

**Original Article****Uterine perforation following abortion in Tikur Anbessa Hospital, Addis Ababa, Ethiopia: A case series study**

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**Abstract**

**Objective:** determine incidence, describe patient characteristics, examine clinical presentation, associated complications and describe mode of management of cases with uterine perforation.

**Methods:** Operation registry, abortion care logbook and patients' clinical records were reviewed in a teaching hospital in Addis Ababa, Ethiopia, between January 1, 1999 and December 31, 2000. Cases with laparotomy proven uterine perforation are described.

**Setting:** obstetric and gynecologic department of a tertiary referral and teaching hospital in Addis Ababa, Ethiopia.

**Outcome measures:** clinical presentation, intraoperative findings, site of perforation, mode of management, associated complications and outcome of treatment.

**Results:** there were a total of 927 abortions of which 25 were laparotomy proven cases of uterine perforation following unsafe abortion, making the prevalence 27/1000 abortions. Majority were found to be single, nulliparous, young and dependent member of the family. In 36% (9/25) termination was attempted after 14 weeks of gestation. Plastic and metallic materials are used frequently. Eight of the cases came after seven days of interference. The main clinical presentations were: abdominal pain (100%), signs of peritonitis (100%), pallor (96%), fever (76%) and vaginal bleeding (76%). Common intraoperative findings include abdominal abscess, adhesions, and inflamed ovaries and tubes. Frequent areas of perforation are posterior aspect of the body and cervico-isthmic region of the uterus. Drainage and lavage of the abdominal cavity (80%), hysterectomy (76%) and removal of adnexa (60%) were mainstays of management. All cases had sepsis and peritonitis, 24 had anemia, nine suffered from adult respiratory distress syndrome and eight developed wound infection. Duration of hospital stay ranged from one to 45 days. The case fatality rate was 32% (8/25). Only six came back for follow up.

**Conclusion:** Uterine perforation is associated with increasing number of complications including death. Physicians catering the health care of women with unsafe abortion shall exhibit a high index of suspicion for uterine perforation. (Ethiop. J. Repro Health May 2007, 1(1):17-27)

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**Introduction**

Worldwide, there are 30 - 50 million induced abortions that result in the death of 80,000 - 110,000 women of which an estimated 34,000 are in Sub - Saharan Africa (1). One of the causes of death is uterine perforation, which is particularly dangerous if the abortion is unsafe or is not recognized in time. The incidence is estimated to be 0.2 - 15/1,000 abortions. Depending on the setting, instruments used to terminate pregnancy can be plastic material, plant roots, metallic rods or sharps, or surgical instruments like dilators and curettes (2,3,4).

Reports from different settings have identified risk factors, sites of perforation, clinical presentations, method of diagnosis and outcome. In one study most perforations (64%) occurred in the corpus and the remaining 36% in the cervico-isthmic region (2, 5). Associated complications also vary depending on the circumstances of the procedure. In reports where abortion is legally procured the complications mainly are bleeding and trauma to other visceral organs (5). On the other hand, unsafe abortion is commonly associated

with sepsis, anemia, and hypovolemic shock (3, 4).

Recommended management options for such case are repair, evacuation and curettage under direct visualization followed by repair, total abdominal hysterectomy with or without oophorectomy, subtotal hysterectomy, repair of bowel, or colostomy with subsequent closure. If the abortion is safely procured vigilant observation and oral antibiotic therapy can be all one should do (7, 8, 9).

Like in other areas where abortion is unsafely procured, we encounter cases of uterine perforation in our practice. Specific study with regard to uterine perforation, however, is not reported in the Ethiopian setting. Thus, this study was carried out to determine the incidence, clinical presentation, site of perforation, mode of management, associated complications, and outcome of women with uterine perforation in a teaching hospital. This study will provide a baseline data and help in generating hypothesis for future large-scale studies.

**Materials and Methods**

This is a case series of uterine perforation in two years between September 11, 1999 and September 10, 2001 in a tertiary university hospital, Addis Ababa, Ethiopia. The study subjects are all cases of uterine perforation who presented to the study hospital during the specified period, and the diagnosis is confirmed at laparotomy. Uterine perforations that are not due to abortion, suspected cases that responded to conservative management, charts with incomplete information and cases whose charts could not be retrieved are excluded from the study. But, in the later two conditions the number is considered to estimate the prevalence.

Total number of abortions was obtained from the abortion registry logbook both in the wards and the out patient department. The number of cases of uterine perforation is obtained from the major operation registry. Charts of the cases was obtained from the hospital registrar after proper procedures and the following information was collected;

sociodemographic data, reproductive history, conditions around the termination of the pregnancy, clinical presentation, operative findings, site of perforation, mode of management, presence of complications and outcome of treatment.

The relevant information was obtained from each patient's clinical record. Data was collected and computed manually. Simple percentage is used for description of frequency of data. Information in the patients' charts was kept confidential.

