



Peri-operative Blood Transfusion among Women Undergoing Repair of Obstetric Fistula

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Abstract

Background: *Obstetric fistula is a public health problem in the developing world. Surgical repair is the mainstay of treatment. Blood transfusion is not a common practice in fistula surgery. The study aims to determine the rate as well as the predisposing factors for blood transfusion among women who had fistula repair.*

Methodology: *This was a hospital-based retrospective study carried out at the National Obstetric Fistula Centre, Abakaliki, Nigeria. Relevant information was obtained from the records of women who had fistula surgery from December 2008 to June 2014. The information was transferred into a proforma and presented in tables. Data was analysed using SPSS Version 20. The means were compared using the student's t-tests. A P-value of less than 0.05 was considered significant.*

Results: *Out of 1728 women who had surgery for obstetric fistula, 26 were transfused peri-operatively giving a rate of 1.5%. Out of these, 25 (96.2%) presented with residual fistulae for repeat surgery. All the 26 (100%) women had complicated fistulae. The commonest types of fistulae among the women that were transfused were ureteric (19.5%), intracervical (19.5%) and juxtacervical (19.5%) fistulae. The mean estimated blood loss for women who had transabdominal repair was 539 ml while that for those who transvaginal repair was 494 ml. The difference was not statistically significant (t -value=0.7803, two-tailed p -value=0.4577).*

Conclusion: *Peri-operative blood transfusion among women with obstetric fistula is an uncommon practice. It is more likely among women with residual fistulae undergoing repeat surgery, complicated fistulae and women with ureteric, intracervical and juxtacervical fistulae.*

Keywords: *Blood transfusion; Peri-operative; Obstetric fistula*

Introduction

Obstetric fistula is an international public and reproductive health problem with tremendous psychosocial consequences [1]. It is largely a problem of the developing world due to prolonged obstructed labour occurring among women of poor socio-economic status who lack access to quality maternity care. In

contrast, it is extremely rare in the developed world due to improved obstetric care [1,2]. It is a most distressing condition given the persistent odour from continuous urine leakage experienced by the women affected. The treatment of obstetric fistula is surgery. Various modalities of surgical repair are available to remedy this

scourge. This could be carried out by either open or laparoscopic surgery [3]. The route of repair could be either transvaginal or transabdominal depending on the experience of the surgeon and characteristics of the fistula [3]. Generally, as much as 80% of uncomplicated fistulas are repaired via the vaginal route [4]. Transabdominal repair is less common and is mostly carried out under general anaesthesia to ensure adequate relaxation. It has however been associated with a greater risk of blood transfusion compared with transvaginal repair [5,6].

Although surgical repair of obstetric fistula is sometimes difficult, excessive haemorrhage necessitating blood transfusion is not commonplace. This explains why the documentation on blood transfusion following fistula surgery is rather sparse. Blood loss is documented to be minimal for simple fistulae [7]. Significant bleeding events requiring blood transfusion is more likely in settings of complex fistulas, ureteric fistulas and fistulas repaired via the abdominal route [6,8].

This study attempts to review all cases of obstetric fistula repairs that required blood transfusion with a view to determining the rate of transfusion as well as the predisposing factors to blood transfusion among women with obstetric fistula repair.

Methodology

This was a hospital-based retrospective study of patients who had obstetric fistula repair at the National Obstetric Fistula Centre, Abakaliki, Nigeria from December 2008 to June 2014. The Centre is the National Reference Centre for Research, Treatment, Training, Rehabilitation, Research and Prevention of obstetric fistula for the Southern Part of Nigeria. The Centre is located about 86 km from the Akanu Ibiam International Airport, Enugu and receives referrals from about 20 states of Nigeria.

The case records of women that had surgery for obstetric fistula and had significant bleeding event that necessitated blood transfusion were retrieved for the study. The cases included vesico-vaginal fistula, ureteric fistula and recto-vaginal fistula.

Details extracted from the records included the patients' biodata, parity, type of fistula, duration of fistula, number of previous repairs, pre-operative packed cell volume, blood group, type of anaesthesia, route of repair, operation findings, estimated blood loss, number of units of blood transfused, postoperative complications and outcome of surgery.

