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Original Research Article

Prevalence of blighted ovum in first trimester of pregnancy: a hospital based study

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ABSTRACT

Background: The aim of this study is to know the prevalence of blighted ovum among pregnant women in 1st trimester attending our hospital during their antenatal visits and to know the fate of blighted ovum either if there is spontaneous expulsion of the sac or need of medical induction or surgical evacuation.
Methods: This observational study was conducted at Obstetrics and Genecology Department, Women Health Hospital and Sahel Selim Hospital, Egypt from November 2015 to February 2018. All patients recruited in this study attended the antenatal care clinics for antenatal follow-up during their first-trimester of pregnancies.
Results: All cases of the study were less than 14 weeks. The mean gestational age was 8.93±1.01 (7.0-11.0) weeks. In patients less than 20 years old, (73%) there is a significant increase in surgical treatment (dilatation & curettage) after failure of medical treatment, patients more than 40 years old (50.7%) there is a significant increase in medical treatment after success taking misoprostol so there is no need to a surgical treatment by (dilatation & curettage) in the majority of cases.
Conclusions: The prevalence of blighted ovum was 15.6%. Also, the prevalence of blighted ovum was statistically significant increased with increase maternal age and also, we noticed that there was a statistically significant association between early pregnancy failure and a history of previous early pregnancy loss.

Keywords: Abortion, Blighted ovum, Expulsion, Miscarriage

INTRODUCTION

Spontaneous abortion (SA), also known as miscarriage, refers to a pregnancy that ends spontaneously before the fetus has reached a viable gestational age.[1] SA is the most common complication of early pregnancy. The frequency of SA decreases with increasing gestational age. Eight to twenty % of clinically recognized pregnancies under 20 weeks of gestation will undergo SA; 80 % of these occur in the first 12 weeks of gestation.[2] Loss of unrecognized or subclinical pregnancies is even higher, occurring in 13to26 % of all pregnancies.[3] Description of first trimester losses can be somewhat confusing, due to non-standardized terminology. The term blighted ovum has been largely abandoned, although debate concerning terms such as an embryonic pregnancy and missed abortion, which are still commonly used.[4]

Jauniaux and colleagues have attempted to simplify the descriptions of first trimester losses by characterizing pregnancy loss according to the stage of the process the patient is in at the time of presentation to the practitioner.[5] Simplified recommendations use the terms complete, incomplete, and delayed pregnancy loss. The number of abortions worldwide has remained stable in recent years, about 41.6 million in 2003 and 43.8 million in 2008. The same rate was recorded in 2012 study indicate the same as in 2008.[6] The abortion rate worldwide was 21%. About 20% in developed countries and 26% in developing countries.[7] Most abortions which

occurs in early weeks of pregnancy (1sttrimester abortion) caused by chromosomal abnormalities, hormonal problems, infection. The rate of abortion increases with increase mother age above 30 years, become greater between 35-40 years and highest rate above 40 years.[8] Nearly half of early abortions are associated with blighted ovum. Blighted ovum occurs when a fertilized egg implants in the uterus but doesn't develop into an embryo or when the gestational sac develops normally while the embryonic part of the pregnancy is either absent or stops growing very early. It is also called anembryonic pregnancy.[9] Chromosomal abnormalities were detected in 85% of abortions due to blighted ovum. This may be from a poor quality of sperm or egg or it may be occurred due to abnormal cell division.[10] The aim of this study is to know the prevalence of blighted ovum among pregnant women in 1st trimester attending our hospital during their antenatal visits and to know the fate of blighted ovum either if there is spontaneous expulsion of the sac or need of medical induction or surgical evacuation.

METHODS

This observational study was conducted at Obstetrics & Genecology Department, Women Health Hospital and Sahel Selim Hospital, Egypt from Novemebr 2015 to February 2018. All patients recruited in this study attended the antenatal care clinics for antenatal follow-up during their first-trimester of pregnancies. Each pregnant woman in 1st trimester attending these hospitals was asked about:

- Symptoms suggestive of abortion e.g.: abdominal colic, low backache or brown discharge during current pregnancy.
- History of consangeous marriage.
- History of congenital malformed babies.
- History of antiphospholipid syndrome.
- History of pre-eclampsia.
- History of intrauterine growth retardation (IUGR).

Exclusion criteria

- Hemodynamically unstable women.
- Any contraindication for general anesthesia.

After taking the consent of the woman for participating in this study, the following was done:

History taking and examination

- For each pregnant woman attending hospital, a form was filled that includes the following:
- The personal data: age, the marital status, residence, education level.

Reproductive history

- The number of previous pregnancies.
- The number of previous births.
- The number of abortions, type of each one and its fate.
- Mode of delivery:
  - Normal vaginal delivery or caesarean section.
  - Number of caesarean sections.
  - Previous surgery on uterus and cervix eg: removal of septum, myomectomy, cone biopsy, cervical circlage.
  - History of previous blighted ovum and its fate.

