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Original Article:

Safe abortion – Still a neglected scenario: A study of septic abortions in a tertiary hospital of Rural India

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Abstract:
Background and Aims: In spite abortion has been legalized in India over three decades, unsafe abortion continues to be a significant contributor of maternal mortality and morbidity. The aim of the present study is to assess the magnitude of septic abortion in a tertiary care hospital over a period of three years with a special emphasis on maternal mortality and morbidity and various surgical complications. **Settings and Design:** Retrospective study of patients who were admitted with unsafe abortions over a three year period from 2005 to 2008 in a tertiary teaching Hospital of Rural India. **Materials and Methods:** Hospital records of the patients who were admitted with unsafe abortion in three years (2005-2008) were reviewed to evaluate the demographic and clinical profile in relation to age, parity, marital status, indication of abortion , the methods of abortion ,qualification of abortion provider complications and maternal mortality. **Results:** Unsafe abortion constitutes 11.6% (n=132) of total abortion cases admitted over 3 years. Majority of women (70.45%) were in their thirties, married (89%).Sixty percent wanted abortion for birth spacing. Abortion methods included various primitive methods (30%) but majority by dilatation and evacuation. About 60% of abortionists were unqualified. Majority of women admitted with serious complications like peritonitis (70%), visceral injuries (60%), hemorrhagic and septic shock, renal failure (17.4%), and life threatening conditions like DIC, hepatic failure and encephalopathy. A total of 231 women died of unsafe abortion making it 12.55% of total maternal mortality in our institution. Out of 73 women requiring laparotomy, 22% were done within 24 hours of admission and majority (49%) were performed beyond 24-48 hours. Interestingly no women died when early aggressive surgery was done. **Conclusion:** The present study confirms that unsafe abortion is a great neglected health care problem leading to a considerable loss of maternal lives. Education and accessibility of contra caption, readily available, quality abortion services by trained abortion providers remain the key to limit mortality and morbidity arising from unsafe abortion.
Key Words: Unsafe abortion, maternal mortality, India

Introduction:
Although abortion has been legalized in India for more than three decades, unsafe abortion continues to be a major contributor of maternal mortality and morbidity. Termination of pregnancy, although a safe procedure in trained hands, can produce disastrous outcomes when performed by untrained and unauthorized people in improper settings. Nearly thirteen percent of all illegal abortions in the world are carried out in India[1] and out of 20 million women who undergoes unsafe abortion annually, 70,000 die while millions suffer chronic morbidities.[2]

Aims and Objectives
The aim of the study was to evaluate cases of septic abortions admitted to a tertiary hospital over a period of three years in relation to the magnitude of the problem (Unsafe abortion) and also to asses various epidemiological factors like age, gravida, parity, methods of termination outcome in terms of mortality and morbidity with a special emphasis on surgical complications.

Materials and Methods:
This was a descriptive study of patients who were admitted with conditions that can be attributed to unsafe abortion such as pelvic infection , reproductive tract injury or florid cases of septicemia with or without visceral injury following abortion in 3 years time from April 2005 to March 2008 in our hospital which is the only referral tertiary hospital in the region of North Bengal and adjoining border countries like Nepal, Bhutan and Bangladesh. Being a referral hospital, the type of patients seen here are usually those with complications not manageable by health personnel at the peripheral hospitals. Thus denominator for mortality and morbidity mentioned in this study are cases of abortion presenting with some complication needing care at tertiary center.

Hospital records of the women admitted with diagnosis of unsafe abortion were analyzed. Each case were thoroughly evaluated by detailed history, physical and biochemical examinations including liver function, renal function and coagulation profile. Detailed ultrasound examinations were performed. They were treated adequately with broad spectrum antibiotics, fluid and blood to achieve haemodynamic stability. Each case was individualized depending on the clinical

profile, response to the treatment and results of the investigations and accordingly conservative and / surgical treatment was offered.

Those cases requiring laparotomy, thorough exploration of abdominal and pelvic viscera were done to detect visceral injury and presence of pus in peritoneal cavity. Depending on the severity ,uterine injuries were dealt with either by repair or hysterectomy and bowel injuries were handled with either by resection and anastomosis, primary repair or by colostomy or ileostomy as the case may be.