**Results**

There were a total of 927 abortions during the two years of the study of which 25 had laparotomy proven uterine perforation. This makes the prevalence 27/1000 abortions. Two third, 16/25, of the cases were young women under 25 years old. Socio demographic data is shown on Table 1.

**Table 1. Sociodemographic characteristics of cases of uterine perforation in a university teaching hospital, Addis Ababa, Ethiopia. September 1999-2001.**

| <b>Age</b>            | <b>Number</b> | <b>%</b> |
|-----------------------|---------------|----------|
| 15 – 19               | 5             | 20       |
| 20 – 24               | 11            | 44       |
| 25 – 29               | 7             | 28       |
| 30 – 35               | 2             | 8        |
| <b>Parity</b>         |               |          |
| Nullipara             | 13            | 52       |
| I-IV                  | 11            | 44       |
| Unknown               | 1             | 4        |
| <b>Marital Status</b> |               |          |
| Single                | 18            | 72       |
| Married               | 4             | 16       |
| Divorced              | 2             | 8        |
| Unknown               | 1             | 4        |
| <b>Occupation</b>     |               |          |
| Unemployed            | 5             | 20       |
| Student               | 5             | 20       |
| House wife            | 3             | 12       |
| Housemaid             | 3             | 12       |
| Others *              | 5             | 20       |
| Unknown               | 4             | 16       |

*\*This includes merchants, commercial sex workers, private workers*

One in five cases denied any attempt to terminate the pregnancy. Termination was performed in private health institutions, backstreet and at home in seven, six and two cases, respectively. Place of interference is unknown in the remaining 10. Plastic materials were used for interference in eight, metals in five and plant root and wooden material in one each. In 36% (9/25) termination was attempted after 14 weeks of gestation.

Seven cases came within three days of interference, 10 came between the third and seventh day and the rest eight came after a week has passed. Abdominal pain, abnormal vital signs, pallor and signs of peritonitis were found to be consistent symptoms and signs in cases with uterine perforation. Clinical information is shown in Table 2.

**Table 2. Clinical presentation of 25 cases of uterine perforation in university teaching hospital, Addis Ababa, Ethiopia. September 1999-2001.**

| Clinical Signs/symptoms     | Frequency * | %   |
|-----------------------------|-------------|-----|
| Abdominal pain              | 25          | 100 |
| Signs of peritonitis        | 25          | 100 |
| Pallor                      | 24          | 96  |
| Vaginal bleeding            | 19          | 76  |
| Fever                       | 19          | 76  |
| Adnexal mass                | 14          | 56  |
| Chills/rigors               | 9           | 36  |
| Offensive vaginal discharge | 8           | 32  |
| Vomiting                    | 7           | 28  |
| Abdominal distention        | 5           | 20  |
| Diarrhea                    | 4           | 16  |
| Others *                    | 12          | 64  |

\* Rounding up is far from 100% because multiple complaints is the rule than the exception

\*\* These include poor appetite, passing air and feces through vagina, visible loops of bowel through vagina, jaundice, traumatized birth canal and change of sensorium.

Only one patient had a hematocrit in the normal range, four women had hematocrit less than 20%. WBC was less than 10,000 in one third.

Culdocentesis was done in eight cases of which five revealed non clotting blood and three purulent fluids. Uterine sounding was diagnostic in six of the nine in whom it was attempted. In the remaining three the defect was not identified preoperatively.

Ultrasound showed fluid only in two out of seven.

Intraoperatively, nine of the 24 women had a uterine size of greater than 12

weeks. Two had a normal sized uterus. Bowel injury was described in six of the 25; one at the ileocecal junction, one on the rectum and four on the ileum. Documented operative findings are shown on Table 3.

**Table 3. Operative findings in 25 cases of uterine perforation in university teaching hospital, Addis Ababa, Ethiopia. September 1999-2001.**

| Finding                   | Number | %  |
|---------------------------|--------|----|
| Abscess                   | 16     | 64 |
| Inflamed ovary            | 14     | 56 |
| Inflamed tubes            | 13     | 52 |
| Adhesion                  | 11     | 44 |
| Blood in abdominal cavity | 10     | 40 |
| Bowel injury              | 6      | 24 |

The site of perforation was the posterior and anterior aspect of the corpus in 11 (44%) and 4 (16%), cervico-isthmic 7 (28%), lateral in 2 (8%) and cornual in

one case. The duration of operation was more than 60 minutes in 21 (84%) and more than 120 minutes in 9 (32%).

Mode of management is described on Table 4.

Of the total 25 cases seven were admitted to surgical ICU for respiratory support. Surgical consultation for bowel

injury and medical consultation for adult respiratory distress syndrome was made for five and three cases, respectively.

