointments, during which they get health education and physiotherapy instructions. A randomized research of this intervention would have been impossible to be undertaken due to the circumstances in Riyadh. As a result, we conducted a prospective research comparing two consecutive groups of patients (Table 1). The ethical committee at King Khalid Hospital authorized the research. The participants, the vast majority of whom were illiterate, gave verbal informed permission. Between April 1, 2021, and October 31, 2021, the first cohort of women was observed. This group got standard treatment, with the nature of the procedure determined by the size of the fistula (control group). Between April 1, 2021, and September 31, 2021, the second group was seen. These ladies got the same standard of care as before, but with the addition of a health education and physiotherapy program (study group).

Table 1: Timeline of the Study

Date	Study-related activity
November 2020	First surgical mission for the control cohort Training of nurses in applying the Ditrovie scale Quantification of urine loss by a physiotherapist
March 2020	Evaluation of early results together with local partners Encouragement of local teams to provide postoperative follow-up
March 2021	First surgical mission for the study cohort Training of a physiotherapist specializing in perineology Training of nurses in techniques to assess the strength of the surrounding abdominal wall Implementation of the program of health education and physical therapy
March 2020	Collection and evaluation of all data collected during the preceding year
March 2021	Collection and evaluation of all data collected during the preceding year Final analysis

During the first expedition, nurses from the two non-governmental organizations were taught to measure quality of life using the Ditrovie scale [10]. This is a validated French measure used to evaluate the quality of life of people suffering from urinary problems. It consists of a questionnaire with ten questions evaluated on a scale of 1 to 5 that cover five dimensions: activity (4 things), emotional effect (2 items), self-image (2 items), sleep (1 item), and overall wellbeing (1 item). A score of 1 indicates that the scenario is mildly humiliating, while a score of 5 indicates that the situation is very embarrassing. The amount of urine lost was assessed in both groups using a 1-hour pad test, as recommended by the International Continence Society 1983 [11]. Our hypothesis was that surgical outcome is controlled not just by technical aspects and the architecture and complexity of the fistula, but also by elements that women may control: activities of daily life that raise abdominal pressure, such as coughing or feces. A program of health education and abdominal pressure management via physiotherapy was attempted in order to decrease the negative impact of these pressures on postoperative recovery to a bare minimum.

The nursing team got theoretical and practical instruction on how to care for patients, particularly in the early stages after surgery (Table 1). Prior to surgery, the ladies in the research group attended many group sessions at camp as well as individual sessions at the physiotherapy ward to learn different ways for reducing abdominal pressure during daily activities. These didactic sessions were done in partnership with nurses from non-governmental organizations (NGOs) who offered screening, hospital accompaniment, and follow-up for the women. In addition to aiding with the training part of these sessions, the nurses assisted by translating instructions and corrections into the women's native languages and dialects. All instructions were also provided on posters (Figure-1), which were placed in all of the women's lodgings. Copies were sent to each NGO for use in postoperative follow-up visits. A physiotherapist who was trained in abdominopelvic care/perineology gave specific physiotherapy help.

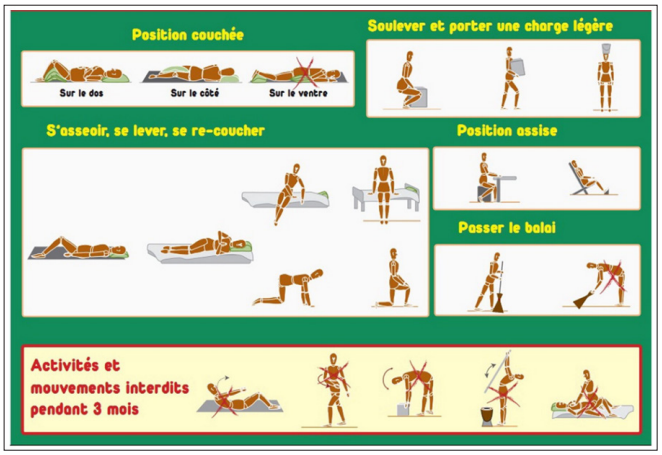

Figure 1: Poster about prevention of abdominal hyper pressure and protection of the perineum

The ladies had two preoperative sessions. They received basic information on perineal functioning during the first session, followed by an introductory biofeedback session with a vaginal probe (Myomed 932; Enraf-Nonius, Rotterdam, The Netherlands). The ladies were instructed to conduct 5 seconds of perineal contractions followed by a 10 second rest period. Finally, we taught a simple hypopressive exercise and insisted on compliance with the preventative behaviors shown on the poster. The ladies were told to do the exercises for 10 minutes twice a day. The second physiotherapy session consisted of a review of how the ladies did the exercises. A third session was planned as an option for ladies who required more review and training. Following surgery, the ladies were hospitalized for about a week before being released to the fistula camp with a urinary catheter for 10–14 days. They had further physiotherapy sessions before returning for a clinical assessment to see if the fistula had healed and their continence had been restored.

