

Retrospective Study Incidence and Management of Various Types of Spontaneous Abortion at Tertiary Care HospitalNalini I. Anand¹, Mona D. Gandhi², Trupti C. Nayak³, Sandip Kidecha⁴^{1,2}Professor and Head, Department of Obstetrics & Gynaecology, Shri M.P. Shah Govt. Medical College, Jamnagar, Gujarat³Head of Unit, Department of Obstetrics & Gynaecology, Shri M.P. Shah Govt. Medical College, Jamnagar, Gujarat⁴2nd Year Resident, Department of Obstetrics & Gynaecology, Shri M.P. Shah Govt. Medical College, Jamnagar, Gujarat

Received: 25-07-2024 / Revised: 23-08-2024 / Accepted: 26-09-2024

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Conflict of interest: Nil

Abstract:

Introduction: Spontaneous abortion refers to the loss of a non-viable fetus, managed through medical or surgical interventions following WHO guidelines to ensure safety under skilled healthcare providers. Despite legal access to abortion under the MTP Act of 1971 in India, a significant number of procedures remain unsafe due to factors such as limited awareness and poverty. This study explores the medical, social, and ethical aspects of abortion, emphasizing the importance of safe practices and targeted interventions to improve maternal health outcomes.

Materials and Methods: This retrospective analytical study was conducted from April 2023 to March 2024 at M.P. Shah Government Medical College and GG Government Hospital, Jamnagar, Gujarat. The study included 1,126 patients who experienced spontaneous abortions, with data collected retrospectively from medical records. A comprehensive evaluation was carried out, including patient medical histories, physical examinations, and laboratory tests. Abortion procedures included suction evacuation or other medical methods aligned with WHO guidelines. Post-abortion care involved patient monitoring, antibiotics, and follow-up visits. Statistical analysis was performed to assess the demographic characteristics and treatment outcomes.

Results: Among the 1,126 participants, the majority were aged 26-30 years (42.3%) and resided in urban areas (65.3%). Most were married (98.6%) and either had primary education (28.4%) or were illiterate (26.6%). The distribution of gestational age showed that 32.0% of abortions occurred before 8 weeks, 46.3% between 8-12 weeks, and 21.7% between 12-20 weeks. Incomplete abortions were the most frequent (46.62%), followed by complete abortions (19.53%) and missed abortions (15.6%), with septic abortions being rare (0.4%). The most common symptoms were spotting (36.8%) and bleeding per vaginum (55.2%), prompting antenatal visits. Anemia was the most prevalent complication (31.54%), while 8.0% of patients had pregnancy-induced hypertension (PIH). Progesterone vaginal pessary was the most common prophylaxis used for inevitable abortions (63.5%). Primary management methods included medical treatment (35.5%) and evacuation and curettage (43.1%).

Conclusion: The findings emphasize the importance of improving prenatal care and raising awareness about safe abortion practices, especially for urban women aged 26-30 years. Effective management of incomplete abortions and addressing common complications like anemia and PIH are essential for enhancing maternal health outcomes.

Keywords: Spontaneous abortion, maternal health, Abortion management.

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Introduction

Among the gynecological cases admitted in tertiary care hospitals, abortion occupies the highest position. But detailed studies about the pattern of abortion admitted in the hospitals are limited. [1] Ensuring the safety of induced abortions relies on adherence to recommended methods by the World Health Organization (WHO) and the expertise of trained healthcare providers. [2] Medical abortions,

which involve the administration of tablets, and surgical abortions, conducted as outpatient procedures, offer alternative termination options. The WHO classifies unsafe abortion as procedures carried out by unskilled individuals or in substandard medical settings.[3] Consequently, access to safe and legal abortion services is paramount for safeguarding women's health and their reproductive

rights. The discourse on abortion spans cultural, religious, and legal realms, with opinions varying widely. While some advocate for abortion rights as essential to women's autonomy, others prioritize fetal protection on moral grounds. [4]

The World Health Organization (WHO) defined abortion as the expulsion or extraction of a fetus (embryo) weighing less than 500 gm, equivalent to approximately 20-22 weeks gestation. According to English law, abortion denotes the termination of a pregnancy before twenty-eight weeks of gestation, that is, before the fetus is viable. But in our country, the facilities of resuscitation have not yet been developed to the level at which a preterm baby of 28 weeks gestation can survive.

