ORIGINAL ARTICLE

ECTOPIC PREGNANCY WITH TUBAL RUPTURE: AN ANALYSIS OF 80 CASES

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Background: Ectopic pregnancy (EP) is a major problem in obstetrics as there is evidence of increasing incidence throughout the world. It is an important cause of maternal morbidity and mortality. In Pakistan, the care seeking behaviour among female is limited that makes female vulnerable to die due to complication of ectopic pregnancy. The aim of this study is to determine the frequency of tubal rupture in ectopic pregnancy in Pakistani patients. **Method**: In this cross-sectional study data pertaining to age, gestational age, parity and duration of presenting symptoms were collected and analysed. **Result**: 80 patients were diagnosed to have ectopic pregnancy. The frequency of tubal rupture was 91.25%. It is encountered significantly more often in women with age of 26 years. More tubal rupture is found in patient with low parity, in which the frequency of tubal rupture is up to 100% and decrease up to 78.6% with increasing parity up to four. Furthermore, it is noted that increase in gestational age from 8 weeks to 10 weeks caused an increase in frequency of tubal rupture from 80 to 100% respectively. It is also noted that earlier the patient presents the lesser is the frequency of tubal rupture, as compared to late presentation beyond 3–4 days which make frequency up to 95%. **Conclusion**: Tubal rupture is still common cause of maternal morbidity and mortality, and is still a major challenge in gynaecological practice. Creating awareness amongst midwives and GPs regarding early diagnosis can contribute to decrease the mortality, morbidity and fertility loss related to EP.

Keywords: Ectopic pregnancy; Tubal rupture; Ultrasonography; Laparotomy

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INTRODUCTION

Ectopic pregnancy is defined as pregnancy that is implanted outside the uterine cavity, which is a site that by nature is not designed anatomically and physiologically to accept the conception or to permit its growth and development.[1] Ectopic pregnancy is major health problem for female of reproductive ages. The worldwide incidence of ectopic pregnancy has been rising throughout the world.[2] The Incidence of ectopic pregnancy is influence by smoking, genital infections, age of conception, current use of IUCD, pelvic surgery, induced abortion, PID and multiple sex partners.[3,4] In first trimester ectopic pregnancy is most important cause of maternal morbidity and mortality. Worldwide around 10–15% maternal deaths in 1st trimester is constituted by Ectopic pregnancy.[3] In Pakistan the reported incidence of ectopic pregnancy has been cited as 1:112 to 1:1308 but the real figures could be higher due to under diagnosis and poor statistical records.[4]

The presentation of ectopic pregnancy is acute, sub-acute and chronic. In acute presentation patient presents with abdominal pain, collapse and have obvious signs of hemoperitoneum. Chronic ectopic pregnancy is often an enigma and correct diagnosis is usually made on exploratory laparotomy or laparoscopy. In sub-acute presentation patient presents with abdominal pain, period of amenorrhea and have per vaginum bleeding.

The spectrum of clinical findings in ectopic pregnancy ranges from completely asymptomatic status to peritoneal irritation due to bleeding in peritoneal cavity or even hypovolemic shock.[5,6] Early diagnosis of ectopic pregnancy constitutes detection before tubal rupture which is important in preventing maternal mortality and morbidity.

Ectopic pregnancy is often difficult to diagnose on clinical grounds, because of varied presentation. In 90% of cases of ectopic pregnancy found in fallopian tubes, so women with ectopic pregnancy are at risk of tubal rupture. The prevalence of tubal rupture was found to be 29.5% internationally.[7]

The diagnostic tools for ectopic pregnancy are combination of clinical examination, βhCG, Serum progesterone, ultrasonography and laparoscopy. Medical management has resulted in emergence of several non-surgical options to what had once been thought to be a solely surgically treatable condition. The earlier the diagnosis, made this increases chances of success of medical

treatment and minimizes morbidity and mortality. But most of the patients presented late in a critical condition, they could not be benefited from those modern treatment options. Establishment of early pregnancy units can help in early diagnosis and management with reduced morbidity and better conservation of fertility.[5]

So, the aim of this study is to determine the prevalence of tubal rupture associated with ectopic pregnancy in Pakistani patients. As it may be different in our population as compared to international data. The secondly objective is to determine any association of tubal rupture with parity and gestational age.

MATERIAL AND METHOD

This cross-sectional study was carried out in the Department of Obstetrics & Gynaecology, Jinnah Post Graduate Medical Centre (JPMC) Karachi. Over the 6 months, 80 diagnosed cases of ectopic pregnancy were enrolled by non-probability consecutive technique. Sample size of 80 patients calculated by taking prevalence 29.5%[7], confidence level 95% and absolute precision 10%.

