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Histopathological Analysis of the Product of Conception following First Trimester Spontaneous Abortion in Bharatpur Hospital

Ram Prasad Sapkota,[1] Sunil Mani Pokhrel,[1] Sanjib Pariyar[2]

[1]Department of Obstetrics and Gynecology, [2]Department of Pathology, Bharatpur Hospital, Bharatpur, Chitwan, Nepal.

ABSTRACT

Background

Spontaneous abortion is one of the most common problems encountered in women of reproductive age group leading to retained product of conception in most of the cases. The aim of this study is to evaluate the histopathological findings of the product of conception in first trimester spontaneous abortion.

Methods

A hospital based descriptive cross-sectional study was conducted at the Gynecology department of Bharatpur Hospital, Chitwan, Nepal from August 15, 2024 to May 15, 2025. This study was conducted among the women admitted with diagnosis of first trimester spontaneous abortion. Ethical approval was taken from IRC of Bharatpur hospital. Data was entered and analyzed using SPSS 16 using descriptive statistical tools.

Results

Among 121 cases of spontaneous abortions, the majority (57.5%) of patients belonged to age group 21-30 years. On admission, the majority (43.8%) of patients were diagnosed with incomplete abortion. Histopathological examination confirmed the product of conception in 73.5% patients, partial mole in 9.1% patients, complete mole in 0.8% patients, decidual reaction in 10% patients and hydropic changes in 6.5% patients.

Conclusions

The histopathological examination of the product of conception proved to be an important tool in conforming normal products of conception and to find out possible pathologies like molar pregnancy and hydropic changes that necessitate special follow up and further management.

Keywords: abortion; histopathology; molar pregnancy; product of conception.

Correspondence: Dr. Ram Prasad Sapkota, Department of Obstetrics and Gynecology, Bharatpur Hospital, Bharatpur, Chitwan, Nepal. Email: ramusapkota71@gmail.com, Phone: +977-9855038097. **Article received**: 2025-03-20. **Article accepted**: 2025-05-19. **Article published**: 2025-07-02.

INTRODUCTION

The World Health Organization (WHO) defines abortion as pregnancy termination before 20 weeks gestation or fetus born weighing less than 500 grams.[1] It is the most common complication of pregnancy and more than 80% of spontaneous abortion occurs in the first trimester a period, defined as the first 12 weeks of gestation.[2] The worldwide incidence of spontaneous miscarriage is not known, though some studies document a range of 10%–20% occurring within the first trimester.[3] Histopathological examination confirms whether the pregnancy is ectopic, intrauterine, decidual reaction or gestational trophoblastic disease (GTD). GTD is potentially premalignant and it necessitates special follow up.[4] For economic reasons, systematic histological assessment of tissue from uterine evacuation was recently questioned.[5] Histopathologic examination of the tissue obtained from spontaneous abortion is useful for detecting intrauterine pregnancy, sometimes to diagnose unexpected condition like molar or ectopic pregnancy and to search for the causes of abortion.[6-10] This study aimed to assess the role of histopathology in cases of first trimester spontaneous abortion and its relevance following surgical evacuation.

METHODS

This was a hospital based descriptive cross-sectional study conducted at the Department of Gynecology, Bharatpur Hospital, Bharatpur, Chitwan, Nepal in from August 15,2024 to May 15, 2025 among those patients who were diagnosed with spontaneous abortion. This study was conducted after Ethical approval from the Institutional Review Committee of Bharatpur Hospital (Ref.No.081\082-014). Informed written consent was taken from all the patients before the data collection. The calculated sample size was 121. Data was collection using non probability purposive sampling technique. Questionnaire was used for data collection. Diagnosing spontaneous abortion involved a combination of patient history, physical examination, ultrasound imaging and blood test (β-hCG level). Those cases with diagnosis of incomplete abortion, blighted ovum, missed abortion and septic abortion were included in spontaneous abortion. Those cases with spontaneous abortion and who gave consent for study were included in study. Those cases with induced medical abortion, complete abortion, ectopic pregnancy, pregnancy of unknown location including those who refused for consent were excluded from the study. Product of conception (POC) obtained from surgical procedure was fixed in 10% neutral buffered formalin and was sent for histopathological examination (HPE). Gross examination of tissue was conducted before being embedded in paraffin blocks for further processing. Tissue slide section of 3µ to 5µ was stained with hematoxylin and eosin and slides were examined under light microscope by a pathologist and reported on. Additional follow up were conducted according to hospital protocol. Data was entered and analyzed using descriptive statistical tools using SPSS 16. In the descriptive statistics for categorical variables frequency and percentage were calculated while mean and Standard deviation were calculated for continuous variables.

RESULTS

This study was conducted among 121 cases of spontaneous abortion. the age of the patients varies from 18 to 43 years. The mean± SD of age was 25.79 ± 9.44 years. More than half (57.5%) of the patients were in age group 21-30 years, followed by 18.3%, 16.7% and 7.5% in age group less than 21years, 31-40 years and more than 40 years respectively. Primigravida was most commonly affected (45.5%) and gravida more than three were least affected (12.4%). While (33.9%) of patients suffered from spontaneous abortion at 8 to 10 weeks followed by 31.4% at 6 to 8 weeks, 28.9% at 10 to 12 weeks and 5.8% below 6 weeks period of gestation (Table1).