The NGOs' nurses conducted further follow-ups at 3, 6, and 12 months. Furthermore, most socially isolated women were provided with vocational training and/or microcredit to guarantee that their income enabled them to live a decent economic and social life.

Statistical Analysis

The t test or the nonparametric Wilcoxon rank test were used to determine if there were significant differences between groups. The chance of recovery (fistula cured or incontinence) against non-recovery (failed repair or urine diversion) was calculated using logistic regression analysis. The model incorporated variables such as group assignment and the number of prior fistula operations, since effective repair is reliant on the number of previous surgeries a woman has experienced. To examine the likelihood of recovery across groups, odds ratios were generated. JMP 9 was used to calculate all of the findings (SAS Institute, Cary, NC, USA). P b 0.05 was thought to be statistically significant.

Results

143 women visited the hospital for fistula missions. There were 24 with urinary stress incontinence, 1 with enuresis, 1 with ureterosigmoidostomy revision, 3 with prior urinary incontinence surgery, and 1 with urinary bladder prolapse. Fourteen medical files were missing. A total of 99 patients fulfilled the criteria for inclusion in the control group. Another group in addition (135 women) were treated at the hospital for fistulas and received perioperative education and physiotherapy. Fourteen of the women had urinary stress incontinence, one had enuresis, one had prior urinary surgery, one had a cervical tumor, and one had a urinary bladder prolapse. Five medical files were missing. In all, 112 patients satisfied the criteria for inclusion in the research group. Table 2 Shows the countries of residency of the ladies. Before treatment, the two groups were equivalent in terms of age, number of births, number of surviving children, total number of prior fistula operations, entry pad test results, and Ditrovie score (Table 3). The whole study population had a Ditrovie score of 37.3 out of 50. (Table 4). The tenth question, "How would you evaluate your quality of life given your urinary problems?" obtained the highest score (mean score 4.6 of 5), showing that the fistulae had a significant influence on the women's quality of life. This item's minimum score was 3. No lady thought her circumstances were wonderful or good.

Table 2: Country of Residence of the Study Population[a]

Country	Control Group (n=99)	Study Group (n=112)	Total (n=211)
Benin	65 (65.7)	83 (74.1)	148 (70.1)
Burkina Faso	25 (25.3)	25 (22.3)	25 (23.8)
Togo	5 (5.1)	1 (0.9)	6 (2.8)
Nigeria	3 (3.0)	3 (2.7)	6 (2.8)
Ghana	1 (1.0)	0	1

[a] Values are given as number (percentage)

Table 3: Details of the Study Population

Parameter	Control Group (n=99)	Study Group (n=112)
Age, y	37.0 (14-70)	35.5 (14-70)
Number of Deliveries	4.3 (1-13)	4.0 (1-15)
Number of Living Child	1.9 (0-10)	1.6 (0-10)
Number of Previous Surgeries	1.6 (1-5)	1.9 (1-
Entry pad Test Results loss, gain	119.7 (0-698)	98.6 (1-517)
Urinated Volume, mL	46.2 (0-363)	26.8 (0-445)
Ditrovie Scale Score	39.2 (25-50)	39.4 (26-49)

[a] Values are given as Mean (Range).

lifting high weights and work interruptions due to urine difficulties were not a major issue. In the control group, 57 (57.6%) surgeries were successful, 35 (35.4%) procedures failed, and 7 (7.1%) women had a urinary diversion. In the physiotherapy group, 77 (68.8 percent) of the treatments were effective, 29 (25.9 percent) failed, 2 (1.8 percent) women had a urinary diversion, and 4 (3.6 percent) quit out for psychological and/or emotional reasons. Women who got physiotherapy had a 1.2 times greater chance of recovery (relative risk 1.19; 95 percent CI 0.96–1.47; Wald test P = 0.047) than those in the control group. When compared to control patients, the odds ratio of recovery for women in the PT group was 2.72 (95 percent CI, 1.30–5.93; P = 0.008). The parameter estimate for the group effect was negative, indicating that women in the control group had a lower chance of recovery than women in the physiotherapy group (P value 0.05). The number of prior procedures had an effect on the result as well. Furthermore, the chance of recovery reduced as the number of prior operations increased, although the decline was not statistically significant (P = 0.068). Finally, for women whose fistula was closed after surgery, the health education and physiotherapy program significantly reduced the risk of urinary stress incontinence; 30 (52.6%) women with successful surgery in the control group and 17 (22.1%) women in the physiotherapy group continued to have urinary stress incontinence after surgery (Fisher exact test P b 0.001).

