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RESEARCH ARTICLE

CLINICAL TRENDS OF ECTOPIC PREGNANCY - A STUDY IN A TERTIARY CARE HOSPITAL OF WEST BENGAL, INDIA

Dr. Anjan Dasgupta[1], Dr. Abirbhab Pal[2], Dr. Bivash Mondal[3], Dr. Kamal Kumar Dash[4], Dr. Ayantika Chakraborty[5] and Dr. Sankar Nath Mitra[6]

1. Associate Professor. Dept of G&O, Midnapore Medical College, Paschim Medinipur, W.B.
2. Senior Resident ,Dept of G&O, Midnapore Medical College, Paschim Medinipur, W.B.
3. RMO, Dept of G&O, Midnapore Medical College, Paschim Medinipur, W.B.
4. Assistant Professor, Dept of G&O, Midnapore Medical College, Paschim Medinipur, W.B.
5. Junior Resident, Dept of G&O, Midnapore Medical College, Paschim Medinipur, W.B.
6. Professor, Dept of G&O, KPC Medical College, Kolkata, W.B.

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Abstract

Background: Ectopic pregnancy (EP) is the single most important cause of maternal morbidity and mortality in the first trimester and its rising trend throws a great challenge to the obstetrician and gynecologist due to its varied presentation.

Aim: To study the incidence, clinical trends, risk factors and surgical management of ectopic pregnancy in a tertiary care hospital.

Materials and methods: Retrospective study conducted among the diagnosed cases of ectopic pregnancies admitted during a period of 3 years and a total of 474 cases were studied. Data collected from BHT, Labor ward registers, Gynae ward registrars, Operation Theatre registers, Intensive care unit (ICU) and high dependency units (HDU) records. All the parameters were tabulated and analyzed after data entry.

Results: Peak age of incidence were among 26-30 years (32.27%), more common in multigravida (74.69%), commonly presented at gestational age between 6-8 weeks (50.42%); risk factors associated with 73.18% of cases. Most commonly presented with lower abdominal pain (75.31%) followed by short h/o amenorrhea (68.35%). Classical triad presents in 37.97% of cases. Clinically extreme pallor and hemodynamically shock stage presented in 26.58% and 33.33% cases respectively. The commonest site of affection was Ampulla of the tube (50.84%) and most common operation done was Salpingectomy (83.54%). There was no mortality.

Conclusions: Early diagnosis and proper management becomes the key of success. High degree of suspicion, identification of risk factors, availability of modern investigations and timely intervention will definitely help to reduce the morbidity and mortality associated with EP.

Corresponding Author:- Dr. Kamal Kumar Dash
Address:- Assistant Professor, Dept of G&O, Midnapore Medical College, Paschim Medinipur, W.B.

Introduction:-

An ectopic pregnancy occurs when a fertilized ovum implants outside the normal uterine cavity[1]. The commonest site of ectopic implantation is fallopian tube (97%); others sites are ovary, cervix, broad ligament and abdominal cavity. For tubal ectopic pregnancy, as the decidual changes at the site of ectopic implantation is minimum and surrounding muscles undergo limited hyperplasia and hypertrophy, it cannot withstand the stretching of growing embryo after certain period and ultimately gives way, resulting in rupture in most cases with massive intraperitoneal hemorrhage and shock. It is the most important cause of maternal mortality and morbidity in the first trimester[2]. Several risk factors for ectopic pregnancy has been identified including a history of pelvic inflammatory disease, smoking at the time of conception, previous ectopic pregnancy, previous pelvic surgery, induction of ovulation and intrauterine device usage[3]. The other ectopic sites like ovary, abdomen or cervix are less common. A knowledge of the associated risk factors help to identify women at higher risk in order to facilitate early and more accurate diagnosis[4]. Most risk factors are associated with risk of prior damage to the fallopian tube. These factors include prior pelvic or abdominal surgery and pelvic infection[4]. Chlamydia trachomatis has been linked to 30-50% of all ectopic pregnancies[5]. The higher mortality in ectopic pregnancy is due to greater detection difficulty and pretty late diagnosis. An early diagnosis reduces the risk of tubal rupture and allows more conservative medical treatments to be employed[6]. Currently, the overall incidence is increasing world wide[7] but the case fatality rate has decreased[8]. In developed countries, this might be due to improved diagnostic techniques, such as diagnostic laparoscopy, radioimmunoassay of beta-human chorionic gonadotrophins and transvaginal sonography (TVS) with more cases being identified before rupture, but these facilities may not be accessible even in many super specialty hospitals in developing countries.

In the current study, our aim was to observe the incidence and trends of ectopic pregnancy and identification of the risk factors involved with its management.

