

## Original Research

# Study Of Ruptured Ectopic Pregnancy During Covid Times In A Tertiary Care Hospital: A Retrospective Study

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**ABSTRACT**

**Introduction:** The challenging covid-19 infection had affected the health care system in many ways. In March 2020, WHO declared covid-19 as an infectious disease that engulfed the whole world at once. The various outpatient clinics were closed all over world. All elective procedures and surgeries were also cancelled so that the transmission of covid-19 infection could be prevented (1). During this covid-19 pandemic various patient management policies were changed [2-4]. Most of the obstetricians & gynaecologists focused on issues of normal pregnancy and its complications during the pandemic. (5) In this Study, we focus on Ectopic pregnancy because EP is the major cause of morbidity and mortality in early pregnancy (7)

**Methodology:** This retrospective study was conducted over the period of 6 months from March 2020 to August 2020 in Lalla Ded hospital, GMC Srinagar, which is the only tertiary care Maternity hospital of Kashmir Valley. There was a total admission of 13784 over the period of these 6 months. A total of 60 cases reported during this frame time with ruptured ectopic pregnancy and were admitted to our hospital through emergency.

**Results:** It was found that the majority of ruptured ectopic pregnancies occurred in the females between age group 25-30 years (46.67%). The majority of ruptured EP (53.3%) were multiparous and 46.67% were primigravida. The major etiological risk factor associated in the present population study was PID in 80% of cases. There were no associated risk factors seen in 8.34% patients.

**Conclusion:** During the covid-19 pandemic majority of the cases were referred or they came late to the hospital after the ectopic pregnancy has ruptured. But fortunately there has not been even a single mortality. Laparotomy followed by salpingectomy was main treatment modality which was used in the present study due to late presentation of patients and non-availability of laparoscopy in our set up due to theoretical risk of aerolization of the virus.

**Key Words:** Laparotomy, Ectopic pregnancy

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**INTRODUCTION**

The challenging covid-19 infection had affected the health care system in many ways. In March 2020, WHO declared covid-19 as an infectious disease that engulfed the whole world at once. The various outpatient clinics were closed all over world. All elective procedures and surgeries were cancelled so that the transmission of covid-19 infection could be prevented (1). During this COVID-19 pandemic patient management policies were changed. The patients were treated surgically more frequently, and moreover laparoscopic surgeries were avoided as there was conceptual risk of droplet transmission of covid-19 infections. [2-4] Most obstetricians & gynaecologists focused on normal pregnancy and its complications due to COVID-19 infection. However,

the complications in the early pregnancy like ectopic pregnancy are equally important (5). It was observed that social isolation due to covid-19 postponed diagnosis of these early pregnancy issues as there was delay in seeking medical advice. (6) The central point of this Study is the Ectopic pregnancy during covid-19 pandemic as it is one of the causes of maternal morbidity and mortality in early pregnancy (7) Implantation of the blastocyst anywhere than normal cavity of uterus is called an ectopic pregnancy. (4) When this blastocyst implants ruptures or gets aborted it is called ruptured ectopic pregnancy. The typical locations for ectopic are the fallopian tube (95-96%) and the ampulla (70%). Its rare locations are the ovaries (1-3%), abdominal cavity (1%), the cervical

canal (less than 1%), and caesarean section scar (1-3%).(7,8)

The ectopic pregnancy incidence is about 2% in the general population (9).The ruptured pregnancy is one of the leading causes of morbidity and mortality in reproductive age group of women. In case of suspected tubal rupture, hemodynamically unstable patient or when MTX use is not indicated in patient, surgery is the main emergency treatment indicated. There are some advantages of surgical treatment as compared to conservative methods like no need for prolonged monitoring of patient and lesser time taken for ectopic pregnancy resolution [10]. During covid-19 pandemic more laparotomies were done for ruptured ectopic because of aerolized risk of transmission of infection through laparoscopic procedures in our set-up (11)

### METHODOLOGY

This retrospective study was conducted during the covid-19 pandemic over the period of 6 months from March 2020 to August 2020 in Lalla Ded maternity hospital ,GMC Srinagar, which is the only tertiary care Maternity hospital of Kashmir Valley. There was a total admission of 13784 over the period of these 6 months. A total of 60 cases were reported during in this frame time with ruptured ectopic pregnancy and these cases were admitted to our hospital through emergency. The diagnosis of ruptured ectopic pregnancy was made mainly by history taking, physical examination, laboratory tests (urine pregnancy test/serum B\_HCG) and radiological