Results and Analysis:

A total of one hundred and fifty seven subjects were admitted with the diagnosis of unsafe abortion in the 3 year period out of total 1133 abortion cases admitted , giving rise septic abortion to 11.6% of total abortion cases and of these complete records of 132 (84%) women were available for complete analysis. During the same period total number of deliveries in the institution were 18,532. All the statistical analysis were done taking in consideration of these 132 subjects.

In our study, the majority of women (70.45%,n=93) were in the third decade of their lives and only 6(4.5%) women were in their teens. Nine percent women (13) were unmarried whereas large majority (89%, n=117) were married and living with their spouses. [Table 1]

Table 1: Characteristics of patients of unsafe abortions (N = 132)

Category	**No (%)**
Age in years	
14 – 19 yrs	06 (4.5 %)
20 – 30 yrs	93 (70.45 %)
> 30 yrs	33 (25 %)
Marital status	
Married	117 (88.63 %)
Unmarried	13 (9.83 %)
Widow/ Separated	02 (1.54%)
Parity	
P_0	12 (9.09 %)
P_1	28 (21.21 %)
$\geq P_2$	92 (69.69%)
Gestational age (wks)	
5 -12	74 (56 %)
13 – 20	43 (32.6 %)
>20	05 (3.8 %)
Not Known	10 (7.6%)

When enquired about the reason for abortion 79 (60%) used abortion as a method of birth spacing or limiting family size. Nine (6%) women opted for abortion to get rid of a female fetus.[Table 2] Although majority (56%,n=74) underwent abortion in the first trimester, more than one third of women had it beyond 12 weeks of gestation. Of them in 5 women abortion was illegally induced beyond 20 weeks.[Table 1]

Table 2: Reasons for seeking abortion

Reasons	**Number (%)**
Unmarried	13 (9.8%)
Widow	02 (1.5%)
Birth spacing	79 (59.8%)
Female fetus	09 (6.8%)
Incomplete / missed Abortion	29 (22%)

Although 60% (n=83)of the abortion providers were unqualified and unauthorized , medical doctors were responsible for unsafe abortion in 28% cases. About one third of the procedures (37) were carried out by primitive methods like using sticks, roots, vaginal paste, insertion of catheters and herbal medicines. However more than half of the procedures were by conventional dilatation and evacuation or suction and evacuation. [Table 3]

Table 3: Methods employed to induce abortion and abortion provider

Methods		**No (%)**
Dilatation & Evacuation		67 (50.75%)
Primitive Methods		37 (28.03%)
Injections and Vaginal pessaries		28 (21.21%)
Abortion Provider	**No (%)**	**Mortality**
Qualified Doctor	37 (28%)	6 (16.2%)
Unqualified	83 (62.9%)	21 (25.3%)
a) Nurse (ANM)	26	
b) Traditional	57	
Not Revealed	12 (9.09%)	02 (16.6%)

Infection was the common accompaniment of all the cases of the study. While in one third of the subjects the infection was localized to the genital tract, majority (70%, n=92) developed generalized peritonitis. Visceral injury were detected in 79(60%) cases of which uterine injury were the commonest (55%, n=73), followed by Bowel injury (18%,n=24). One in every 5 women (28) was admitted in a state of shock, of these majority were septic shock and the remainder were in shock due to severe blood loss. One fourth of the women subsequently developed multiple organ dysfunction in the form of renal failure (17.42%), encephalopathy, hepatic failure, DIC. [Table 4]

Table 4 :Complications & Mortality in Septic Abortion

Complication	**No. of cases**	**Maternal deaths**
Peritonitis	92 (69.69%)	8
Septicemia	49 (37.12%)	7
Injuries	79 (59.8%)	2
Uterine perforation	49 (75.38%)	
Uterine perforation with bowel injury	24 (18.18%)	
Bladder injury	02	
Vaginal injury	04	
Shock	28 (21.2%)	
Acute renal failure	23(17.42%)	5
Encephalopathy	2	2
Jaundice	2	1
DIC	3	2