All pregnant women of reproductive age group admitted through emergency and in ward fulfilling the eligibility criteria of ectopic pregnancy were included. Pregnant women with other causes of acute abdomen includes acute appendicitis, ruptured abdominal aneurysm, peritonitis, pancreatitis, cholecystitis, ruptured spleen or ruptured ovarian cyst were excluded. The patient who fulfil the inclusion criteria of ectopic pregnancy were enrolled in the study after taking informed consent. Those patients in whom clinical picture is not diagnostic were sent to ultrasonography for the evaluation of ectopic pregnancy. Ultrasounds were evaluated by a radiologist having at least of five years of experience. The data was recorded on a predesigned proforma by the researcher.

The data will be entered and analysed using SPSS-19. Mean standard deviation was calculated for continuous variables like age, gestational age, parity and duration of symptoms. Frequencies and percentages were calculated for categorical variables like tubal rupture were documented. Stratification was done with regards to age, gestational age, parity and duration of symptoms to see the effect of these on outcomes via chi-square test and *p*-value of <0.05 was considered as significant.

RESULTS

The current study was conducted to evaluate the frequency of tubal rupture in patients of ectopic pregnancy. Out of 8122 obstetrical patients, 80 (0.98%) patients presented with signs & symptoms of suspected ectopic pregnancy and were largely diagnosed clinically however some of them diagnosed radiologically if deemed necessary. Detailed results on these patients are as under.

The mean age of patients was 26.12±5.38 years with a range from 18 to 36 years (Table-1). Mean gestational age was 7.798±1.09 weeks. Minimum gestational age was 8 weeks while maximum gestational age was 10 weeks. The mean parity of these patients was 1.98±0.98 children with a range of 0–4 children. On average a patient presented in 2.00±0.95 days of symptoms, some within 1 day while others took maximum 4 days to reach to our health facility (Table-1).

Age categorization of patients showed that nearly two third patients; 61.2% (n=49) were of age between 21–30 years, 18.8% (n=15) patients were in age category of 20 years & below while 20% (n=16) patients were in age category of 31 years & above (Table-2).

Frequency of tubal rupture among patients of ectopic pregnancy was 91.25% (n=73). When stratified for evaluation of effect modification it was seen that frequency of tubal rupture in patients of ectopic pregnancy was most common in youngest age group patients [i.e., 100% (n=15) in ≤20 years] with a significant *p*=0.039. The frequency decreased with increasing age [i.e., 89.8% (n=44) and 87.5% (n=14) in categories of 21–30 years and ≥31 years respectively] (Figure-1). Gestational age also significantly affected the frequency of tubal rupture in patients of ectopic pregnancy patients. Further it was also noted that increase in gestational age from 8 weeks to 10 weeks caused an increase in frequency of tubal rupture from 88% to 100% (*p*-value =0.098) (Table-3).

Parity was found to be a significant effect modifier of frequency of tubal rupture in patients of ectopic pregnancy patients such that nulliparity was associated with maximum frequency (100%) of tubal rupture which decreased up to (78.6%) with increasing parity up to 4 children. (*p*-value=0.032; Table-4).

We also noted that sooner the patients presented lesser was the frequency of tubal rupture. Those who presented within initial 2 days of development of symptoms the frequency was 90% as compared to late presenters (3^{rd}-4^{th} day of development of symptoms) that was 95%.

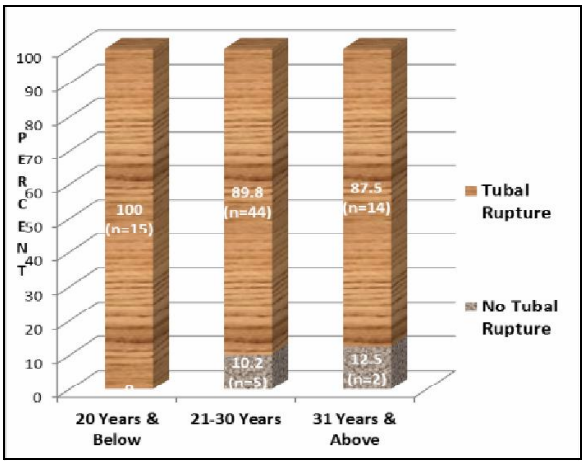

Figure-1: Stratification of age with frequency of tubal rupture in ectopic pregnancy *p*-value = 0.039

