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Original Research Article

Recent trends in risk factors of ectopic pregnancy: a retrospective study at a tertiary care centre

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ABSTRACT

Background: Ectopic pregnancy occurs when a fertilized ovum implants at a site outside the uterine cavity.
Methods: A retrospective study was conducted in patients of ectopic pregnancy at a tertiary care centre. All ectopic pregnancies reported during this time period were selected and case sheets were analysed. The risk factors causing the ectopic pregnancies were obtained by clinical history and physical examination mentioned in case sheets. A menstrual practice questionnaire (WHO) was filled telephonically to assess menstrual hygiene practices in our patients of ectopic pregnancy.
Results: Risk factors found in our study were age group 21-30 years, multiparity, previous tubal surgeries, low socioeconomic status, past history of PID and poor menstrual hygiene.
Conclusions: PID stands out as the most modifiable risk factor. Awareness for the same among adolescents, sexually active females and newlywed couples may prove of paramount importance to reduce the incidence of ectopic pregnancy in long term.

Keywords: Ectopic pregnancy, risk factors, menstrual hygiene, PID

INTRODUCTION

"To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science" Albert Einstein once said. Revisiting the causative factors of ectopic pregnancy again from new perspective was our team humble effort to enhance ectopic mindedness among attending obstetricians.

Ectopic derives from Greek word 'ektopos' meaning out of place. Ectopic pregnancy occurs when a fertilized ovum implants at a site outside the uterine cavity. The incidence of ectopic gestation in India reported by the Indian Council of Medical Research (ICMR) task force in their multi-centric case control study was 3.12 per 1000 pregnancies or 3.86 per 1000 live births within the hospital reported pregnancies. It accounts for 3.5-7.1% of maternal mortality in India.[1,2] The possible sites of ectopic pregnancy can be abdominal cavity, ovary, fallopian tubes, broad ligament, rudimentary horn of uterus or cervix. Prior risk factors include pelvic inflammatory disease, use of IUCD's, smoking, ART pregnancies, tubal damage, tubal surgeries or previous ectopic pregnancy. In developing countries, a rise in incidence of PID is seen (3-10% in India according to British Medical Journal). This may be because of availability of better antibiotics, which permits retaining a patent tube with luminal damage following infection, there by increased risk of ectopic pregnancy. Early diagnosis of ectopic pregnancy on one hand can drastically improve maternal morbidity and mortality, on other hand late diagnosis and late surgical interventions

ranges from sacrificing tube to even loss of precious maternal life.

The purpose of our study is to explore emerging new risk factors of ectopic pregnancy. Previous literature states that association of pelvic inflammatory disease (PID) with ectopic pregnancy. Infections like bacterial vaginosis predisposes to PID and it may be more common in women with unhygienic menstrual management practices.[3,4]

These can be modified with constant efforts to improve awareness in young adolescent girls attending health clinics.

Counselling, printed literature in local language and hygienic menstrual practices can be instrumental in preventing PID immediately and ectopic pregnancy in long run.

Aims and objectives

The aims and objectives of the study were (a) to identify emerging new risk factors of ectopic pregnancy in BMC, Sagar; (b) to study awareness of menstrual hygiene practices among our patients of ectopic pregnancy; and (c) to determine prevalence of ectopic pregnancy at BMC, Sagar.

METHODS

After ethical committee approval from the institution, a retrospective study was conducted in patients of ectopic pregnancy who were admitted in the department of obstetrics and gynaecology, Bundelkhand Medical College, Sagar, Madhya Pradesh.

Over a period of 18 months from January 2021 to June 2022. All ectopic pregnancies reported during this time period were selected and case sheets were analysed. The risk factors causing the ectopic pregnancies were obtained by clinical history and physical examination mentioned in case sheets.

A menstrual practice questionnaire (WHO) (Figure 1) was filled telephonically to assess menstrual hygiene practices in our patients of ectopic pregnancy. All relevant data was compiled in form of statistical tables and figures. Microsoft office 2022 used for data compilation.

Figure 1: Menstrual hygiene practices questionnaire.

Inclusion criteria

All diagnosed cases of ectopic pregnancies (ruptured) in study period were included in the study.

Exclusion criteria

None of the diagnosed cases of ectopic pregnancies reported in study period were excluded from the study.

RESULTS

The present study was conducted for 18 months from 01 January 2021 to 30 June 2022.