Therefore, we still consider the term abortion up to 28th week of pregnancy during miscarriage, the cervix opens and placental separation causes bleeding. Before 10 weeks' gestation, the fetus and the placenta are frequently expelled together, but later, they often deliver separately.

Thus, tissue may remain entirely within the uterus or partially extrude through the cervix. Products lying loosely within the cervical canal can be easily extracted or teased out with ring forceps. For uterine infection or for hemodynamically unstable women with heavy bleeding, prompt surgical evacuation is performed.

Expectant management of spontaneous abortion has a failure rate of around 25%, while medication therapy with misoprostol carries a failure rate between 5-30%. [5] Curettage remains the most effective option, with a 95-100% success rate.[6] Missed abortion refers to retained fetal tissue in a uterus with a closed cervix.

Transvaginal sonography (TVS) can detect an embryo by 5-6 weeks, with cardiac activity visible between 6-6.5 weeks.⁷ If no embryo or yolk sac is seen, repeat TVS is recommended to confirm non-viability. Septic abortion, resulting from infections spreading to the uterus, presents with fever, pain, and foul discharge, requiring immediate broad-spectrum antibiotics. Severe cases, including toxic shock syndrome (TSS) and necrotizing infections, are life-threatening and demand urgent medical intervention. [7]

In India, an estimated 15.6 million abortions occurred in 2015, with a rate of 47 per 1000 women aged 15 – 49 years. [8] Despite the legalization of abortion services under the MTP Act of 1971, a population-based study revealed that 4.8% of women undergo abortions, among which 67.1% are unsafe. [9]

This trend is exacerbated by factors such as lack of knowledge, poverty, and easy accessibility to over-the-counter pills, leading to serious consequences. Globally, unsafe abortions are on the rise, signifi-

cantly impacting maternal health, both physically and mentally, and straining healthcare systems. [10] The study explores key aspects of abortion in reproductive health, covering both spontaneous and induced terminations. It emphasizes the medical, social, and ethical implications, highlighting the need to understand abortion prevalence and patterns for targeted interventions and resource allocation.

By examining various management approaches and analyzing patient demographics, reasons for seeking abortion, and adverse outcomes, the study aims to advance reproductive healthcare practices and patient-centered care.

Materials and Methods

This hospital-based retrospective analytical study was conducted at M.P. Shah Government Medical College and GG Government Hospital, Jamnagar, Gujarat, India, from April 2023 to March 2024. The study aimed to analyze abortion cases during this period, with a sample of 1,126 patients who sought care at the tertiary center within the study duration.

The inclusion criteria consisted of women aged 18-35 years who experienced spontaneous abortions diagnosed clinically or via ultrasound. Exclusion criteria included induced abortions, ectopic or molar pregnancies, abortions performed at other hospitals without transfer, elective abortions without complications, and cases with incomplete medical records or underlying medical conditions. Participants with incomplete follow-ups, unclear abortion status, or those declining participation were also excluded.

Each participant underwent a detailed assessment, including a review of medical and obstetric history, gestational age, and any concurrent medical conditions. Comprehensive physical examinations were performed, along with pre-abortion investigations such as hemoglobin levels, urine analysis, and blood group determination.

Ultrasound evaluations were selectively used for specific cases involving uterine fibroids, uncertain conception dates, or early and late gestational stages. Surgical interventions, such as suction evacuation for first-trimester abortions, were performed by obstetricians or supervised trainees. Cervical ripening agents like dinoprostone gel or misoprostol tablets were administered as needed, with analgesia provided via intravenous sedation.

Medical management followed established protocols aligned with WHO guidelines, with dosages adjusted based on pregnancy duration. Second-trimester abortions involved labor augmentation with dinoprostone gel, extra-amniotic saline, and intravenous oxytocin drips. Post-abortion care emphasized prophylactic antibiotics and patient moni-

toring, with participants discharged within 72 hours after anemia correction and proper coverage. Patients were counseled on recognizing complications and scheduled for follow-up within 1-2 weeks to ensure complete recovery. Statistical analysis included both descriptive and inferential methods to evaluate demographic data and treatment outcomes. Frequencies, proportions, and central tendency measures were calculated using SPSS version 20 to generate findings aimed at improving evidence-based abortion care and reproductive healthcare practices.

Results

The study involved 1126 cases, revealing a diverse age distribution of the study participants revealed that the majority fell within the 26-30 age group, comprising 42.3% of the total sample, followed by those aged 21-25 (23.7%).