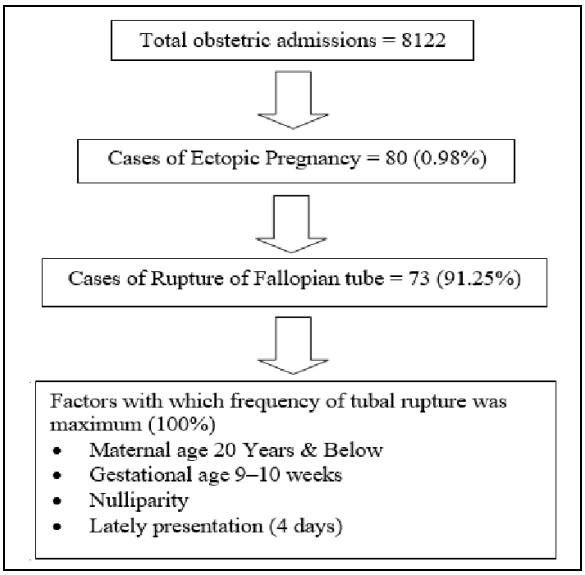

Figure-2: Frequency of tubal rupture in ectopic pregnancy
Flow chart of the study

Table: 1. Descriptive Statistics of all patients with ectopic pregnancy n=80

	Minimum	Maximum	Mean	SD
Age of Patient (Years)	18	36	26.12	5.38
Gestational age at time of presentation (Weeks)	8	10	7.79	1.09
Parity	0	4	1.93	0.98
Duration of Presenting symptoms (Days)	1	4	2.00	0.95

Table-2: Distribution of all patients according to age categories n=80

Age category	Frequency	Percent
≤20 Years	15	18.8
21-30 Years	49	61.2
≥31 Years	16	20
Total	80	100

Table-3: Stratification of gestational age on frequency of tubal rupture in ectopic pregnancy

Gestational age	Rupture of Fallopian tube		Total	*p*-value
	Yes	No		
Up to 8 weeks	52 88.1%	7 11.9%	59	0.098
>8 weeks (9–10 weeks)	21 100%	0 0%	21	
Total	73	7	80	

Table-4: Stratification of parity on frequency of tubal rupture in ectopic pregnancy

Parity	Rupture of Fallopian tube		Total	*p*-value
	Yes	No		
0	15 (100%)	0 (0%)	15	0.032
1	19 (95%)	1 (5%)	20	
2	14 (93.3%)	1 (6.7%)	15	
3	14 (87.5%)	2 (12.5%)	16	
4	11 (78.6%)	3 (21.4%)	14	
Total	73	7	80	

Table-5: Stratification of duration of presenting symptoms with frequency of tubal rupture in ectopic pregnancy

Duration of presenting symptoms	Rupture of Fallopian tube		Total	*p*-value
	Yes	No		
Up to 2 days	54 (90%)	6 (10%)	60	0.493*
> 2 days (3-4 days)	19 (95%)	1 (5%)	20	
Total	73	7	80	

**p*-value- not significant

DISCUSSION

Ectopic pregnancy is an increasingly common and potentially catastrophic condition and is still major cause of maternal mortality in UK and USA. This study is undertaken in view of the fact that majority of patient with EP are brought in casualty in critical conditions. This study expands the information regarding tubal rupture related to ectopic pregnancy. The proportion of tubal rupture is still high in our population. In our study, we found all of the pregnancies implanted in fallopian tube, similar to other studies in which most of the ectopic occur in fallopian tubes.[4,8–10] The frequency of tubal rupture in our study is found to be 91.25%.

This high rupture rates were explained a secondary to indigenous population served or to delayed diagnosis caused by lack of diagnostic tools such as transvaginal ultrasound and βhCG measurements. This high level of rupture also speculates the socioeconomic culture level of the population that we serve. The most of EP were ruptured at the time of presentation; this is also consistent with the studies done by other researchers both locally and internationally.[4,5,8,11]

The incidence of EP in our study is 0.98%. Our reported incidence is comparable with the other studies done by Tabassum and Aziz *et al.*[12,13] Most of the population of women found young with mean age of

26 year, these results is quite consistent with other studies.[4,5,8,11] Only one study shows increasing age is associated with increased tubal rupture.[7] So it is seen in the study that most cases of tubal rupture occur in young age group.

Most of the cases were seen in parity group (0–1). This is supported by the studies.[5,8,10] Other studies also show that majority of EP occur in multipara.[7,9,14] But in our study, we found more cases of tubal rupture in nullipara. In our study mean gestational age found to be 7.79 weeks and is consistent with the study done by Khaleeque and Pinar Cilesiz.[9,15] It is also noted that increasing gestation cause increase in frequency of tubal rupture. Most of the patient presents lately in state of shock requiring resuscitation preoperatively and intraoperatively. Late presentation has been identified in other studies.[10,16,17]

Fortunately, we had no mortality reported. Late presentation is dilemma, which not only dangerous for patient`s life but also makes tubal conservation impossible. Laparotomy was the main surgical approach owing to the acute presentation of patient with hemoperitoneum. None of the patient in our study fulfilled the criteria for the medical treatment. Some of the patient with managed by laparoscopic approach but the laparoscopic set-up is not always available in our emergency department. Patients remain well postoperatively. Most of the cases of ectopic pregnancy occur on right fallopian tube.

