Obstetric Hysterectomy In A Tertiary Centre In Southern Nigeria

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Abstract: Obstetric hysterectomy is a necessary but unfortunate surgical resort when expected or manifest bleeding ensues at or after delivery when medical therapy and conservative surgery fails.

Objectives: The study set out to determine the rate, socio-demographic characteristics, indications, type and feto-maternal outcomes associated with obstetric hysterectomy at the Federal Medical Centre, Yenagoa.

Method: The data of all women who had obstetric hysterectomy from 1st January 2015 to 31st December 2019 were prospectively obtained, employing a self-designed study proforma. Data obtained was analyzed using SPSS 23.

Results: In the period under review, 26 obstetric hysterectomies were performed and there were 6,386 deliveries giving a rate of 0.41% (410 per 100,000 deliveries) or 1 in 244 deliveries. The majority of the patients were aged between 31-35 years (35.7%) and were between para 2 and 3 (61.5%). The majority of patients also had secondary level education (46.2%) and were unbooked (61.5%). Subtotal hysterectomy was performed in 65.4% of the cases. Extensive uterine rupture (50.0%) was the commonest indication followed by atonic postpartum haemorrhage (26.9%) and adherent placenta (23.0%). The commonly associated postoperative sequelae were anaemia (61.5%) fever (46.2%), wound breakdown (15.3%) and urinary tract infection (15.3%). Maternal mortality was 23.1% and perinatal mortality was 65.4%.

Conclusion: Obstetric haemorrhage is a significant contributor to maternal and perinatal morbidity and mortality as shown in this study. Obstetric hysterectomy is a necessary lifesaving resort when medical and conservative surgical treatment fail to arrest haemorrhage, especially where interventional radiology is not readily available.

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INTRODUCTION:
Obstetric hysterectomy is the surgical removal of the uterus either at cesarean section or any time after vaginal delivery but within the puerperium. It is recourse to when uncontrollable haemorrhage is anticipated e.g. in the morbidly adherent placenta or when other conservative management options have been effected but to no avail and obstetric haemorrhage remained unremitting. Aside from the instant and permanent loss of menstruation and fertility, it is associated with increased maternal mortality and morbidity [1-3] and psychiatric manifestations.

Obstetric hysterectomy is on the rise worldwide and several factors are responsible for this. “Fewer than half of all births in several low income and lower-middle-income countries are assisted by skilled health personnel and these deliveries occur in locations with the significant frequency of risk factors for postpartum haemorrhage and obstetric hysterectomies, such as prolonged labour and chorioamnionitis (which are associated with uterine atony), multiple pregnancies, grand multiparity, unbooked status, and previous Caesarean section. Whereas in most high income and upper-middle-income countries, more than 90% of all births benefit from the presence of trained health personnel”. [5]

Additionally, the increase in the incidence of obstetric hysterectomy has also been ascribed to the increasing caesarean section rates, with a consequent parallel rise in the incidence of placenta praevia and morbidly adherent placenta, and also the increase in multiple pregnancy rates associated with assisted reproductive technology. [6] The worldwide incidence of emergency peripartum hysterectomy is around 1 per 1000 deliveries, being higher among low-income countries. [3],[7]

The prime indication for obstetric hysterectomy is severe uterine haemorrhage, irrespective of the cause, that is uncontrolled by either medical or surgical conservative measures. [8] "This haemorrhage may be secondary to abnormal placentation (e.g., placenta praevia and adherent placenta), uterine atony, uterine rupture, leiomyomas, coagulopathy, or laceration of a uterine vessel that is not treatable by conservative measures”. [8],[9] The comparative occurrence of these secondary etiological factors is fluid and is dependent on the patient population, geographic location and the prevalent obstetric practice patterns. [7]

Tasneem et al [10] reported that the incidence of obstetrical hysterectomy due to uterine atony is declining and the authors attributed it to the use of uterotonic and haemostatic agents and surgical technique like internal iliac artery ligation. Zorlu et al [11] reported an incidence due to abnormal placenta of between 25% to 41%.