The current pregnancy

- Last menstrual period
- Gestational age.
- Ultrasound character.
- Brown discharge or bleeding during current pregnancy.
- Number of antenatal visits.
- History of drug abuse or exposure to irradiation during current pregnancy.
- History of chronic diseases eg: Diabetes Mellitus or Hypertension during current pregnancy.
- History of other diseases during current pregnancy.

Family history

- History of serious illness e.g. DM, Hypertension, cardiovascular Diseases.
- Degree of consanguinity between husband and wife.

Ultrasound examination

- It must be done for the pregnant woman coming in1st trimester without history of consanguineous marriage.

Laboratory parameters include blood group and hemoglobion titer were evaluated.

Patient

- After taking full detailed history and examination confirming pregnancy and gestational age based on last menstrual period and documented by ultrasound report for diagnosis of blighted ovum, the patient was informed about the nature of the study and the possible risks and benefits. Informed written consent was obtained from each woman.

The expected outcome of this study:

The criteria for diagnosis of blighted ovum are[11]

- Failure to identify an embryo in a gestational sac measuring at least 25 mm via transabdomenal ultrasound (RCOG)
- Failure to identify a yolk sac in a gestational sac measuring 10 mm or more.

The fate of the blighted ovum, it included:

- Number of cases of spontaneous expulsion of the sac either ended completely or incomplete expulsion.
- Number of cases need medical induction and either ended completely or incompletely.

Statistical analysis

The data was collected coded, tabulated and finally statistically analyzed, using SPSS program (software version 22.0). Descriptive statistics were done for numerical parametric data as mean ± SD (standard deviation). Inferential analyses were done for quantitative variables using independent t-test in cases of two independent groups with parametric data. Inferential analyses were done for qualitative data using Chi square test for independent variables. The level of significance was taken if P value <0.05, otherwise was considered non-significant.

RESULTS

Over the study period, 280 women were diagnosed as having blighted ovum. Thirty-four women who took the decision of watchful waiting for spontaneous expulsion of the empty sac, 23 of them had spontaneous expulsion of the empty sac without need any intervention, 11 patients were completely aborted (patients with retained products of conception on Ultrasound) so they were managed by evacuation under general anesthesia.

Table 1: Baseline criteria of the study participants.

	No. (n=280)	%
Age		
<20years	57	20.5
20-<30years	78	28.0
30-<40years	45	16.0
≥40years	100	35.5
Mean±SD (Range)	30.61±10.18(18.0-45.0)	
Residence		
Rural	148	53.0
Urban	132	47.0
Consanguinity		
Negative	125	44.5
Positive	155	55.5

Two hundred forty-six patients decided to start medical treatment of blighted ovum.

Those patients were hospitalized and monitored for pulse, blood pressure, vaginal bleeding and expulsion of product of conception and received misoprostol (400 ug orally and 400 ug applied in posterior fornix of the vagina), out of 116 of patients who exposed to medical management: 80 patients were completely aborted after first dose, 36 patients were completely aborted after the second dose, for all the 130 women who did not respond to the second dose of misoprostol given 12 hours after the first dose, surgical evacuation (D and C) was done.

All cases of the study were less than 14 weeks. The mean gestational age was 8.93±1.01 (7.0-1.0) weeks.

Table 1 shows the baseline criteria of the study participants.

There is a significant increase in the prevalence of blighted ovum with increase maternal age and body mass index (Table 2).

Table 2: History of blighted ovum according to personal characteristics.

	History of blighted ovum				P-value
	Yes (n=158)		No (n=122)		
	No.	%	No.	%	
Age					
<20years	10	17.1	47	82.9	0.000*
20-<30years	39	50.0	39	50.0	
30-<40years	31	68.8	14	31.3	
≥40years	78	77.5	22	22.5	
Residence					
Rural	53	50.0	53	50.0	0.069
Urban	59	62.8	35	37.2	
BMI					
Normal	45	42.1	61	57.9	0.007*
Overweight	29	60.0	20	40.0	
Obese	83	66.3	42	33.7	

* Statistical significant difference

Table 3 shows the obstetric data of the study participants, 26.5% of cases were primigravidae and the rest were multigravidae.

Table 3: Obstetric history of the study participants.

	No. (n=280)	%
Gravidity		
Primigravida (PG)	74	26.5
2-3	88	31.5
4-5	39	14.0
>5	79	28.0
Abortion		
No abortion	63	22.4
Once	164	58.5
Twice or more	53	19.0
Normal delivery		
Once	50	34.2
Twice	28	19.2
Three times	37	25.3
Four or more	31	21.2
CS		
Once	108	73.5
Twice	29	19.7
Three or more	10	6.8

Table 4 shows the medical data of the study participants.

There were 28 cases with history of antiphospholipid syndrome and 26 cases with previous history of pre-eclampsia.