We also observed that there is increase need for blood transfusion requirements in these patients but complete data is not available, which is the limitation of our study.

CONCLUSION

In order to reduce morbidity there is need of early diagnosis. This can be done by early screening of high risk patients giving an early diagnosis before tubal integrity lost. Since most of our patients presents late so the modern treatment options could not be offered to them. Establishment of early pregnancy units may help in early diagnosis and management. So, better treatment options can be given to the patients, which can save patients life and prevent her from further morbidity. This is also to be emphasized the importance of appropriate investigation along with clinical evaluation of patient can be benefited by use of therapeutic modalities with avoidance of open surgery and better fertility conservation. The main future challenge is therefore to devise strategies that lead to further reduction in the mortality of ectopic pregnancies.

AUTHORS' CONTRIBUTION

SA contributed for study conception and design and acquisition of data. SA, MH and AS contributed in data collection and analysis. SS and SMI participated in drafting the article or revising it critically.

REFERENCES

1. Chukus A, Tirada N, Restrepo R, Reddy NI. Uncommon Implantation Sites of Ectopic Pregnancy: Thinking beyond the Complex Adnexal Mass. Radiographics 2015;35(3):946–59.
2. Grudzinskas JG. Miscarriage ectopic pregnancy and trophoblastic disease. In: Edmonds DK, editor. Dewhurst's textbook of obstetrics and gynaecology for postgraduate. London: Blackwell; 1999. p.61–76.
3. Anorlu RI, Oluwole A, Abudu OO, Adebajo S. Risk factors for ectopic pregnancy in Lagos, Nigeria. Acta Obstet Gynecol Scand 2005;84(2):184–8.
4. Ehsan N, Mehmood A. Ectopic pregnancy: an analysis of 62 cases. J Pak Med Assoc 1998;48(2):26–9.
5. Hassan N, Zaheen Z, Jatoi N, Srichand P, Shaikh F. Risk Factors, Clinical Presentation and Management of 62 cases of ectopic pregnancy at tertiary care center. J Liaquat Univ Med Health Sci 2009;8(3):238–41.
6. Bangash N, Ahmed H. Study of 65 cases of ectopic pregnancy during one year period in military hospital. Pak Armed Forces Med J 2004;54(2):205–8.
7. Berlingieri P, Bogdanskiene G, GrodzinKas JG. Rupture of tubal pregnancy in the Vilnius population. Eur J Obstet Gynecol Reprod Biol 2007;131(1):85–8.
8. Shah N, Khan HN. Ectopic pregnancy: Presentation and Risk Factors. J Coll Physicians Surg Pak 2005;15(9):535–8.
9. Khaleeque F, Siddiqui RI, Jafarey SN. Ectopic Pregnancies: A three-year study. J Pak Med Assoc 2001;51(7):240–3.
10. T Wasim. Propotionate Morbidity and risk factors of ectopic pregnancy. Ann King Edward Med Univ 2004;10:298–300.
11. Bouyer J, Coste J, Shojaei T, Pouly JL, Femandez H, Gerbaud L, *et al*. Risk Factors for ectopic pregnancy: A comprehensive Analysis Based on a large case-contol, population-based study in France. Am J Epidemiol 2003;157(3):185–94.
12. Tabassum RU, Ammad MA, Ahmed MA. Risks factors for tubal ectopic pregnancy. J Surg Pak 2005;10(4):22–5.
13. Aziz S, Al Wafi B, Swadi H. Frequency of ectopic pregnancy in Medical Center, Kingdom of Saudia Arabia. J Pak Med Assoc 2001;61(3):221–4.
14. Mahboob U, Mazhar BS. Management of ectopic pregnancy: A two-year study. J Ayub Med Coll Abottabad 2006;18(4):30–3.
15. Goksedef BP, Kef S, Akca A, Bayik RN, Cetin A. Risk Factor for rupture in tubal ectopic pregnancy: definition of the clinical findings. Eur J Obstet Gynecol Reprod Biol 2011;154(1):96–9.
16. Malik MS, Saeed F. Diagnosis and Management of ectopic pregnancy. Biomeclica 1998;14:40–4.
17. Thonneau P, Hijazi Y, Goyaux N, Calvez T, Keita N. Ectopic Pregnancy in Guninea. Bull World Health Organ 2002;80(5):365–70.

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