Regarding socio-demographic characteristics, most participants resided in urban areas (65.3%), were married (98.6%), and had attained primary education or were illiterate (28.4% and 26.6%, respectively).

Table 1: Age Distribution and Socio-demographic Characteristics of Study Participants

| Age (years) | Number of Cases (n = 1126) | Percentage |
|--|----------------------------|------------|
| 14—20 | 25 | 2.2% |
| 21—25 | 267 | 23.7% |
| 26—30 | 477 | 42.3% |
| 31—35 | 234 | 20.8% |
| N35 | 123 | 10.9% |
| Socio-demographic Characteristics | | |
| Urban | 735 | 65.3% |
| Rural | 391 | 34.7% |
| Married | 1111 | 98.6% |
| Unmarried | 15 | 1.3% |
| Illiterate | 320 | 28.4% |
| Literate | 706 | 71.6 % |

The study unveiled a diverse gestational age distribution: 32.0% were under 8 weeks, 46.3% fell between 8 to 12 weeks, and 21.7% were in the 12 to 20 weeks range. Noteworthy aspects include a significant proportion with no prior history of abortions, while 31.54% had anemia and 8.0% presented with pregnancy-induced hypertension (PIH).

Table 2: Characteristics of Study Participants

| Characteristic | Number of Cases (n = 1126) | Percentage |
|---|----------------------------|------------|
| Gestational Age (weeks) | | |
| < 8 | 361 | 32.0% |
| 8 to 12 | 521 | 46.3% |
| 12 to 20 | 244 | 21.7% |
| Past History of Abortions | | |
| One abortion | 158 | 14.0% |
| Two abortions | 22 | 2.0% |
| ≥3 abortions | 67 | 6.0% |
| No History of Abortions | 879 | 78.0% |
| Comorbid Conditions | | |
| Anaemia | 355 | 31.54% |
| Pregnancy-Induced Hypertension (PIH) | 90 | 8.0% |
| Gestational Diabetes Mellitus (GDM) | 45 | 4.0% |
| Hypothyroidism | 67 | 6.0% |
| Epilepsy | 2 | 0.2% |
| HIV Positive | 1 | 0.1% |
| Other | 45 | 4.0% |
| Previous Lower Segment Caesarean Section (LSCS) | 89 | 7.9% |
| Uterine Fibroid | 21 | 1.9% |

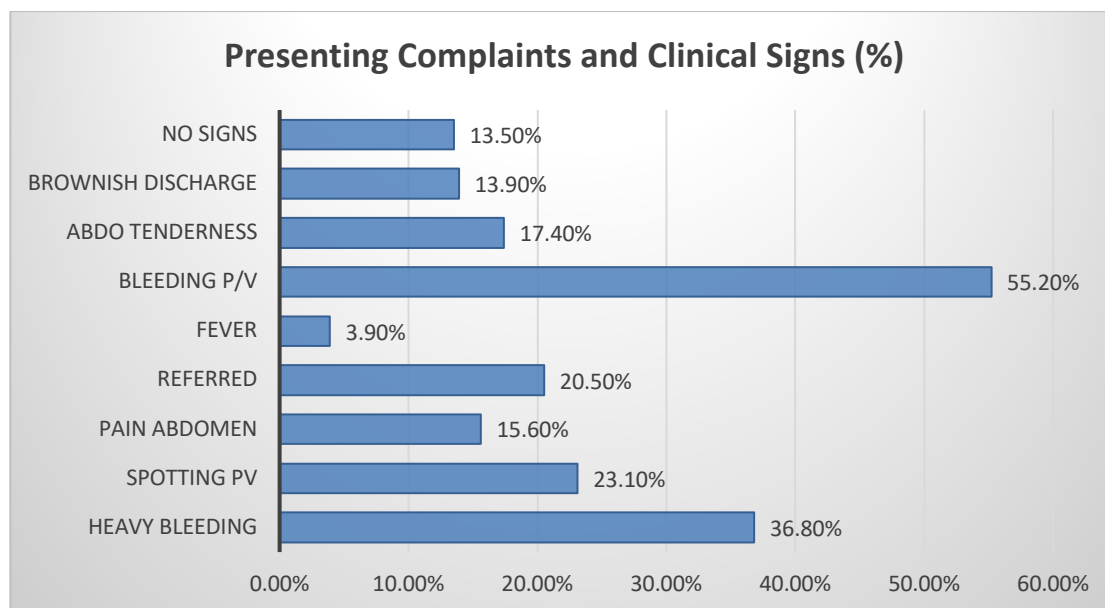


Figure 1: Presenting Complaints and Clinical Signs (%)