At presentation, 68% of cases were less than 10 weeks gestation, while 32% of cases were at 10 weeks gestation or more.

Table 5 shows the fate of blighted ovum cases according to the age.

In patients less than 20 years old, (73%) there is a significant increase in surgical treatment (dilatation and curettage) after failure of medical treatment, patients more than 40 years old (50.7%) there is a significant increase in medical treatment after success taking misoprostol so there is no need to a surgical treatment by (dilatation and curettage) in the majority of cases.

Table 4: Medical history of the study participants.

	No (n=280)	%
History of antiphospholipid syndrome	28	10
History of pre-eclampsia in previous pregnancies	26	9.3
History of drug intake		
Eltroxin	4	1.4
Anti-epileptic drugs	5	1.8
Insulin therapy	18	6.4
Anti-hypertensive drugs	12	4.30
Cardiac drugs (Digoxin 2.5)	1	0.4
History of previous congenital anomalies	13	4.6
Previous history of IUGR babies	17	6.1
Gestational age		
<10 weeks	190	68.0
≥10 weeks	90	32.0
Mean±SD (Range)	8.93±1.01(7.0-11.0)	

Table 5: Fate of blighted ovum according to personal characteristics.

	Fate of blighted ovum						P-value
	Complete after taking misoprostol (n=116)		Surgical evacuation D and C (n=141)		Spontaneous expulsions of sac (n=23)		
	No.	%	No.	%	No.	%	
Age							
<20 years	14	24.4	45	73.2	1	2.4	0.000*
20-<30years	29	37.5	49	57.1	3	5.4	
30-<40years	23	50.0	20	40.6	3	9.4	
≥40 years	50	50.7	27	25.4	16	23.9	

* Statistical significant difference

DISCUSSION

In present study we detected the prevalence of blighted ovum and its fate either by watchful waiting until spontaneous expulsion of the sac occurred or complete expulsion of the sac after received medical treatment (misoprostol) or incomplete expulsion of sac after taking medical treatment so surgical management is needed to complete the abortion. Also, in present study we showed the relation between the prevalence of blighted ovum and maternal age, its relation to a history of previous blighted ovum in couples with consanguineous marriage, and its relation to the weight of the patient. In present study we noticed that the patients more than 40 years old (77.5%) had a significant increase in having a previous history of blighted ovum more than patient less than 20 years old (17.1%) The prevalence of blighted ovum increases with increase maternal age and this is similar to Pandya et al. who noticed that the prevalence of pregnancy loss increase with increase maternal age.[12] In controversial with us, Pandya et al. noticed that there was no significant association between the prevalence of early pregnancy failure and a history of previous pregnancy loss. But in present study, we noted that there was a statistically significant increase in the prevalence of blighted ovum in women who had a history of previous pregnancy loss. In present study we found that 217/280 patients had a previous history of abortion, 112 of them had a previous history of blighted ovum, so there was a statistically significant association between early pregnancy failure and a history of previous early pregnancy loss. Regan et al noticed on a study of 407 pregnant women that a previous history of blighted ovum was relevant predicting factor in the prevalence of blighted ovum.[13] Consanguineous marriages in blighted ovum suffering couples were significantly higher than non-consanguineous marriages (68.5% versus 31.5%).

This study was made on sixty-eight couples with the history of spontaneous abortion (diagnosed as blighted ovum) were selected and introduced by Shekoohi into the survey during 2007-2012.[14] In present study there is no significant relation between the prevalence of blighted ovum and history of consanguineous marriage (44.5%

versus 55.5%). Turner et al. noticed that the increased reproductive challenges in women who were obese, based on the WHO categorization of a Body Mass Index (BMI) >29.9 kg/m^2.[15] Obese women have an increased risk of ovulatory and anovulatory infertility and respond poorly to fertility drugs. If they become pregnant, previous studies have suggested that they have an increased risk of early miscarriage both spontaneously and after infertility treatment.[16] This study in agreement with us as we noticed that there was a statistically significant increase in prevalence of blighted ovum in obese women (BMI more than 30). We found (59/112) 66.3% of women who had a previous history of blighted ovum were obese. There was a significant increase in prevalence of blighted ovum in overweight and obese women. According to maternal age, in patients less than 20 years old (73%) there is a significant increase in surgical treatment (dilatation and curettage) after failure of medical treatment with misoprostol. The women more than 40 years old (50.7%) there is a significant increase in medical treatment with misoprostol. Also, with blighted ovum a lower success rate of spontaneous expulsion of the sac due to intact sac and closed cervix this had been reported by Jurkovic et al and this is similar to the result in present study.[17]

CONCLUSION

In present study the prevalence of blighted ovum was 15.6%. Also, the prevalence of blighted ovum was statistically significant increased with increase maternal age and also, we noticed that there was a statistically significant association between early pregnancy failure and a history of previous early pregnancy loss.

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