Total number of ectopic pregnancies came out to be 32 and the total number of deliveries were 8334, therefore, the prevalence of ectopic pregnancy was 3.8% in our study. Depending upon the denominator used for the calculation

of true prevalence of ectopic pregnancy, its prevalence varies significantly among various institutions and countries.

Majority of our cases belonged to the age group 21-25 years and 26-30 years i.e., 23 cases (Table 1).

Maximum number of our cases were married for more than 5 years (Table 2).

Socioeconomic status was calculated on the basis of modified kuppuswamy scale.

Majority of our cases belonged to lower middle and upper lower cases i.e.; 16 and 13 respectively (Table 3).

In significant past history the maximum number of our cases had a history of PID (Table 5).

Maximum of our cases had right tubal rupture ectopic (Figure 2) and were multipara (Figure 3).

Table 1: Distribution of cases according to age (years).

Age group (years)	Number of cases
21-25	18
26-30	5
31-35	5
36-40	4

Table 2: Distribution of cases according to married life.

Number of years	Number of cases
0-5 years	7
6-10 years	15
>11 years	10

Table 3: Distribution of cases according to modified Kuppuswamy scale.

Class	Number of cases
Upper	0
Upper middle	3
Lower middle	16
Upper lower	13
Lower	0

Table 4: Distribution of cases according to significant past history.

Class	Number of cases
H/O PID	19
H/O previous ectopic pregnancy	1
H/O LTT failure	5
H/O induced abortion	3
H/O previous LSCS	4

Table 5: Distribution of cases according menstrual hygiene practices.

S. no.	Significant menstrual hygiene practices	N
1.	**Material used during menstrual cycle**	
a.	Market made pad	20
b.	Homemade pad/ reusable cloth	12
2.	**Frequency of changing pads/ cloths in heavy flow days**	
a.	≤3 hours	22
b.	>3 hours	10
3.	**Practices of personal cleanliness during menstrual cycle**	
a.	Bathing daily	20
b.	Washing perineal area	8
c.	Hand washing	32
4.	**Practices regarding use of reusable cloths**	
a.	Washing cloth with soap	10
b.	Sun dry	11
c.	Ironing before use	2

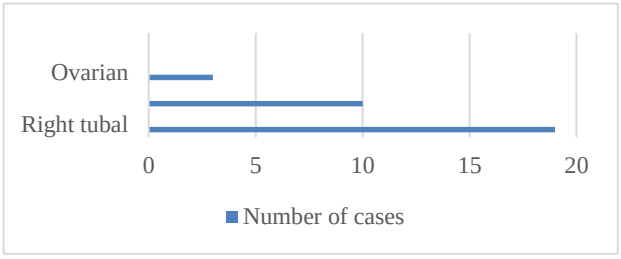

Figure 2: Distribution of cases according to site of ectopic pregnancy.

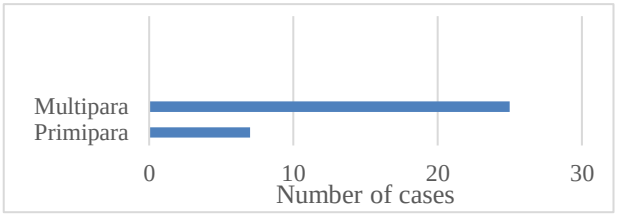

Figure 3: Distribution of cases according to parity.

DISCUSSION

Ectopic pregnancy is no doubt the most challenging diagnosis faced by majority of obstetricians. Awareness about emerging new risk factors will help in arousing suspicion. With increase in diagnostic modalities such as better USG availability, ectopic pregnancy can be detected early provided one suspects it. All pregnancies at the time of diagnosis should thought of ectopic unless proved otherwise. Such mindset will enable early diagnosis, decreasing dilemma both for patients and treating obstetricians. Over the last few years, various studies have shown rising incidence of ectopic pregnancy across India.[5,6]

In our study, majority of our cases belong to age group 21-25 and 26-30, i.e.; 23 cases (Table 1). These findings were consistent with most of the studies in India.[7-9] This could be because most women are married off at an early age and finish child bearing early. For our patients, it is rare to see pregnancies in late third decade of life. Other possible causes of this trend could be increase in risky sexual behavior among adolescents and poor menstrual hygiene practices, both converging to spectrum of PID and thereby increase in ectopic pregnancy.

Majority of our cases (50%) belonged to group 6-10 years of married life (Table 2). We think and propose that these couples are sandwich generation jammed between the responsibilities of family carrier and society. Probably, the callus attitude towards use of regular contraception for infrequent coital activity leads to use of over-the-counter morning after pills. Being a traditional society, both our patients and spouses didn't admit to the investigators. Mass education regarding safe abortion practices and supervised use of MTP pill is recommended.