More than half of the cases (73) needed laparotomy while D & E and conservative treatment were all that was needed for the rest of the cases.[Table 5]

Table 5: Types of Intervention Needed

Interventions	**No (%)**
Conservative	12 (9.09%)
D&E	46 (34.84%)
Laparotomy	73 (55.30%)
Posterior colpotomy	1

Among those requiring surgery 49% laparotomy were performed beyond 24-48 hours of admission while in 22% of cases it was done promptly within 24 hours of admission. Various surgeries done as treatment option were depicted in the Table 6. Repair of uterine perforation and peritoneal lavage were the commonest procedure.

Table 6: Surgical procedures needed at the time of Laparotomy (n=73)

Procedures	**No (%)**
Repair of uterine perforation with peritoneal lavage & drainage	27 (37 %)
Only peritoneal lavage & drainage	13 (17.80%)
Repair of Uterine perforation and primary bowel Repair	12 (16.4%)
Intestinal resection & anastomosis	5 (6.84%)
Colostomy & Ileostomy	7 (9.88%)
Subtotal hysterectomy with peritoneal lavage	7 (12.32%)
Subtotal hysterectomy with bladder repair	2

In the present study 29 out of the 132 women with septic abortion died making a case fatality rate of 21.96%. During the study period 231 Women died due to pregnancy related causes in our hospital. Thus unsafe abortion constitutes 12.5% of total maternal mortality in this institution. Of the abortions carried out by doctors 16.2% (6 out of 29) women died while 25.3% (21 out of 29)of those performed by unqualified persons prove fatal. Out of 73 women who required surgical treatment, 7 died and interestingly no women died when surgery was performed within 24 hrs of admission. [Table 7]

Table 7: Correlation and comparison between early surgery and delayed surgery amongst Laparotomy cases (n- 73)

	Surgery done within 24 hours	Surgery between 24 to 48 hours	Surgeries after 48 hours
No of cases	16 (21.91%)	36 (49.31%)	21 (28.76%)
Maternal Mortality	0	2	5 (6.84%)
Hospital stay			
< 1 week	11(68.75%)	0	0
1 – 2 wks	5(31.25%)	23 (63.88%)	6 (28.57%)
> 2 weeks	0	11 (30.55%)	10 (47.61%)

Discussion:

The burden of unsafe abortion in our institute constitute 11.6% (n=157 out of 1133) of total abortion cases who needed admission. Incidence of septic abortion remains similar (9-26.5%) in other studies.[3,4] As in other studies,[3,5] our study also shows that three fourths of the women who underwent unsafe abortion were between 20 -30 years of age. In countries where contraception is widely available, more than 50% of abortions are for women less than 25 years of age whereas in countries with no tradition of contraceptive use and limited availability of contraception, such as those in central and Eastern Europe majority terminations are performed in women aged 35 yrs or more. Thus our results are likely to be due to suboptimal use of contraceptives.[6] Although in developed nations the abortion ratio is higher among unmarried women[7], in our study more than 90% women were married which is consistent with other studies[3-5,8] Premarital sexual activity carries strong social disapproval in India. That's why only 10% contribute unmarried population who suffered unsafe abortion in the present study, the data supported by other studies(5-8%).[5,8] It appears that for majority of women who underwent unsafe abortion, it was probably the only available method of family planning. Either these women were unaware of the methods of contraception or these were not readily available to them. These may be the factor which influences the gestational age at which abortion was sought. Majority (58.3%) of our women sought abortion in the first trimester which is similar to other studies.[5,9] The advanced gestation at the time of abortion in nearly one third of the women in the present study could be due to lack of easily accessible medical services and may also be related to the complexity of MTP act where it requires approval of two doctors when pregnancy beyond 12 weeks needs termination. And termination beyond 20 weeks of gestation is not approved by law in India. Although nearly one third of the abortion provider were medical doctors, great majority (62%) were unqualified which is the experience of others where 57 -77% abortions were carried out by untrained and unqualified people.[5,8,9]

