

## Original Research Article

# Prevalence of infectious abortion and its complications in pregnant women hospitalized in Ardabil city hospital during 2011-2018

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## ABSTRACT

**Background:** Infectious abortion and its mortality is one of the most serious health threats to women. Infectious abortion with high prevalence rate is more accessible in many of developing countries. The aim of current study, was to investigate the prevalence of infectious abortion and its complications in pregnant women hospitalized in Ardabil city hospital during 2011-8.

**Methods:** In this retrospective cross-sectional study which done on pregnant women with symptom of infectious abortion who admitted to Alavi hospital in Ardabil city during the years 2011-2018. Data collected by a checklist including demographic and clinical information and then analyzed by statistical methods in SPSS version 20.

**Results:** The rate of infectious abortion in this study was 40 people per 50,000 live births. The mean age of the studied women was 32.58±5.35 years. The highest number of infectious abortion was related to the women in the gestational age group over 13 weeks (50%). Most of women with 80% had fever and 52.5% of women had an open cervix at the time of referral. Complications of infectious abortion included peritonitis, uterine rupture, septic shock, and DIC.

**Conclusions:** Results showed that the rate of infectious abortion in this study was 22.5% that generally due to manipulation by methods such as curettage, drug use and its side-effects. By considering the average age of women about 32 years and problems related about pregnancy, so programing and training in this themes could prevent many of these problems in pregnant women in future.

**Keywords:** Infectious abortion, Gestational age, Ardabil, Pregnant women

## INTRODUCTION

Abortion means delivery before the twentieth week.<sup>1</sup> Of course, there are other definitions such as Pregnancy Loss that consider the time of fetal discharge between 24-28 weeks of pregnancy.<sup>2</sup> Although abortion is useful in preventing the birth of abnormal and problematic babies but if it is repeated more than 2 or 3 times, it has a pathological aspect and is called recurrent pregnancy loss (RPL), which requires examination and treatment.<sup>3</sup> Recurrent abortion is one of the major problems of pregnancy and accounts for about 0.3%-1% of

pregnancies. Investigation and follow up of the cause of abortion usually begins after three abortions but in some conditions, such as underlying diseases, chronic infections and the upper mother's age after 2 miscarriages, diagnostic actions must be taken.<sup>4</sup> Infection is one of the most effective causes of spontaneous abortion and infectious and maternal factors can cause recurrent abortion.<sup>5</sup> Infectious factors include early contact with microorganisms in the beginning of pregnancy, the ability of microorganisms in producing placental infection, creating a carrier state in such a way that the infectious agent passes through the placenta and is transmitted to the fetus and disorder in the mother's

immune system due to the using immunosuppressiv drugs, chemotherapy, corticosteroids or AIDS. The sensitivity of the mother's immune system to chronic infections also plays an important role in recurrent abortion.<sup>6</sup> Infectious agents that can cause recurrent abortion include syphilis, bacterial vaginosis, chlamydia trachomatis, mycoplasma hominis, listriamniocytogenes and viral infections such as herpes simplex, cytomegalovirus, parvovirus and HIV.<sup>3,7-8</sup> Infectious abortion is one of the most important complications of pregnancy that can occur spontaneously or as a result of manipulation and cause acute or chronic complications. Infectious abortion is a preventable issue in medicine and is of particular importance given that 20% of all performed abortions are infectious.<sup>3,9</sup> Study of abortion deaths in the United States found that, 62% of deaths were due to illegal abortion and 51% were due to infection. For having successful abortion, the skill of the abortion performer, gestational age, available convenience and facilities are very important. Common complications of abortion include incomplete emptying, sepsis, bleeding and abdominal injuries.<sup>10</sup> An infectious abortion can occur due to many factors including rupture of embryonic membranes, sexually transmitted diseases, especially chlamydia, IUD associated with pregnancy, prolonged cervical dilation and placement of devices and chemical manipulation.<sup>10-12</sup> Clinical signs of infectious abortion include vaginal bleeding, fever, abdominal pain, vaginal discharge (purulent, bloody, runny), burning urination and body pain. The type of abortion intervention has changed over the last decade and use of drug methods, mainly the use of prostaglandin suppositories and the use of catheter placement in the cervix with antibiotic coverage and other measures has been increased by patients and the rate of hospitalization due to infectious abortion has decreased and at the same time, the clinical characteristics of patients during hospitalization have also changed. In Iran, because the indication for abortion is clear and unwanted pregnancy with a normal fetus is not an indication of termination of pregnancy and because abortion is illegal, people perform manipulations in various ways.<sup>13</sup> Given that the frequency of abortion and its complications are high in developing countries and the first step in this regard is the lack of awareness of mothers about the complications of abortion and its infection, the present study was aimed to investigate the characteristics of infectious abortions to control and its prevent in Ardabil city hospital.