The data were entered into a proforma designed for the study. Analysis was carried out with the Statistical Software for Social Sciences (SPSS) Version 20. The means were compared using the student's t-tests. A P-value of less than 0.05 was considered significant.

Results

During the study period, a total of 1,728 women underwent surgical repair of obstetric fistula. Out of these, 26 women had blood transfusion during or following surgery. Hence the rate of peri-operative blood transfusion among women with obstetric fistula repair was 1.5%.

The mean age of the women was 36.3+9.3 years. The mean parity of the women was 3.8+3.0. The mean duration of leakage was 5.6+3.0 years. Only 1 (3.8%) of the women that were transfused was undergoing the first (primary) repair while 25 (96.2%) presented with a residual fistula and were undergoing repeat surgery.

A total of 17 women (65.4%) had their repair done transvaginally under spinal anaesthesia while 9 (34.6%) had transabdominal repair under general anaesthesia. All the 26 women had complicated fistula. The commonest types of fistula (based on site) among women who had transfusion were ureteric (19.5%), intracervical (19.5%) and juxtacervical (19.5%) fistulae.

The mean pre-operative packed-cell volume (PCV) of the women was 33.2+3.7%. Over 96% of the women had pre-operative packed-cell volume of over 30% while only 1 woman (3.8%) had pre-operative packed-cell volume of less 30%. The mean estimated blood loss among the women was 510 ml. The mean estimated blood loss for women who had transabdominal repair was 539 ml while that for those who transvaginal repair was 494 ml. The difference was not statistically significant (t-value=0.7803, two-tailed p-value=0.4577) [Tables 1-4].

Discussion

Vesico-vaginal fistula remains a menace in the developing world. It is usually a result of prolonged obstructed labour and less commonly, caesarean section and other vaginal surgeries. Surgical repair is the mainstay of treatment.

Perioperative blood transfusion practice is considered an indicator of surgical quality [9]. An assessment of the rate and predisposing factors for blood transfusion is therefore imperative in order to continually appraise the quality and outcomes of surgery among patients with vesico-vaginal fistula.

Table 1: Characteristics of patients that had blood transfusion.

Characteristics	Frequency (%)
Age (years)	
10-19	1 (3.8)
20-29	4 (15.4)
30-39	12 (46.2)
40-49	6 (23.1)
50-59	3 (11.5)
Parity	
0 - 2	13 (50.0)
03-05	5 (19.2)
06-08	6 (23.1)
≥ 9	2 (7.7)
Duration of leakage (years)	
< 5	14 (53.8)
05-10	10 (38.5)
11-15	-
16-20	1 (3.8)
>20	1 (3.8)
Pre-operative PCV (%)	
<30	1 (3.8)
30-34	19 (73.1)
35-39	4 (15.4)
40-45	2 (7.7)
Estimated blood loss (ml)	
<300	2 (7.7)
300-599	15 (57.7)
600-799	6 (23.1)
800-999	2 (7.7)
>1000	1 (3.8)

The low rate of blood transfusion in our study revealed that the vast majority of fistula repairs were carried out without severe haemorrhage. This supports the assertion of some experts that minimal blood loss is the expectation in the repair of simple fistulae [6,7].

Other authors have however reported a much higher rate of transfusion [10]. The significance of our finding is that fistula care programmes can largely be undertaken in low-resource settings lacking robust blood banking facilities but with substantial backlog of cases.

Another implication of this is that possibilities of blood transfusion-related hazards such as transfusion reactions and infections may not be serious concerns in fistula surgery.

Table 2: Characteristics of fistulae in women that had blood transfusion.

Characteristics	Frequency (%)
Previous repair	
Primary	1 (3.8)
Residual	25 (96.2)
Route of repair	
Vaginal	17 (65.4)
Abdominal	9 (34.6)
Anaesthesia	
Spinal	17 (65.4)
General	9 (34.6)
Complication	
Complicated	26 (100)
Uncomplicated	-

Table 3: Site of fistulae among patients that had blood transfusion.