These providers though unqualified probably were easily accessible to the clients and women had confidence in them. This emphasizes the fact that provider and client interaction, in addition to technical competence of the provider is an essential component of quality abortion care. As per MTP act only doctors who underwent training in MTP are allowed to .provide abortion services. Twenty eight percent of unsafe abortion were carried out by doctors out of which 6 women died in our study, consistent with the results of others[5,10-12] where medically qualified persons were responsible for performing considerable number of unsafe abortions. It therefore can not be assumed that the doctors always know how to perform safe abortion. Not only in India, many doctors in developed nations are not properly trained to render safe abortion services. Complication rates are significantly higher when general physicians without formal training perform abortion. Examination of rates of complication occurring in a teaching hospital based abortion clinic show the rates are significantly lower for resident physicians after training than before training.[13] Thus availability of huge numbers of adequately trained personnel remains the key to reduce unsafe abortions.

Uterine perforation was the commonest visceral injury (n=73, 55%) in the present study. The wall of the pregnant uterus is soft and relatively thin and very vulnerable to perforation during surgical abortion particularly done by primitive methods. Frequency of uterine perforation varies from 0 per 1000 procedure to 4 per 1000 procedure.[14] The high incidence of uterine injury in our study may be due to primitive techniques adopted by large number of unqualified people. The frequency of bowel injury has varied between 5 to 18% cases[5,9,15] in different studies and in our study 24 women had different kinds of bowel injuries. In our study 55% women required laparotomy and our results corroborate with others where rates of laparotomy varied from 16-52%.[5,15] As the patients were referred late to the tertiary center with high grades of sepsis, majority needed laparotomy. Therefore early referral and safe abortion services by skilled personnel in peripheral centers are necessary to limit mortality and morbidity of unsafe abortion.

Unsafe abortion claimed 29 lives in our study making abortion mortality ratio 25.6 /1000 abortion. And case fatality rate a whopping 21.96% compared to 0.6 in Africa, 0.4 in Asia and 0.1 in latin America.[2] Maternal deaths attributed to abortion were found to be 9 % to 26.4% in various studies.[5,8,9,16,17] The high mortality rate in the current study was due to the fact that the complications that resulted from unsafe abortion required tertiary level care. There was much delay in referring the patients in tertiary centers and the delay may be linked to the delayed diagnosis of complications by unqualified persons and also to some extent due to social reasons. One interesting observation in our study was that early surgical exploration within 24 hours of admission led to no maternal death and reduced hospital stay (<one week) compared to high mortality (7 out of 73, 68.5%) and increased hospital stay (47.6%, more than two weeks hospital stay) when surgery was done beyond 24 hours of admission. Meqafu et al,[18] in their study also stressed the need of early aggressive surgical management to reduce the maternal mortality; 16.4% of their 67 patients of septic abortion had intestinal injuries. No women died when early dysfunctional colostomy was done whereas when simple closure of perforation or intestinal resection and anastomosis were done the mortality were 66.6%.

The present study confirms that unsafe abortion is one of the great neglected healthcare problems in India and more so in rural India where lack of education and adequate trained abortion provider and freely available quality abortion services led to very high maternal mortality and morbidity. This study highlights that married and multiparous women in the third decade of their lives are the principal sufferer of unsafe abortion and abortion is being used as an alternative to contraception. Thus there is a serious unmet need for easy availability of safe and effective methods of contraception and abortion services.

A high degree of commitment from all categories of health professionals for prevention of unsafe abortion is needed .All including male members of the family need to be educated regarding the contraception and safe abortion because the causes of unsafe abortion are rooted in a complex set of sociodemographic circumstances. It can be emphasized that only legalization of abortion is not sufficient to reduce the number of unsafe abortion. The fact that 60% women approach unskilled abortionist, in spite abortion is legal emphasizes the need to make abortion service freely available and easily accessible in the society. Also general doctors need to be properly trained to provide quality abortion service. Early diagnosis of complication and prompt referral to tertiary centers also will save many lives and limit morbidities.

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