Gap in the existing knowledge:

Very few clinical conditions exhibit so varied features like that of disturbed ectopic pregnancy. It is indeed difficult at times to diagnose, especially the old ectopic pregnancies. There was no definite method or protocol to diagnose it until the emergence of modern investigations like transvaginal sonography (TVS), highly sensitive Radioimmunoassay of B-HCG and laparoscopy, usually in combination, to diagnose it in unruptured state. Where amenities of modern investigations become unavailable, high degree of suspicion and an ectopic conscious clinician can only diagnose the entity in pre-ruptured state.

Objectives:-

1). To assess the Incidence, Trends and Surgical Management of ectopic pregnancy.
2). To evaluate the relevance of the Risk Factors associated with ectopic pregnancy.

Methodology:-

A retrospective observational Study was conducted among the diagnosed ectopic pregnancy patients who get admitted during a period of 3 years from 1st January2018 to 31st December 2020 at Midnapore Medical College & Hospital, Paschim Medinipur, West Bengal. Ethical clearance from the 'Institutional Ethics Committee' had obtained before embarking on the study.

The total number of cases was 474 during that period (table no-1). Inclusion criteria included all confirmed cases of ectopic pregnancy. Exclusion criteria were none. Study Populationincluded primi or multigravida who were admitted through emergency or OPD at the Department of G &O of MMC&H, clinically diagnosed as ectopic pregnancy and was further confirmed by specific investigation. All these patients were either acute or acute-on-chronic ectopic pregnancies and treated surgically. Relevant data were collected from the BHT of the patients traced through Labor ward registers, Gynae ward registrar book, Operation Theatre registers and Intensive care unit (ICU) and high dependency units (HDU) records. Data regarding demographic and reproductive profile, booked or un-booked, clinical symptoms and signs, risk factors, methods of contraception, diagnostic tool used, past obstetric history, detailed operative and postoperative events as well as morbidities were obtained. Relevant investigations included complete blood count, blood group and Rh, urinary pregnancy test, serum beta-hcg assay and pelvic ultrasonography.

Statistical Analysis:
After collecting the data, statistical analysis was generated through MS excel sheet and analysis was done using SPSS 23 software.

Results:-

During the period of three years, there were 42,466 total births and 474 cases of ectopic pregnancies. Thus the incidence of ectopic pregnancy in our study was 1.11% or 11.16 per 1000 deliveries. Year wise incidence of ectopic pregnancy was 10.54% in 2016, 10.02% in 2017 and 13.16% in 2018 per 1000 total births as per data available in this institution. Among 25-30 years age group, a maximum of 32.27% cases were found followed by 28.27% of cases among 20-25 years age group. Ectopic pregnancy found to be more common in multi gravida than the primigravida and also among those who didn't have a viable pregnancy before (table-2).Maximum cases were clinically presents at 6-8 weeks i.e. 50.42% of cases. (Table-2). There were several risk factors found to be associated with ectopic pregnancy in the current study of which >35 years of age (12.44%), PID (13.08%), previous abortion/MTP (11.39%) and previous CS/pelvic surgery (18.35%) had shared the major portion (Table-3). Among the signs and symptoms, commoner variables were short h/o amenorrhea (68.35%), Lower abdominal pain (75.31%), features of shock (33.33%), abdominal tenderness (78.69%), bleeding/spotting per vaginum (42.82%), Mass felt through fornices (33.12%) and cervical motion tenderness (56.75%). Classical triad was found only among 37.97% of cases (Table-4). Table-5 showed distribution of per-operative findings of ectopic pregnancies among which ruptured states with hemoperitoneum were most common (76.37%). Regarding sites of ectopic pregnancy, Ampulla of the tube was the commonest site, 50.84% in our study (Table-6). Various modes of operations were depicted in Table -7 among which partial or complete Salpingectomy of the affected side were most commonly performed operations (83.54%).

Table 1:- Year wise pregnancy events.

Age group(year)	Number of cases (%)	Gravida	Number of cases (%)	Parity	Number of cases (%)	Gestational age in weeks	Number of cases (%)
<20	15 (3.16%)	1	120 (25.31%)	0	215 (45.35%)	< 6weeks	202 (42.61%)
20-25	134 (28.27%)	2	135 (28.48%)	1	83(17.51%)	6-8 weeks	239 (50.42%)
26-30	153 (32.27%)	3	114 (24.05%)	2	99 (20.88%)	8-10 weeks	32 (6.75%)
31-35	113 (23.84%)	4	77 (16.24%)	3	72(15.18%)	>10 weeks	1 (0.21%)
>35	59 (12.44%)	>4	28 (5.91%)	>3	05(1.05%)	-	-
Total	474		474		474		474

Table 2:- Demographic variables of ectopic pregnancy.

year	Normal delivery	LSCS	Instrumental delivery(forceps/ventuce)	abortion	Ectopic pregnancy	Total live births	Total births
2016	9748	4062	223	1405	148	13817	14033
2017	9780	5423	166	1191	154	15063	15369
2018	8543	4399	122	1088	172	12775	13064
Total	28071	13884	511	3684	474	41655	42466

Table 3:- Risk factors associated with ectopic pregnancy.