The most common indications for obstetric hysterectomy are placental pathology, uterine atony, and uterine rupture. [3],[7] Baheti et al [12] reported that in third world countries, obstetric haemorrhage from uterine atony is the leading cause, followed closely by ruptured uterus and uterine sepsis. [12] Often time the operation is carried out in a clinical state where the patient is too critical to withstand the risks of anaesthesia or surgery. The decision on whether to perform a total or subtotal hysterectomy is individualized and is at the discretion of the surgeon taking into consideration several factors such as the state of the patient, ensuring complete hemostasis, the skill of the surgeon, the duration of the surgery (bearing in mind the effects of anaesthesia and the hemodynamic instability of the patient), achieving less operative blood loss, and postoperative psychosexual complications eg sexual problems and menstrual bleeding afterwards.

The Cochrane review by Lethaby et al [13] did not “confirmed the perception that subtotal hysterectomy offers improved outcomes for sexual, urinary or bowel function when compared with total abdominal hysterectomy. Women are more likely to experience ongoing cyclical bleeding up to a year after surgery with subtotal hysterectomy compared to total hysterectomy”. However, due to the poor contractility of the part of the lower uterine segment that abuts on the cervix, when abnormal placentation involves this region of the uterus and hysterectomy is indicated, it is best effected by a total hysterectomy to achieve hemostasis.
The decision to perform an obstetric hysterectomy must be expeditious and appropriate as deferral invariably leads to extra haemorrhage and worsens the ensuing or established anaemia, and this is one of the major factors that contribute to lasting disability and the high maternal and perinatal mortality. \[14\]

**METHODOLGY**

This was a prospective, observational, analytical study of patients that had obstetric hysterectomy. The study was carried out in the department of Obstetrics and Gynaecology of the Federal Medical Centre, Yenagoa, Bayelsa State in the Niger Delta region of Southern Nigeria. The hospital also serves as a referral centre for primary and secondary health facilities within the state and its environs. The data of 26 obstetric hysterectomies performed over five years, from 1\textsuperscript{st} January 2015 to 31\textsuperscript{st} December 2019 in the department of obstetrics and gynaecology were prospectively obtained, using a self - designed proforma. The patients were closely followed up while on admission and all relevant data were obtained before discharge. They were also followed up after initial discharge until they were finally discharged from all the appropriate clinics. The data from the study were analyzed using SPSS software (ver.23.0; IBM, Chicago, IL, USA). Ethical approval for the study was granted by the hospital’s ethical committee. Inclusion criteria included all parturients who delivered after 20 weeks of gestation, and who had an obstetric hysterectomy at caesarean section or in the period after vaginal delivery up to the puerperium. All women who delivered outside our hospital and were referred for obstetric complications and had obstetric hysterectomy and having fulfilled the above inclusion criteria were included in the study. The exclusion criteria were women who delivered before 20 weeks of gestation, those who had hysterectomy for indications other than obstetric, or outside the puerperium.

For this study, booked patients were pregnant women who registered for antenatal care and made three antenatal visits. Unbooked patients were those patients who neither registered for antenatal care nor attended the antenatal clinic. Postoperative anaemia was defined as a haemoglobin concentration of < 10 g/dl, and postpartum haemorrhage as blood loss of ≥ 500 ml after vaginal delivery or ≥ 1000 ml following abdominal delivery. Urinary tract infection referred to the occurrence of urinary symptoms with a positive urine culture. Postoperative pyrexia referred to a persistent axillary temperature of ≥ 38.0°C, persisting for ≥ 48 hours postoperatively.

**RESULTS**

During the 5-year under consideration, the total number of deliveries was 6,386 and 26 obstetric hysterectomies were performed. This gives an incidence of 0.41% ie 1 in 244 deliveries. Patients with a previous caesarean section were three times more likely to have obstetric haemorrhage.