Site	Frequency (%)
Ureteric	5 (19.2)
Intracervical	5 (19.2)
Juxtacervical	5 (19.2)
Circumferential	3 (11.5)
Rectovaginal	2 (7.7)
Midvaginal	1 (7.7)
Juxtaurethral	1 (7.7)
Vault	1 (7.7)
Vesicouterine	1 (7.7)

Table 4: Mean estimated blood loss in transabdominal & transvaginal routes (p=0.4577); [* difference between the two groups not statistically significant].

Route	Blood loss
Transabdominal	539 ml
Transvaginal	494 ml
t-value=0.7803, dof=8	
two-tailed p-value=0.4577, 95% CI	

Almost all the women who had blood transfusion presented with residual fistulae and were undergoing a repeat surgery. This implies that the need for transfusion increases with the number of attempts at repair. This is expected given the formation of scar tissue with each surgery leading to more tissue dissection and blood loss compared to a primary procedure where access is good and tissue planes are easily delineated. The implication

for practice is that availability of blood should be ensured when preparing for repeat surgeries especially when extensive fibrosis has been demonstrated on examination.

All the women transfused had complicated fistulae. These included fistulae with extensive scarring, urethral loss, circumferential fistula, markedly reduced ladder capacity, ureteric involvement, fistula within the cervical canal. Increased surgery time and extensive dissection may have accounted for excessive blood loss necessitating transfusion in these patients. Some of the fistulae were repaired vaginally. The abdominal route has been recommended for complicated fistulae while the vaginal route employed for uncomplicated ones [6,11,12]. Other authors have however documented good results with low complication rates following transvaginal repair of complex and complicated fistulae [13]. The clinical implication of this is that excessive blood loss should be anticipated, and blood made available when preparing to operate on patients with complicated fistulae.

Most of the repairs were done transvaginally under spinal anaesthesia. Transabdominal repairs under general anaesthesia were carried out for ureteric, vesico-uterine and some intracervical fistulae that were difficult to access vaginally. The surgical techniques differ for the two routes. Vaginal repair entails separating the vaginal wall from the bladder, raising flaps, closing the bladder and then the vaginal wall separately.

Abdominal repair however entails opening up the abdominal wall and sometimes the peritoneal cavity, separating the bladder from the uterus or cervix and closing them separately. Ureteric fistula repair involves mobilising the affected ureter and re-implanting it into the bladder. The surgical principles for the different approaches for repair are however the same and include adequate exposure, adequate lighting, correct positing (Tredelenburg position for vaginal procedures and supine position for abdominal procedure), tension-free repair, good haemostasis and resting of the bladder post-operatively. Abdominal repair is likely to result in more blood loss.

The mean estimated blood loss was more among the women who had transabdominal repairs compared to those that had transvaginal repair. The difference was however not statistically significant. This is consistent with findings by some authors [6,11]. Others reported that perioperative blood transfusion was significantly more likely with the abdominal route compared with the vaginal route [8,10]. The increased blood loss

associated with the abdominal route may not be unrelated to increased operative time. Jan and others [14] compared the two approaches and found less mean blood loss, shorter mean operative time and shorter mean hospital stay in transvaginal repairs compared with transabdominal ones. Although the difference in blood loss in this study is not significant, greater than usual amount blood loss should be anticipated and blood made available when the abdominal route is being considered.

The commonest site of fistula among women that were transfused were ureteric, intracervical and juxtacervical fistulae. The excessive bleeding with ureteric fistulae may be explained by the abdominal route of repair used for all the cases. Besides, the operative time may be prolonged if the site of injury is very high. Repair of high intracervical fistulae may be difficult and time consuming vaginally especially with extensive fibrosis and immobile cervix.

These may have contributed to increased blood loss and the need for transfusion. Some authorities have recommended the abdominal route for these types of fistulae. Experienced surgeons can however repair most of these vaginally. As the final decision is usually made on table, it is prudent to make preparations for blood should there be severe haemorrhage that will warrant transfusion.

Conclusion

In conclusion, peri-operative blood transfusion among women with obstetric fistula is an uncommon practice. It is more likely among women with residual fistulae undergoing repeat surgery, complicated fistulae and women with ureteric, intracervical and juxtacervical fistulae.

Conflict of Interest

None declared.

Funding

None declared.

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