Among study participants, bleeding PV (55.2%) and spotting PV (36.8%) were predominant. Abdominal tenderness (17.4%) and pain abdomen (15.6%) were also observed, along with a smaller

percentage presenting with fever (3.9%) or being referred with scan reports as early pregnancy failure (20.5%). Additionally, some showed no signs upon presentation (13.5%).

Table 3: Presenting Complaints / Clinical Signs among study participants

| Presenting Complaints / Clinical Signs | Number (%) |
|---|-------------|
| Bleeding PV | 622 (55.2%) |
| Spotting PV | 415 (36.8%) |
| Pain abdomen | 176 (15.6%) |
| Referred with scan report (early pregnancy failure) | 231 (20.5%) |
| Fever | 44 (3.9%) |
| Bleeding P/V | 622 (55.2%) |
| Abdominal tenderness | 196 (17.4%) |
| Brownish discharge | 156 (13.9%) |
| No signs | 152 (13.5%) |

Among the study participants, the majority underwent incomplete abortions (46.62%), followed by complete abortions (19.53%). Missed abortions accounted for 15.6% of cases, while septic abortions were rare, constituting only 0.4%.

Table 4: Type of abortions among study participants

| Type of Abortion | Frequency | Percentage |
|---------------------|-----------|------------|
| Incomplete | 525 | 46.62% |
| Complete | 220 | 19.53% |
| Missed | 176 | 15.6% |
| Septic | 5 | 0.4% |
| Inevitable abortion | 50 | 4.4% |
| Threatened abortion | 150 | 13.32% |

Among study participants, medical methods (35.9%) and Evacuation & curettage (43.1%) were the primary management approaches for abortion. (Table 6)

Table 6: Management of abortion among study participants

| Management | Frequency | Percentage |
|--------------------------|-----------|------------|
| Medical methods | 404 | 35.9% |
| Progesterone pessary | 715 | 63.5% |
| Evacuation & curettage | 486 | 43.1% |
| No intervention required | 114 | 10.1% |
| Laparotomy | 2 | 0.2% |
| Hysterotomy | 1 | 0.1% |
| Anemia correction | 355 | 31.54% |

Discussion

The study involved 1126 cases, revealing a diverse age distribution among the study participants, with the majority falling within the 26-30 age group, comprising 42.3% of the total sample, followed by those aged 21-25 (23.7%). This distribution contrasts with Chavan et al. [18] study, where the majority were aged 21-26 years (36%), followed by those aged 26-30 years (14%). Our study's slightly older age group may reflect different demographic characteristics or health-seeking behaviours. Most participants in our study resided in urban areas (65.3%), compared to the varied socio-economic backgrounds highlighted in Narasimha et al. [19] study, emphasizing the impact of urbanization on access to healthcare services. Additionally, the high marriage rate (98.6%) and primary education or illiteracy (28.4% and 26.6%) in our study participants indicate a potentially lower awareness and usage of contraceptive methods, paralleling the findings of Narasimha et al. [19] study, which highlighted the unmet need for contraception and the prevalence of unintended pregnancies.

Comparatively, the socio-demographic characteristics in our study align with trends observed in Chavan et al. [18], Adeniran et al. [20], and Dhingra et al. [21] studies, where a significant proportion of women were married and seeking first-trimester abortions. The high percentage of participants with primary education or illiteracy in our study (55%) suggests a need for better educational interventions, similar to the recommendations in Chavan et al. [18], Narasimha et al. [19], and Adeniran et al. [20] studies, which stress the importance of accurate information and counselling regarding prenatal care and contraception. The predominance of urban residents in our study also highlights the disparities in healthcare access between urban and rural areas, reinforcing the need for targeted interventions to improve maternal health outcomes across different socio-economic and geographic settings. Furthermore, the higher incidence of complications such as anaemia, hypovolemic shock, and septicemia in unsupervised abortion cases observed in Narasimha et al. [19] study underscores the importance of supervised medical care, which is essential for reducing morbidity and improving overall maternal health.