**METHODS**

The presented study is a cross sectional descriptive study that was performed on 40 pregnant women hospitalized with symptoms of infectious abortion in Alavi Hospital in Ardabil during the 2011-2018. Inclusion criteria included was having abortion in the first or second trimester of pregnancy and having at least two clinical signs such as abdominal pain, fever of 37.9 degrees or higher and foul-smelling or purulent vaginal discharge and exclusion criteria included mothers with underlying diseases.

Required data collected through checklist containing demographic and clinical information such as patient age, gestational age, gestational history, length of hospital stay, cause of abortion, patient's symptoms, cervical condition, complications of abortion, instruments used in abortion if manipulated and the person performing the abortion. The obtained data were analyzed using statistical methods in SPSS version 20.

**RESULTS**

The average age of women was 32.58±5.35 (range 18-46 years). Among all cases, the highest number of hospitalizations was related to women over 13 weeks of gestation (50%) that 55% of whom were hospitalized for more than 4 days. 30% of women had a history of more than 3 pregnancies and 12.5% experienced their first pregnancy (Table 1).

**Table 1: Characteristics of participants.**

Variables	N	%
<b>Gestational age (weeks)</b>	4-8	8 20
	9-12	12 30
	≥13	20 50
<b>Parity</b>	1	12 30
	2	10 25
	3	6 15
	≥4	12 30
<b>Hospitalization time (days)</b>	1	3 7.5
	2	5 12.5
	3	10 25
	≥4	2 55

35% of abortions were performed by midwives and 25% by physicians and the most abortion tools was curettage with 35% and drug use with 25% that the highest curettage performed by midwives with 27.5% and the highest rate of abortion by drug use done by physicians with 17.5% (Table 2).

**Table 2: Method and how to performance of abortion.**

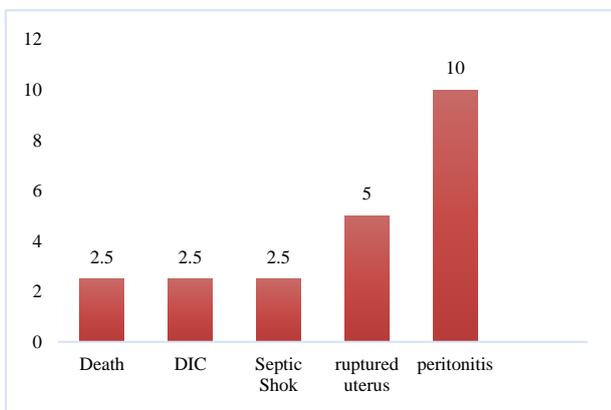
Variables	N	%	
<b>How to performance abortion</b>	Physician	Drug use	7 17.5
		Curettage	3 7.5
	Midwife	Drug use	3 7.5
		Curettage	11 27.5
<b>Abortion tools</b>	Unknown	16 40	
	Drug use	10 25	
	Curettage	14 35	
	Unknown	16 40	

The most clinical symptoms of patients were fever with 80% , bleeding with 62.5% and tachycardia with 62% and 52.5% of women had open cervix at the time of referral (Table 3). 22.5% of women had abortion side-

effects, of which 10% had peritonitis, 5% ruptured uterus and also 2.5% were died (Figure 1).