<table>
<thead>
<tr>
<th>Mode of delivery</th>
<th>No of patients</th>
<th>OH</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous vaginal Delivery</td>
<td>4176</td>
<td>10</td>
<td>0.24</td>
</tr>
<tr>
<td>Caesarean section</td>
<td>2210</td>
<td>16</td>
<td>0.73</td>
</tr>
<tr>
<td>Total</td>
<td>6386</td>
<td>26</td>
<td>0.41</td>
</tr>
</tbody>
</table>

*OH= Obstetric hysterectomy.*

Table 1 shows that the incidence of obstetric hysterectomy following vaginal delivery was 0.24% (240 hysterectomies per 100,000 deliveries) and 0.73% following caesarean section (730 hysterectomies per 100,000 deliveries). The overall incidence was 0.41% (410 hysterectomies per 100,000 deliveries). Patients with a previous caesarean section were three times more likely to have obstetric haemorrhage.
Table 2. Socio-demographic characteristics of the patients

<table>
<thead>
<tr>
<th>Age</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>≥P5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>26–30</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>31–35</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>36–40</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Total(%)</td>
<td>1(3.8)</td>
<td>8(30.8)</td>
<td>8(30.8)</td>
<td>2(7.7)</td>
<td>7(26.9)</td>
<td>26</td>
</tr>
</tbody>
</table>

Mean (SD) 35.5 (3.1)

As depicted in Table 2. The age of the patients ranged from 26 to 40 years with a mean of 33.8 ± 3.51 years while the parity ranged between 1 and 8 with a mean of 3.62±1.92. The majority of patients (46.2%) had secondary level of education.

Table 3: Parity and obstetric hysterectomy

<table>
<thead>
<tr>
<th>Parity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>17 (65.4%)</td>
</tr>
<tr>
<td>TAH</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>9 (34.6%)</td>
</tr>
<tr>
<td>Total(%)</td>
<td>1(3.9)</td>
<td>8(30.8)</td>
<td>8(30.8)</td>
<td>2(7.7)</td>
<td>1(3.9)</td>
<td>3(11.5)</td>
<td>2(7.7)</td>
<td>1(3.9)</td>
<td>26 (100%)</td>
</tr>
</tbody>
</table>

OH= Obstetric hysterectomy, SAH = subtotal hysterectomy, TAH= total hysterectomy

Table 3 showed that the highest number of obstetric hysterectomy was carried out in para 2 and 3 patients.

Table 4: booking status and hysterectomy type

<table>
<thead>
<tr>
<th>Variable</th>
<th>Booked</th>
<th>Unbooked</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAH</td>
<td>6</td>
<td>4</td>
<td>10 (38.5%)</td>
</tr>
<tr>
<td>TAH</td>
<td>11</td>
<td>5</td>
<td>16 (61.5%)</td>
</tr>
<tr>
<td>Total (%)</td>
<td>17 (65.4%)</td>
<td>9 (34.6%)</td>
<td>26 (100%)</td>
</tr>
</tbody>
</table>

OH= Obstetric hysterectomy, SAH = subtotal hysterectomy, TAH= total hysterectomy
Table 4 showed that subtotal hysterectomy was the most common procedure done and the majority of obstetric hysterectomy was done in unbooked patients.

Table 5. Indications for obstetric hysterectomy and type of obstetric hysterectomy.

<table>
<thead>
<tr>
<th>Indication</th>
<th>OH type</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SAH (%)</td>
<td>TAH (%)</td>
</tr>
<tr>
<td>Placenta praevia</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Atony PPH</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Ruptured uterus</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Adherent placenta</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Abruptio placenta</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total (%)</strong></td>
<td><strong>17 (65.4)</strong></td>
<td><strong>9 (34.6)</strong></td>
</tr>
</tbody>
</table>

OH = Obstetric hysterectomy, SAB = subtotal hysterectomy, TAH = total hysterectomy

As shown in Table 5: 34.6% of the cases had total hysterectomy while the remaining 65.4% had sub-total hysterectomy performed. Total hysterectomy was done mostly for cases of placenta praevia, placenta abruption and adherent placenta where the removal of the cervix was required for complete hemostasis due to the pathology. The case of uterine atony that had total hysterectomy was due to prolonged obstructed labour with chorioamnionitis that initially had caesarean section but was complicated with persistent haemorrhage that was uncontrolled by medical management and conservative surgery.