**Table 4. Mode of management of the 25 cases of uterine perforation in university teaching hospital, Addis Ababa, Ethiopia. September 1999-2001.**

| Operative management                 | Number | %  |
|--------------------------------------|--------|----|
| Drainage and lavage                  | 21     | 84 |
| Hysterectomy *                       | 19     | 76 |
| Adnexectomy **                       | 15     | 60 |
| Adhesiolysis                         | 11     | 44 |
| Repai of uterine defect              | 5      | 20 |
| Uterine curettage                    | 5      | 20 |
| Resection and end to end Anastomosis | 4      | 16 |
| Colostomy and repair of rectum       | 1      | 4  |

*\*Subtotal hysterectomy was performed in four cases*

*\*\*Unilateral adnexectomy was performed in three cases*

*^bruise on ileocecal junction was left alone*

Table 5 shows complications that developed in patients with uterine perforation. Hospital stay ranged from one to 45 days; the mode was six and the median 10. There were eight maternal

deaths making the case fatality rate of uterine perforation presenting to our hospital 32%. Only six women returned for follow up.

**Table 5. Associated complications in 25 cases of uterine perforation in university teaching hospital, Addis Ababa, Ethiopia. September 1999-2001.**

| Complications    | Frequency | %   |
|------------------|-----------|-----|
| Peritonitis      | 25        | 100 |
| Sepsis           | 25        | 100 |
| Anemia           | 24        | 96  |
| ARDS             | 8         | 32  |
| Wound infection  | 8         | 32  |
| Septic shock     | 6         | 24  |
| Renal failure    | 4         | 16  |
| Wound dehiscence | 3         | 12  |
| DIC              | 3         | 12  |
| Hypocalcaemia    | 2         | 8   |
| Relaparotomy     | 1         | 4   |

### Discussion

A number of complications are described following induced abortion. One serious complication is uterine perforation that occurs in 0.2 - 15 cases per 1000 induced abortions depending on the population studied (5, 10). The rate in our hospital, 27/1000, is far more common than the reported range. Several studies from different corners of the world have identified risk factors that operate individually or in combination.

These risk factors include position of the uterus during procedure, gestational age, skill of the provider, higher order parity, the place where it is procured, and the instruments used to induce the abortion (5, 7, 10).

The perforating instruments are mostly unknown, but depending on the setting it may vary from medical instruments to twigs of plants, plastic and metallic materials. For example, one study done in five hospitals in Addis Ababa showed that metallic rods, plastic materials and plant roots are the common substances

used to induce abortion (2). Another study from Kenya indicated that instruments used to interfere with the pregnancy included knitting needles, ball-point pens, hangars, and iron rods (3). Similarly, we have found that plastic materials and metallic instruments were responsible for causing uterine perforation in 8/25 and 5/25 cases, respectively. On the other hand, the perforating instruments in the report from US America were dilators in 34%, suction cannulae in 28%, sharp curettes in 25% and uterine sound in 13% (2).

Sites of perforation are also different in different studies. It can be on the anterior or posterior wall, cornual, fundal or cervical portion, or cervico isthmic or broad ligament area (5, 7, 10). In one study the site of perforation reported from 47 patients lateral was in 40%, right lateral in 21%, left lateral was in 17%, posterior in 13% and fundal in 9%. In the same study, most perforations (64%) occurred in the corpus while the remaining 36% occurred in the cervico isthmic region. Another study reported that 16 of 20 (80%) perforations were located in the cervix or lower uterine

segment (8). Both studies are conducted where abortion is procured safely in health institutions. In our study where abortion is unsafe the site of perforation was mostly anterior corpus and cervico-isthmic in 11 and 7 of the total 25 cases, respectively.

Associated complications like sepsis, hemorrhage, gut injury, and vesicovaginal fistula are reported (6,7,8,10). Bowel injury was reported in three and uncontrollable hemorrhage in six of the total 28 cases following elective termination of pregnancy (7). In another study, bowel injury occurred in two, fever in 10 and hemorrhage severe enough to require blood transfusion in 17 of 66 women who sustained confirmed uterine perforation (8). The complications identified in this study are not different from those described above. In agreement with the general recommended management options (6, 9) total abdominal hysterectomy with or without oophorectomy, evacuation and curettage under direct visualization followed by repair, subtotal hysterectomy, repair of bowel, and colostomy with subsequent closure was

performed in 15, 5, 4, 4, and one case, respectively. Vigilant observation and oral antibiotic therapy can also be one mode of management if the abortion is safe. Freiman (4) et al managed 12 of 28 (43%) cases as such.

The final outcome is different and includes chronic pelvic pain, ectopic pregnancy, infertility, or a maternal mortality. Reports from different areas show that mortality from abortion varies from 1.1 - 6% (2, -4, 10). But, this report

show that 8 of 25 (32%) cases of uterine perforations died implying death rate in such cases can increase five to 30 fold. Because of poor follow up rate long term complications could not be described.

In conclusion, uterine perforation is associated with increasing number of complications including death. Physicians catering to health care of women with unsafe abortion shall exhibit a high index of suspicion for uterine perforation.

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