**Table 3: Clinical symptoms and cervical condition.**

Variables	N	%	
<b>Clinical symptoms</b>	Fever	32	80
	Bleeding pain	19	47.5
	Vaginal discharge	8	20
	Vaginal bleeding	25	62.5
	Tachycardia	24	60
	Dysuria	5	12.5
	Body pain	6	15
<b>Cervical condition</b>	Open cervix	21	52.5
	Cervix closed	14	35
	Unknown	5	12.5



**Figure 1: Frequency of infectious abortion side-effects.**

**DISCUSSION**

The results of this study showed that 22.5% of women had an infectious abortion of which 10% had peritonitis, 5% had ruptured uterus and 2.5% were died. Waterstone et al in a population based study from 1997 to 1998 in the UK, reported an infectious abortion rate of 4 per 10,000 deliveries.<sup>14</sup> In a 2012 study by Acosta et al in the UK, the incidence of infectious abortion was 15% which related to the increased mortality of mothers with sepsis.<sup>15</sup> The incidence of infectious abortion in population based studies in the Netherlands and Scotland was reported 2.1 and in the United States was 4.9 per 10,000 deliveries.<sup>16</sup> The prevalence of infectious abortion in the present study was 40 per 50,000 births or 8 per 10,000 live births , which higher than above studies mentioned. In the study of Niromanesh et al in 2008, 87 cases of infectious abortion were observed and fever with 80.4% was the most common clinical symptom and peritonitis with 10.3% was the most severe complication which was similar to the present study.<sup>17</sup> In the present study, the average age of the women was 32.58 years. In a 2014 study by Acosta et al, 51% of women were in age group 25 to 34 years.<sup>18</sup> In another study, the highest incidence of infectious abortion was reported in pregnant

women aged 30 to 34 years.<sup>19</sup> In the present study, gestational age in 20% of women was between 4 to 8 weeks, 30% were 9 to 12 weeks and 50% were more than 13 weeks. The majority of sepsis-related mortality and morbidity in the study by Kramer et al were in women under 17 weeks of gestation.<sup>16</sup> In the study by Osazuwa et al 4.6% of women were under 16 weeks of gestation and 59.1% had an infectious abortion at 16 to 19 weeks of gestation.<sup>20</sup> In current study, the most clinical symptoms of patients were fever with 80%, bleeding with 62.5% and tachycardia with 62% and 52.5% of women had an open cervix at the time of referral. In the study of Zamani et al 30% of women complained of fever and bleeding and 47.5% had fever, bleeding and abdominal pain together.<sup>21</sup> In the study of Manaktala et al in India, 84.6% of women were hospitalized with fever, abdominal pain and abnormal purulent discharge, which was similar to the present study.<sup>22</sup> In Kramer et al study, 44% of women developed acute respiratory distress syndrome following an infectious abortion, 38% of women developed intravascular coagulation and 6% developed pulmonary bleeding.<sup>16</sup> In another study the most common symptoms were abdominal pain followed by fever.<sup>23</sup> In a study, hysterectomy was expressed as a complication following an infectious abortion.<sup>24</sup> In another study, described emboli as a complication of infectious abortion.<sup>25,26</sup> In a study by Acosta et al they identified a history of pregnancy as a risk factor for infectious abortion.<sup>18</sup> In the present study, complications such as peritonitis, uterine rupture, septic shock and DIC were observed in patients. In the present study, 30% of women had a history of more than 3 pregnancies and 12.5% women experienced their first pregnancy. In another study, 11% of women experienced their first pregnancy and 67% more than their third pregnancy.<sup>27</sup>

**CONCLUSION**

In current study, the frequency of infectious abortion during study years was estimated 40 per 50,000 live births. Because most cases of infectious abortion in Iran are due to unwanted pregnancies and also the existence of legal and prohibitions on abortion, parents tend to use illegal and unprincipled methods of abortion, which this issue imposes consequences in terms of health and cost for the country's health system . Therefore, it is suggested that measures be taken in the field of prevention and education in future.

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