Table 6: Maternal complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>16</td>
<td>61.5</td>
</tr>
<tr>
<td>Fever</td>
<td>12</td>
<td>46.2</td>
</tr>
<tr>
<td>Pelvic abscess</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Coagulopathy</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Wound breakdown</td>
<td>4</td>
<td>15.3</td>
</tr>
<tr>
<td>Bladder tear</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Vesicovaginal fistula</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>4</td>
<td>15.3</td>
</tr>
<tr>
<td>Intensive care unit</td>
<td>17</td>
<td>65.4</td>
</tr>
<tr>
<td>Mortality</td>
<td>6</td>
<td>23.1</td>
</tr>
</tbody>
</table>

*Some patients had two or more combined complications

Table 6: depicts the intraoperative and postoperative complications. Postoperative anaemia (61.5%) fever (46.2%), urinary tract infection (15.3%), and wound breakdown (15.3%) were the foremost complications. 65.4% of all the patients were admitted into the intensive care unit. There were 6 maternity deaths giving a case fatality of 23.1%. Of the maternal deaths, 2 occurred in booked patients (both attempted delivery at a traditional birth attendant before presentation to our facility) while 4 were unbooked patients. All the patients had blood transfused, ranging from 3 to 14 units of blood; the mean amount transfused was 7.62±3.37units. The duration of hospital stay ranged from 5 to 32 days with a mean of 10.4±6.04 days.
The fetal mortality rate is high at a case fatality rate of 65.4%. Expectedly the majority of the fetal deaths occurred in the unbooked parturients accounting for 76.5% of all the fetal deaths.

**DISCUSSION**

As noted by de la Cruz et al “Substantial variation exist in the incidence of obstetric hysterectomy in different countries due to variables such as patient population, geographic location and practice patterns”. [7] The overall incidence of obstetric hysterectomy in this study at 0.41% (410 per 100,000 deliveries) is similar to the findings by Eniola et al, [15] less than the findings of other authors [12],[23],[24] but higher than the reports of other researchers. [17],[18],[22],[26] A reason for our high incidence is because nine (9) of the patients (34.6%) were managed initially by the traditional birth attendants before referral to our hospital, and this is a common pattern in Nigeria, where only 43% of births are assisted by a skilled provider. [21] Similar to the finding by Eniola et al, [15] the majority of the cases (18) representing 69.2% of all cases were performed on patients that were para 2 to 4, this a direct contrast to the report by Abasiattai et al [3] where the majority of patients were of low parity (para 1 and 2). The study did not establish an increasing incidence of obstetric hysterectomy with increasing parity as reported by other authors. [7],[26]

The commonest indication for obstetric hysterectomy in this study was extensive uterine rupture which was followed by uterine atony and adherent placenta. A similar pattern of indications for obstetric hysterectomy was reported by other researchers. [11],[17],[23],[26] Uterine rupture as the commonest indication for hysterectomy has been reported by other authors. [14],[18],[23],[26] What is worrisome about the uterine ruptures in this study is that 8 (61.5%) of the patients were initially managed by traditional birth attendants before referral; 3 of the patients (of which one was a booked patient) had 1 previous caesarean section, another with 2 previous caesarean sections while the remainder had prolonged labour and repeated uterine massage in labour. The reason for the patients with previous caesarean section presenting to the traditional birth attendant is because of their aversion for caesarean section [3],[27],[28] and the fact that our pregnant women have a penchant for patronizing traditional birth attendants. [21],[29]

Sub-total abdominal hysterectomy (65.4%) was the most commonly performed surgical procedure in this study and a similar finding is documented in some other studies, [14-18] it is quicker and less time-consuming. However, Okogbenin et al [26] and Baheti et al [12] reported that the commonest performed surgery was a total abdominal hysterectomy and this is a reflection of the commonest indication for the hysterectomy in their studies. In the study by Baheti et al [12] placenta percreta was the commonest reason for hysterectomy and the authors opined “that where placenta praevia and adherent placenta is an indication, then total abdominal hysterectomy is the ideal treatment as it removes the placental bed in the lower uterine segment”.