The study unveiled a diverse gestational age distribution: 32.0% were under 8 weeks, 46.3% fell between 8 to 12 weeks, and 21.7% were in the 12 to 20 weeks range. This aligns with Chavan et al. [18] study, which also observed a significant proportion of early gestation cases. A noteworthy aspect of our study is that a significant proportion of participants had no prior history of abortions, similar to the 78% reported in Chavan et al. [18] study. Additionally, 31.52% of our participants had anemia and 8.0% presented with pregnancy-induced hypertension (PIH). These results underscore the importance of comprehensive prenatal care, as highlighted in Narasimha et al. [19] and Adeniran et al. [20] studies, to manage risks such as anemia and PIH and to provide targeted care for those with a history of surgical interventions.

Among the study participants, spotting PV (36.8%) and bleeding per vaginum (55.2%) were predominant. These findings are consistent with Chavan et al. [18] study, 56% of PV bleeding. Similarly, Adeniran et al. [20] reported PV bleeding (87.6%) as major complaints. In our study, abdominal tenderness (17.4%) and pain abdomen (15.6%) were also observed, aligning with Jaya et al. [22] findings of abdominal pain (39.3%) and PV bleeding (27.9%). Additionally, a smaller percentage presented with fever (3.9%), similar to the septicemia cases reported by Adeniran et al. [20] (2.6%). Our study also noted that 20.5% of participants were referred with scan reports, underscoring the importance of diagnostic imaging in managing pregnancy complications. Furthermore, 13.5% showed no signs upon presentation, highlighting the variability in clinical presentations, as noted in both Chavan et al. [18] and Narasimha et al. [19] studies, where clinical signs varied widely among participants. Among the study participants, the majority underwent incomplete abortions (46.62%), followed by complete abortions (19.52%). This aligns with Chavan et al. [18] study, where 44.9% of cases were of incomplete abortion. Missed abortions accounted for 15.6% of cases in our study, similar to the 15.1% reported in Chavan et al. [18] study and the 15.4% in Adeniran et al. [20] study. Septic abortions were rare, constituting only 0.4%, which is consistent with the lower rates of septicemia

observed in Adeniran et al. study Mode of treatment varied with the types of abortion and condition of the patient, and the complications present at the time of admission and/or developed subsequently. Among the study participants, medical methods (35.9%) and evacuation & suction (43.1%) were the primary management approaches for abortion. This is consistent with Chavan et al. [18] study, where MVA was performed in 62% of cases, followed by medical methods (30%). The preference for MVA and medical methods underscores their effectiveness and safety in managing abortions, as observed across multiple studies. [1,3] The limitations of our study include its retrospective design, which may lead to incomplete or biased data collection. Additionally, the study was conducted at a single urban center, limiting the generalizability of the findings to rural or different socio-economic populations. The reliance on self-reported data for some variables, such as reasons for abortion and prior medical history, may also introduce reporting bias. Furthermore, the lack of long-term follow-up data restricts our ability to assess the ongoing health outcomes of the participants.

Conclusion

Our study concludes that the majority of participants were aged 26-30, highlighting a critical demographic for targeted prenatal care and education. The high incidence of incomplete abortions and the reliance on medical methods and manual vacuum aspiration underscore the need for accessible and effective abortion services. The prevalence of anemia and pregnancy-induced hypertension among participants indicates significant health risks that require comprehensive prenatal monitoring. The urban predominance and high marriage rate suggest a specific socio-demographic profile that can inform future public health interventions.

Our retrospective study emphasizes the incidence, complications, and management of abortions at a tertiary care hospital. Hemorrhage, infection, and organ damage were common complications, often exacerbated by delays in seeking care. Young and primigravid women were the most affected demographic, with medical abortions (78.7%) being more prevalent than surgical ones. Most cases occurred at 8-12 weeks of gestation (46.3%). The findings highlight the importance of safe, legal abortion services, timely healthcare access, and the need for training and awareness among both healthcare providers and patients to reduce complications and maternal mortality.

Our study recommends improving access to safe and legal abortion services, enhancing reproductive health education, and strengthening referral systems and emergency care. It emphasizes the

need for training healthcare providers, encouraging timely healthcare-seeking behavior, and implementing measures to prevent unsafe abortions. Continuous monitoring and evaluation of abortion-related care are essential to reduce complications and maternal mortality, ultimately promoting better reproductive health and well-being for women.

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