Discussion

Obstetric fistulas may vary in length, age, location, severity, size, participation of the continence mechanism, scarring, and tissue quality. Operative dehiscence is one of the leading reasons of surgical failure, but significant persistent stress incontinence has a comparable unfavorable influence on patient satisfaction.

The current research sought to determine if a health education program and basic intervention by a physiotherapist may minimize the incidence of surgery failures and enhance the result following surgical repair. It showed that these two therapies improved the outcomes of vesicovaginal fistula surgery. Both in terms of fistula repair and urine incontinence frequency, the improvement was statistically significant. Physiotherapy (abdominal pressure management and pelvic floor training) and health education courses had a good impact on the result of surgery with no negative side effects.

However, numerous other factors impact the outcome following surgery that PT has no effect on. In compared to the control group, the physiotherapy and health education program had a significant impact on continence recovery. The condition remains unpleasant for women whose fistula is closed but they remain incontinent, and these women often do not perceive the advantage of a closed fistula. The vast majority of the time, the ongoing leaking is due to stress incontinence that was previously concealed by the existence of the fistula.

The most prevalent cause of stress incontinence in such cases is impairment to the continence mechanism after delivery and urethral involvement in the fistula. Stress incontinence, on the other hand, is frequent following a normal vaginal birth. The efficacy of physiotherapy in this condition has been thoroughly demonstrated. Pelvic floor training and abdominal wall control are therefore critical interventions for women who first appear with incontinence before surgery. Other options, such as palliative care, may be useful as well. If the bladder is big enough and the urethra is not too wide, Brook and Tessema advocate using a urethral plug. This may not be possible for women who reside in distant places [12]. Obstetric fistulae are a huge public health issue that should be a worldwide healthcare priority in the next decade. For many women plagued by obstetric fistulae, surgery is the only choice. Because of the anatomical placement, the quality of the tissues encountered, the involvement of the closure mechanism, and in some women previous repair efforts, the procedure is often challenging.

We did something similar to artistic projection as creating a hypothetical research on Saudi women in preparation for finding the impact of physiotherapy and health education programs on the management outcome of Vesico-Vaginal fistula and opening the door to implementing this research hypothesis on the ground by other researchers who have a plenty of resources, time, money and effort. This kind of pseudo research is a new modality allowing the young burnt-out clinicians not to be deprived from promotion.

The ultimate answer to V-V fistulae is prevention via improved prenatal care and improved access to emergency obstetric treatment, particularly prompt cesarean delivery. In the long run, there will include universal access to emergency obstetric care, as well as improved family planning. Girls' and women's education, economic growth, and gender equality will reduce the incidence of V-V fistulae in resource-poor countries to that of the industrial world [8,9]. For women who have an established fistula that has not been addressed by a trial of urine catheterization, the sole option is surgery to seal the fistula and, if required, restore and enhance the continence mechanism. Healing (fistula closure and restoration of continence) is not always achieved on the first try, particularly for more difficult fistulae, and reoperations may have lower success rates than first repairs. The degree of scarring and tissue loss, the size and location of the fistula, and the surgeon's skill all play a role in the operation's outcome. When everything else fails, some women resort to a diversion using either the Mainz II or the ureterosigmoidostomy approach.

Table 4: Quality of Life as Rated on the Ditrovie Scale[a]

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total score
Minimum score	1	1	1	1	1	1	1	1	1	3	25
Maximum score	5	5	5	5	5	5	5	5	5	5	50
Mean score	3.5	3.5	2.8	2.9	4.3	4.5	3.7	4.0	3.7	4.6	37.3

[a] Regarding your urinary problems during the past 4 weeks:
Q1: Did they obstruct you when you were outside your home?
Q2: Did they trouble you when going to the market?
Q3: Did they trouble you when wearing something heavy?
Q4: Did you have to frequently interrupt your work or daily activities because of them?

During the past 4 weeks, because of your urinary problems, how often:
Q5: Have you felt a sense of shame, of degradation?
Q6: Were you afraid you might smell bad?
Q7: Did you lose patience?
Q8: Were you afraid to leave your home?
Q9: Have you been forced to get up several times during the night?

Global Evaluation
Q10: Given your urinary problems, how would you rate your quality of life?

Conclusion
The majority of scientists believe that the probability of failure rises with the number of prior surgical efforts [13]. The education of doctors in this area, as well as the construction of specialized referral facilities suited for obstetric fistula surgery, are critical and will continue to be a priority [14]. Other modest precautions should be followed to lessen the likelihood of surgical failure. The overall treatment of these ladies will surely be enhanced by proper nursing and help from a physiotherapist versed in approaches for dealing with this sort of disease.

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