After surgery 65.4% of the patients in this study were admitted into the intensive care unit, this is far higher than 36% intensive care unit admission reported by Chawla et al. [25] All the patients had blood transfused with a mean of 7 (range 3 to 14).

The maternal mortality at 23.1% is high when compared to that reported by other authors; Udoma et al [24] it was 20.0%, Chawla et al [25] 17.9%, Okogbenin et al [26] 12.5%, Zhang et al [24] 2.1% and Baheti et al
16.66%. This is partly because half of the patients in our study had extensive uterine rupture and also the patients presented late (in a moribund state). This, unfortunately, is a portrayal of the poor health-seeking behaviour of the patients in a developing country like ours.

In the report by Eniola et al. [15] there was no hysterectomy performed for uterine rupture even in patients with a previous scar and it was attributed to good intrapartum monitoring of women with the uterine scar, or modern management of rupture accompanied by minimal haemorrhage with uterine repair only. However, this scenario obtains when patients are booked for antenatal care and present in labour for expert management.

Amongst the post-operative complications, the most common postoperative complication in our study was anaemia seen in (61.5%). This was followed by fever (46.2%), wound breakdown (15.3%), urinary tract infection (15.3%), bladder tear (11.5%), acute renal failure (11.5%), pelvic abscess/coagulopathy/Vesicovaginal fistula were seen in (7.7%). Overall, among these obstetric hysterectomy patients, there were 17 (65.4%) perinatal deaths. Twelve (46.2%) were intrauterine fetal deaths (11 were due to ruptured uterus and 1 due to abruptio placentae) while the remainder 5 (19.2%) were early neonatal demise due to intrauterine hypoxia. However, nine (9) representing 34.6% of babies were alive and well. The overall perinatal mortality rate of 65.4% is similar to the finding reported by other authors. [3],[17]

CONCLUSION
The incidence of obstetric hysterectomy in our locality is high and this is principally linked to the abysmally poor quality of obstetric care rendered by poorly trained and unskilled health personnel in primary and secondary health facilities who fail to refer patients early, coupled with the poor health-seeking behaviour of our pregnant women as reflected by the fact that not a few formally educated, booked patients with previous caesarean scar(s) prefer unskilled health personnel due to their aversion for a possible repeat caesarean section.

While hospital cost of treatment may be a factor in condescending to present to an unskilled health personnel, the combined time wasted, energy expended and the additional scarce resources involved in procuring obstetric hysterectomy after patronizing unskilled personnel negates this line of reasoning. As culturally-based abdominal massage in pregnancy is deep-rooted in the Niger Delta region of Nigeria, and thus contributing to poor health-seeking behaviour much advocacy is required to minimize this erroneous attitude.

The morbidities associated with obstetric hysterectomy in this study is a reflection of the indication(s) for the procedure and any other contributory disease conditions rather than to the procedure aforementioned. This is the basis for differing morbidity pattern reported by other authors. Since the overriding indication for obstetric hysterectomy is anticipated or overt severe obstetric haemorrhage, it is imperative that the decision for obstetric hysterectomy must be apt, timely and judicious. This way the lasting disabilities and the high maternal and perinatal mortality will be minimized.

ACKNOWLEDGEMENT:
Many thanks to Miss Happiness Ndunuwe for typing the manuscript.

FUNDING:
The funding for the study was bore entirely by the authors.

REFERENCES


How To Cite This Article:

Source of Support: Nil
Conflict of Interest: None declared

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