The preferred site of ectopic gestation in our study was right fallopian tube followed by left fallopian tube and right ovary (Figure 2). 62% of our cases were right sided tubal ectopic which is in favor of study done by Barik Shreya et al.[10] Most studies reported a higher incidence of ectopic pregnancy in the right tube.[11,12]

In our study 25 cases were multipara and 7 were primipara (Figure 3). We found parous women presenting more with ectopic pregnancy, of which women with one child comprised the majority. Therefore, no parity is immune to ectopic pregnancy. This finding is in favor of study done by Dayal et al.[13]

In our study majority of our cases belonged to lower middle and upper lower class of Kuppuswamy scale i.e.; 29 cases (Table 3). Similar observations were reciprocated in study done by Vyas et al.[14] Probably, young mothers from low socioeconomic status having less time for personal hygiene and poor access to contraceptive facilities were trapped in vicious cycle of PID, unplanned pregnancy and thereby leading to ectopic. However, bias in this observation cannot be refuted as being tertiary care hospital this is the class of patients we usually serve.

Literature shows that PID is a very important factor leading to eccyesis.[15] Recent or past PID history of our patients of ectopic pregnancy were recorded from case sheets. 19 cases i.e.; 60% patients of our study had 3 out of 4 symptoms of PID (dyspareunia, dysmenorrhea, white discharge per vagina and chronic pelvic pain). Almost all patients had taken treatment with antibiotics for the same at one point of reproductive life. However, complete course was denied by all 19 patients. This permits the patent tube with luminal damage a better site for nidation of gestational sac. 20% of our cases had past history of tubal surgeries including tubal sterilization and previous ectopic pregnancy (Table 4). Similarly, Singh et al have reported prior tubal surgery as a standard risk factor (40%).[16]

In our study 3 cases had h/o (history of) abortion and 4 cases had h/o previous LSCS (Table 4). Contrary, to obstetrician's mindset h/o previous LSCS and abortion stood out as a protective factor of ectopic pregnancy rather than causing it. The possible reasons could be patients tend to seek medical care earlier. Any different symptoms such as pain, unusual bleeding perceived by patients make them turn up to medical facilities leading to earlier diagnosis of ectopic pregnancy sometimes even prior to tubal rupture.[17,18]

19 patients in our study had history of PID (Table 4). It stands out PID is also the most modifiable risk factor as it is closely associated with poor reproductive health hygiene practices. As our aim was to assess Menstrual Hygiene Practices (MHP) (Figure 1) in these patients. We prepared a questionnaire in local language (WHO menstrual practice questionnaire) and assessed MHP practices in our patients telephonically. The findings were tabulated (Table 5) and we observed that 12 of our cases were still using reusable homemade pads. These pads were washed with soap and water in 11 cases and only water in one case. Though all 12 patients accepted their pads were completely dry before use but, none of them were ironing it. Day to day hygienic measures like bathing daily during menstrual cycle was not adopted by 12 cases. Washing of perineal area in menstrual cycle during bathing were not done by 8 cases.

Poor menstrual hygiene practices may increase a women's susceptibility to reproductive tract infection.[19] Most of the studies in literature used RTI as endpoint while researching menstrual management and its impact. We propose adverse pregnancy outcomes like ectopic pregnancy arise from PID resulting from poor menstrual hygiene.

Limitations

As the study was conducted at a tertiary care centre, all the cases presented with unstable hemodynamics in emergency hours. Therefore, conservative management of ectopic pregnancy could not be tried and the risk factors present among those patients could not be studied. This presents a limitation to the present study.

CONCLUSION

The feeling of impending doom in those who have suffered from ectopic pregnancy clashes the dream and morale to a level that the unfortunate survivors are afraid of any future pregnancy in their lifetime. Early diagnosis of ectopic pregnancy on one hand can save precious maternal life and on other hand late diagnosis and surgical intervention leads to sacrificing the fallopian tube and need of replacement with huge amount of homologous blood products. PID stands out as the most modifiable risk factor. Awareness

for the same among adolescents, sexually active females and newlywed couples may prove of paramount importance to reduce the incidence of ectopic pregnancy in long term. Visibly naïve menstrual hygiene practices of 5 days may have a permanent mark on the obstetrical carrier of young adolescent girls. Emphasis for the same in their local language at each contact with the health facility may imprint young minds.

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