Risk factors	Number of cases	Percentage
Age>35 years	59	12.44%
Previous tubal surgery/ligation	38	8.01%
PID	62	13.08%
Previous abortion/MTP	54	11.39%
Previous abdomino-pelvic surgeries/ caesarean sections	87	18.35%

Previous ectopic pregnancy	09	1.90%
Ovulation-inducing drugs	27	5.69%
Intrauterine contraceptive device	11	2.32%
Total	347	73.18%

Table 4:- Signs and symptoms associated with ectopic pregnancy.

Sign/symptoms	Number of cases	Percentage
Short h/o amenorrhea	324	68.35%
Lower abdominal pain	357	75.31%
Bleeding/spotting per vaginum	203	42.82%
Abdominal tenderness	373	78.69%
Shock	158	33.33%
Syncopal attack	62	13.08%
Classic triad	180	37.97%
Abdominal distension	195	41.13%
Extreme pallor	126	26.58%
Cervical motion tenderness	269	56.75%
Mass felt through fornices	157	33.12%

Table 5:- Distribution of cases according to per operative and USG finding.

Findings	Number of cases	Percentage
Ruptured ectopic	362	76.37%
Unruptured ectopic	22	4.64%
Tubal abortion	48	10.12%
TO mass/ chronic ectopic	42	8.86%
Total	474	99.99%

Table 6:- Pattern of distribution according to site of ectopic pregnancy.

Site of ectopic pregnancy	Number of cases	Percentage
Ampulla	241	50.84%
Fimbrial	86	18.14%
Isthmus	61	12.88 %
Cornual	17	3.58%
Ovarian	13	2.74%
Rudimentary horn	08	1.68%
Tubal abortion	48	10.13%
Total	474	99.99%

Table 7:- Distribution of cases according to type of surgical management.

Type of surgery	Number of cases	Percentage
Linear salpingotomy	08	1.68%
Salpingectomy (partial/complete)	396	83.54%
Salpingo-oophorectomy	25	5.28%
Fimbrial expression	27	5.69%
Cornual resection	12	2.53%
Hysterectomy	06	1.27%
Total	474	99.99%

Discussion:-

The presentation of ectopic pregnancy is highly variable, ranging from an asymptomatic state, to pelvic pain that is worse on one side, to tubal ruptured with hemorrhagic shock[9]. In various studies, ectopic pregnancy rates ranges from 0.08% to 2% of reported pregnancies[10,11]. In the beginning of the 1990s, Coste and colleagues conducted a case-control study in seven Paris-area maternity hospitals and analyzed the risk factors for ectopic pregnancy[12]. More recently in 2006, Karaer et al observed that the risk of extra-uterine pregnancy increased progressively with

maternal age[4]. Moreover, ectopic pregnancy is known to increase maternal stress, anxiety and depression[13]. The incidence of ectopic pregnancy in our study was 1.11% in 3 years (table-1) which is comparable to a similar type of study done by Khaleeque et al[14] (1.3%). The higher incidences in recent years can be attributed to increased incidence of induced abortions, post-caesarean cases, treatment of infertility with ovulation inducing medicines and advancements in diagnostic modalities. The most commonly affected age in our study was among 20-30 years age group and the rate was 60.54% which was much higher than the study conducted by Bouyer et al (42.80%)[15]. This disparity may be due to relatively earlier age of marriage and early motherhood of Indian women[16]. 45.35% of patients in our study was nullipara and 17.51% was primipara which partially correlates with Bouyer et al[15], (nullipara 39.5%, primipara 35.6%). The most common gestational age of presentation was 6-8 weeks which is comparable to studies of Khaleeque et al[14] and Wakankar et al[17]. The incidence of EP among nulliparous patients was much higher in our study (45.35%) compared to studies done by Gaddagi and Chandrasekhar[18] (27%) and Singh et al[19] (20%) but well comparable to Wakankar et al[17] (42.30%).The rising trends among nullipara may be due to higher incidences of infertility and abortion in recent years. In current study, there were several risk factors found to be associated with EP: past history of abdomino-pelvic surgeries/ caesarean sections (18.35%), PID (13.08%), increasing maternal age (>35years) (12.44%), previous abortions/MTP (11.39%), previous ectopic pregnancy (1.90%) and effects of ovulation inducing drugs (5.69%) are most important among the various causes (table-3). It's true that existence of risk factors can help in early diagnosis of EP but it could happen in absence of any risk factors (NICE guidelines). Previous abdomino-pelvic surgery including caesarean sections were responsible for much higher incidence (18.35%) of EP in our study which was lower than to study of Wakankar et al[17] (32.69%). In our study, 11.39% of cases had previous abortions which was comparable to observations of Khaleeque et al[14] (12.9%) and Nasreen Fathima et al[20] (14.06%). Previous EP and tubal surgery are the two strongest risk factors for occurrence of EP[21]. Though the incidence was much lower for previous EP (1.90%), the incidence of previous tubal surgery (8.01%) was comparable with Wakankar et al[17] (9.6%). Association of PID was much higher in Wakankar et al[17] (25%) than current study conducted by our group (13.08%) may be due to lower incidence of microbial infections with earlier diagnosis and treatment of PID.

