

Aerobic bacteria associated with septic abortion



Aerobic bacteria associated with septic abortion among Sudanese women

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Abstract

Background: Septic abortion is a common health problem with short- and long-term complications that affect the quality of life of those fortunate enough to avoid mortality. Both spontaneous and induced abortion may result in septic complications.

Objective: This study aimed to isolate and identify aerobic bacterial causative agents of septic abortion in Sudan.

Method: A descriptive study was conducted in the period from March 2013 till June 2013 in Gynecological Unit in Khartoum Teaching Hospital, Sudan. Thirty women with vaginal bleeding in the unit were included in the study. Thirty high vaginal swabs and cervical swabs were collected from the selected ladies admitted to the hospital with bleeding.

Results: The prevalence of abortion was as follows, in age group(20-25) abortion cases were (13. 3%), in group(26-30) abortion cases were (33. 3%), in group(31-35) cases were (20%), in group(36-40) cases were (33. 3%) (P > 0. 05). Isolated bacteria from those cases were; *Staphylococcus epidermidis* (86. 2%), *Klebsiella ozaenae* (6. 9%), *Proteus mirabilis* (3. 4%), *Escherichia coli* (3. 4%) and *Staphylococcus aureus* (3. 4 %). The present study showed that induced abortion (73. 3%) was insignificantly more than habitual abortion (26. 3%), (P= 0. 07).

Conclusion: The major isolated organism was *Staphylococcus epidermidis* (86. 2%), which was isolated from both complete and initial cases. But aerobic pathogenic bacteria isolated were *Klebseilla ozaenae* , *Proteus mirabilis* , *Staphylococcus aureus* and *Escherichia coli* .

Keywords: Septic abortion, vaginal swab, pregnant women, *Stahpylococcus epidermidis* .

Introduction:

Septic abortions contribute significantly to maternal morbidity and mortality. Improving literacy rate in the female population and effective family planning should reduce its incidence [1]. In 1900, the rationale of therapy of the incomplete septic abortion was divided into a medical or surgical approach. Medical therapy comprising oxytocic, bed rest and supportive measures theoretically decreased the incidence of sepsis, while increasing the problem of blood loss and prolonged hospitalization. The surgical approach classified by some as controlled blood loss but theoretically increased the incidence of sepsis [1].

In 1973, a report described an adolescent admitted to a large Boston Teaching Hospital with what proved to be incomplete septic abortion [2]. Deaths from illegal abortion are mainly due to infection[2, 3]. Additional to that At 1990 a review of deaths due to abortion in the united states noted that 62 percent of the deaths from illegal abortion and 51 percent of deaths from spontaneous abortion were due to infection, as compared which only 21 percent of death from legal abortion [4] . McCormick (1944) estimated that 3, 500 women died annually in America from this complication of pregnancy <https://assignbuster.com/aerobic-bacteria-associated-with-septic-abortion/>

and a recent estimate in Turkey suggested that 10, 000 women a year died from this cause in that country[5].

A recent publication by Sedgh et al. (2007) estimated that a total of 42 million abortions were performed in 2003, down from 46 million estimated for 1995 using the same methods. The same study showed that 20% of all pregnancies, including miscarriages and stillbirths, terminate in abortion each year. This means that one out of every five pregnancies worldwide is voluntarily terminated annually, a statistic that illustrates its enormous dimensions. Expressed another way, the worldwide rate of induced abortion was approximately 29 per 1000 women between ages 15 and 44 years in 2003, down from 35 per 1000 in 1995. This means that globally one out of every 34 women within that age range has an abortion each year [6].

On the basis of verbal autopsy data and hospital records it is estimated that approximately 25% of maternal deaths are caused by hemorrhage, 15% by infection, 12% by pregnancy-induced hypertension, and 8% by obstructed labor[7]. At the last years it has been observed that there is an increase in the prevalence of septic abortion among pregnant women, and its complication upon community. Septic abortion is considered nowadays one of the most important issues concerning Maternal health . There are not much studies traced in Sudan investigating the septic abortion prevalence and its causative agent. Therefore, this study aimed to isolate and identify aerobic bacterial causative agents of septic abortion in Khartoum, Sudan.

Material and Method

This is a descriptive study. It had been conducted among pregnant women in age of (20 - 40) years, who are being admitted to the Gynecology bleeding emergency room of Khartoum Teaching Hospital, Sudan, in the period from March 2013 till June 2013.

High vaginal swabs:

After the introduction of the speculum, the swab should be rolled firmly over the surface of the vaginal vault. The swab should then be placed in Amies transport medium with charcoal or/and Stuarts transport medium.

Cervical swabs:

After introduction of the speculum to the vagina, the swab should be rotated inside the endocervix. The swab should then be placed in Amies transport medium with charcoal or Stuarts transport medium. Then all collected specimens were inoculated on Blood agar (aerobic 370c), chocolate agar (aerobic 370c and 5-10% co₂) and Macconkey agar (aerobic 370c). Incubated for overnight based on report done by Fawad A. et al 2008[8], when puerperal sepsis or septic abortion is suspected inoculate the specimen on two plates of blood agar and incubate aerobically at 35-370C overnight. Inoculate the specimen on Macconkey agar and incubate the plate aerobically at 35-370c overnight [8].