The most common clinical diagnosis on admission was incomplete abortion 53 (43.8%) followed by missed abortion 44 (36.4%), blighted ovum 19 (15.7%) and whereas the lowest was septic abortion 5(4.1%) (Figure 1).

The predominant histopathological diagnosis was normal POC which constitute 89 (73.5%) and

Table 1. Case distribution by age, Gravidity and by period of gestation. (n=121)	
Variables	**Frequency (%)**
Age (Years)	
<21	22 (18.3)
21-30	69 (57.5)
31- 40	20 (16.7)
> 40	9 (7.5)
Gravidity	
1	55 (45.5)
2	28 (23.1)
3	23 (19)
≥4	15 (12.4)
Period of Gestation (weeks)	
<6	7 (5.8%)
6-8	38 (31.4)
8-10	41 (33.9)
10-12	35 (28.9)

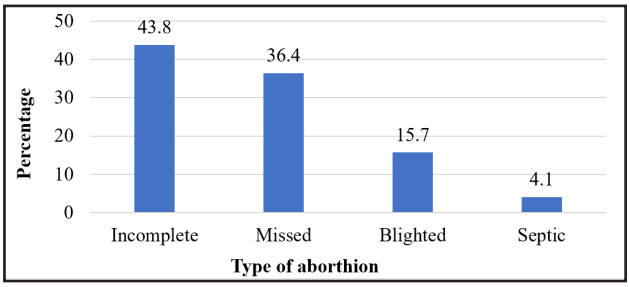

Figure 1. Types of abortion on admission.

other histopathological diagnosis were Partial mole 11(9.1%), Complete mole 1(0.8%), Decidual reaction 12(10%) and Hydropic changes 8(6.6%) (Table 2).

Table 2. Histopathological diagnosis. (n=121)	
HPE report	**Frequency (%)**
POC	89 (73.5)
Partial mole	11(9.1)
Complete mole	1(0.8)
Decidual reaction	12(10)
Hydropic changes	8(6.6)

DISCUSSION

Among the total 121 patients, the highest number of patients (57.5%) belonged to age group of 21-30 years which was similar to the findings of study done by Lama P et al. Where the highest number of patients (61.2%) belong to age group 21- 30 years.[11] The risk of early pregnancy loss increases with increasing gravidity and history of recurrent abortion with independent of the effect of age. In our study highest number of patients (45.5%) belonged to primigravida and lowest number of patients (12.4%) in gravida more than three. However, study done by Lama P et al and Matovelo et al., had similar findings with highest number of patients (43.8%) and (56.1%) of primigravida respectively.[11,12] In our study the highest number of patients (33.9%) belonged to 8 to 10 weeks period of gestation followed by (31.4%), (28.9%) and (5.8%) belonged to 6 to 8 weeks, 10 to 12 weeks and less than 6 weeks period of gestation consecutively. In our study, the highest number of patients (43.8%) were admitted with diagnosis of incomplete abortion followed by (36.4%) with diagnosis of missed abortion. Study done by Lama P et al., had similar findings with highest number of patients (42.5%) followed by (41.3%) with diagnosis of incomplete abortion and missed abortion consecutively.[11] This also is similar to the study conducted by Rashid et al where majority of the patients (65.3%) of spontaneous abortion were diagnosed with incomplete abortion.[13] In our study, majority of patients (73.5%) had POC in HPE. In study conducted by Lama P et al., Rashid P et al and Thapa R. et al., majority of patients (75%), (86.3%) and (86.5%) had POC in HPE consecutively which is similar to our findings.[11,13,14] In our study, (9.9%) of patients had molar pregnancy and among them (9.1%) had Partial mole and (0.8%) had complete mole. Similar to our findings, in study conducted by Ohayi SR et al., molar pregnancy was found in (8.4%) of patients and among them majority (7.5%) had partial mole and minority (0.9%) had complete mole.[15] This compares with 4.3% reported by Rashid et al but does not match with the result by Fram KM et al., and Alsibiani SA et al., which showed far higher (18%) and far lower (0.4%) of molar pregnancies respectively.[16,17] In study conducted by Lama P et al the incidence of partial mole was 11.25% which is similar to our study.[11] There was no case of complete mole in the study however in our study there was 1 case (0.8%) of complete mole. In Asia, the incidence of GTD is as high as 1 in 80 pregnancies, whereas in the western world, it is 1 in 500-1500 pregnancies.[18-20] There is controversy regarding the practice of routine HPE

of tissue obtained during first trimester spontaneous abortion. There are some authors who recommend for routine HPE while in other hand there are some authors who recommend HPE only in special cases. HPE of the specimen is must for diagnosis of molar pregnancies in those cases.[7,16] Molar pregnancy may be missed if we do not submit those tissues for HPE which may result persistent uterine hemorrhage and other complications and some of them can transform to malignant variant, choriocarcinoma.

Limitations

This is a single center study conducted in smaller sample size and study done in a single center so, the finding of this study cannot be generalized to the large population of Nepal.

CONCLUSIONS

The histopathological examination of the product of conception proved to be an important tool in conforming normal product of conception and to find out possible pathologies like molar pregnancy and hydropic changes that necessitate special follow up and further management.

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