Most common presenting symptoms in our study group was lower abdominal pain (75.31%) followed by short h/o amenorrhea (68.35%) which has close similarity with study of Wakankar et al[17] [pain (86.53%), amenorrhea (80.76%)] and Shetty & Shetty[22] [pain (80.6%), amenorrhea (77.4%)].The classical triad of amenorrhea -pain abdomen –bleeding p/v was found among 37.97% of cases which has close similarity of observations done by Tahmina et al[23] (40.3%). 33.33% of cases presented with features of shock which was much higher than the observations done by Chudasama TJ et al[18] (7%). This disparity may be due to late referral and delay in transportation from periphery to this rural based peripheral medical college. Most common clinical sign observed was abdominal tenderness (78.69%) followed by cervical motion tenderness (56.75%) which has very close similarity with observation of Tahmina et al[23] (abdominal tenderness 75%, cervical motion tenderness 58.3%).Abdominal distension found among 41.13% of patients which was less than the observations of Wakankar et al[17] (51.92%).

In the present study, tubal ectopic pregnancy found in 85.44% of cases which is comparable to study carried out by Yakasai et al[24] (89.11%). Most of the patients had affected on the ampullary part (50.84%) which is consistent with observations of Wakankar et al[17] (53.54%) and of Khaleeque et al[14] (58.9%).Fimbrial part (18.14%) found to be the second most common site of tubal ectopic with a similar observation with that of Wakankar et al[17] (17.30%) and Khaleeque et al[14] (15.4%). Isthmus tubal ectopic (12.88 %)being the third common site though it is slightly higher than observation of Khaleeque et al[14] (7.7%).The incidence of ovarian ectopic was much lower in current study as expected (2.74%) and comparable with study done by Singh et al[19] (4%). The incidence of Cornual or interstitial pregnancy was 3.58%, much higher than that of Wakankar et al[17] (7.6%). We have 10.13% cases of tubal abortion cases which was much higher than that of Wakankar et al[17] (5.7%).

In present study, ruptured tubal ectopic was found in 76.37% of cases, unruptured cases found in 4.64% of cases and tubal abortion found among 10.12% of cases. TO mass or chronic ectopic was detected in 8.86% of cases. The findings were very similar in study done by Wakankar et al[17] where ruptured cases were 86.61% and unruptured cases were 15.38%.

The most common surgery done in our study was partial/total Salpingectomy (83.54%) which is comparable to the observation of Wakankar et al[17] (84.61%), Yakasai et al[24] (89.10%) and Nasreen Fathima et al[20] (82.80%). About 5.28% of cases had undergone Salpingo-oophorectomy which is comparable to the observations of Khaleeque et al[14]

(3.85%) and Nasreen Fathima et al[20] (5.9%). Other varieties of operations like Fimbrial expression (5.69%), Cornual resection (2.53%) and hysterectomy was done in 1.27% of cases. In spite of 33.33% of cases attended the casualty with moribund and hemodynamically unstable conditions, there was no mortality in the present study similar to the observations done by Shetty & Shetty[22], Wakankar et al[17] and Udigwe et al[25].

Conclusion:-

There is a rising trend in EP due to increasing diagnosis of this condition by the availability of more sensitive investigations like transvaginal sonography (TVS), highly sensitive Radioimmunoassay of B-HCG and laparoscopy, usually in combination. As it remains a gynecological catastrophe and important cause of maternal mortality of first trimester, early diagnosis and proper management become necessary to tackle the conditions. High degree of suspicion, identification of risk factors, availability of modern investigations and timely intervention will definitely help to reduce the morbidity and mortality associated with EP. Last but not the least, health education, family planning methods and safer sex will definitely reduce unplanned pregnancy, abortions with its sequelae and STI, thus will indirectly reduce the incidences of EP.

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