Examine the colonies for Gram stained smear:

It is done to examine the smear for pus cells and bacteria (8).

Identification tests: done to identify the pathogenic bacteria include Catalase test, Coagulase test, Deoxyribonuclease test, Kligler iron agar, Citrate utilization test, Simmons citrate agar, Urease test, Indole test, Sugar fermentation test and Methyl Red test.

Results:

The total number of 30 samples were collected from pregnant women suffering from bleeding, out of these 11 specimens (36.67%) were collected after complete abortion, whilst 19 (63.33%) samples were collected at initial time of bleeding, as indicated in Table (1).

Table (1): The collected specimens time from women with bleeding in Khartoum Teaching Hospital.

Parameter	Number	Percentage
Specimens collected after complete abortion	11	36.67%
Specimens collected at initial time of bleeding	19	63.33%
Total cases	30	100%

According to demographic characters, septic abortion appearing more frequently at the age of 26-30 and 36-40 and most cases were induced abortion (73.3%) as shown in Table (2).

Table (2): Demographic characteristics of women attending with bleeding
Khartoum Teaching Hospital:

Demographic character	Frequency	Percentage
Age categories		
20-25	4	13.34%
26-30	10	33.33%
31-35	6	20%
36 - 40	10	33.33%
Total	30	100%
Type of abortion		
Habitual	8	26.67%
Induced	22	73.33%
Total	30	100%

Types of aerobic bacteria isolated from specimens collected at complete stage of abortion were *Staphylococcus epidermidis* , *Klebseilla ozaenae*, *Staphylococcus aureus* , *Escherichia coli* and *Proteus mirabilis* .

Staphylococcus epidermidis was isolated from both initial stage and complete stage of abortion. It was isolated from 14 specimens out of 19 specimens, Table (3).

Table (3): Number of different bacteria isolate from septic abortion cases from women attending to Khartoum Teaching Hospital.

Parameter	Organism isolated	Frequency	Percentage
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Organism

isolated

from

complete

stage of

abortion

Staphylococ

cus

6

54. 5%

epidermidis

Klebsiella

2

18. 2%

ozaenae

Staph .

1

9. 1%

aureus

Escherich

1

9. 1%

ia coli

Proteus

1

9. 1%

mirabilis

Total 11

100%

Organism *Staphylococ* 14 73. 68%

isolated *cus*

from

initial

epidermidis

stage of

abortion

No

5

26.32%

growth

Total

19

100%

Table(4): Relationship between the age of women, and type of abortion and the time of specimens in Khartoum Teaching Hospital

Demographic character	Complete abortion	Initial abortion	p-value
	n(%)	n(%)	
Age categories			
20-25	1 (9.1%)	3 (15.8%)	0.08
26-30	4 (36.4%)	6 (31.6%)	
31-35	2 (18.2%)	4 (21.1%)	
36 - 40	5 (45.5%)	5 (26.3%)	

	4%)	3%)		
Type of abortion	Habitual	3 (27. 27%)	5 (26. 32%)	0. 07
	Induced	8 (72. 73)	14(73. 68%)	

Discussion:

Out of 30 cases involved in this study 11 (36. 67%) cases were caused by aerobic bacteria which may indicate that abortion may be caused by other causative agents than aerobic bacteria. The Percentage of septic abortion have been notably decreased , this is mostly because health care provider contribute significantly to reduce the expose of woman to septic complication by providing surfaces in a safe environment, this is un consistent with other published reviews[9].

The highest incidence were in age group 26-30 also in group36-40 ($P > 0. 05$) the incidence were high , which is in inconsistent with other published reviews in other countries [9] , but its consistent with the research of (Fawad, et al 2008) who found that the majority of patient were of middle age[8]. Also habitual abortion occupied about (27. 3%) ($P > 0. 05$) and induced abortion about (72. 7%) ($P > 0. 05$).

Earlier published review showed that most isolated organism was *Escherichia coli* (20%) , either alone or in combination with other bacteria , which is inconsistent with our study (9. 1%). Also the reviewer isolate

Proteus mirabilis in combination with *Escherichia coli* (6%), in our study we found *Proteus mirabilis* (9. 1%) [5].

The percentage of *Klebsiella ozaenae* isolate was (18. 2%) which is higher than pervious study (Isibor, et. al 2011) with percentage of (4. 4%) among pregnant woman [10]

Staphylococcus aureus isolate percentage was (9. 1%) in disagree with study done by (Isibor, et al 2011), which found that *Staphylococcus aureus* occupies about (26. 7%). this may be attributed to immune status of the individual, personal hygiene and the proximity of the vagina to urethra [11].

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