(ultrasound) investigations. These cases were traced through medical record section. The information of each patient was obtained from their case records kept in the medical record department.Allthe relevant demographic data was analyzed. Records were studied for period of amenorrhea at time of diagnosis, presenting complaints like pain abdomen, bleeding per vagina or acute abdomen. Predisposing high risk factors were also analyzed. Various relevant ultrasound findings were noted, and urine pregnancy test was documented. These cases of ruptured ectopic pregnancy were mainly managed surgically (laparotomy) during this pandemic and all intra operative findings were noted.

**Inclusion Criteria:** All women with confirmed ruptured ectopic pregnancies.

**Exclusion Criteria:** All women with diagnosis of lower abdominal pain but non suspicious of EP and medically managed cases of EP.

### RESULTS

During the study period there were 10,500 deliveries in our hospital and 60 were diagnosed rupture ectopic pregnancy giving incidence of 5.174 per 1000 deliveries. It was found that the majority of ruptured ectopic pregnancies occurred in the females between age group 25-30Years (46.67%). The majority of ruptured EP (53.3%) were multiparous and 46.67% were prim gravida.

**Table 1: Distribution By Age In Years And Parity**

Age (Years)	Number	Percentage
<25	3	5
25-29	28	46.6
30-35	24	40
>35	5	8.33
TOTAL	60	100
PARITY	NUMBER	PERCENTAGE
MULTIGRAVIDA	32	53.33
PRIMIGRAVIDA	28	46.67
TOTAL	60	100

The major etiological risk factor associated in the present population study was PID in 80% of cases. There were no associated risk factors seen in 8.34% patients There was history of self-administered MTP pill present in 3.33% of patients. Other patients had history of tubal surgery (5%) or history of previous ectopic in 3.33%.

**TABLE 2: Distribution Of Cases Based On Risk Factors**

RISK FACTOR	NUMBER OF PATIENTS	PERCENTAGE
PID	48	80
H\O PREV ECTOPIC	2	3.33
H\O TUBAL SURGERY	3	5
USE OF MTP Pills	2	3.33

NO RISK FACTORS	5	8.34
TOTAL	60	100

Most of the cases were diagnosed at a gestational age of 6-8 weeks (61.6%)

**Table: 3 Duration Of Amenorrhoea**

Amenorrhoea	Number Of Patients	Percentage
5 Weeks	23	38.33
6 Weeks	27	45
8 Weeks	10	16.67
Total	60	100

The most common site of tubal pregnancy was ampulla (80%). One case of cornual pregnancy was detected per operatively. There were only two cases of ovarian pregnancy. Isthmal pregnancies were found in 15% of patients.

**Table 4 Distribution According To Site Of Ectopic**

Site	Number Of Cases	Percentage
Ampulla	48	80
Cornual pregnancy	1	1.67
Ovary	2	3.33
isthmus	9	15
TOTAL	60	100

The most common procedure which was done was unilateral salpingectomy 74.97% with left sided salpingectomy in 38.33% patients and right sided salpingectomy in 36.67% patients. Salpingectomy along with contralateral tubectomy was done in 19.99% of the cases as their families were complete.

**Table: 5 Distribution According To Type Of Surgical Procedure**

Surgical Procedure	Number Of Cases	Percentage
Left Salpingectomy	23	38.3
Right salpingectomy	22	36.67
Left salpingectomy with right tubectomy	5	8.3
Right salpingectomy with left tubectomy	7	11.6
Right Oophorectomy	1	1.67
Right salpingo-oophorectomy	1	1.67
Milking of right tube	1	1.67
TOTAL	60	100

The significant hemoperitoneum of 1 litre and more was seen in 26.67% patients of ruptured ectopic cases. The majority of population (40%) had blood loss of 100-500ml on admission while 15% of cases had hemoperitoneum of less than 100ml ultrasonographically and intraoperatively.

**Table 6: TVS And Intraoperative Findings Of Hemoperitoneum**

Hemoperitoneum	Number Of Cases	Percentage
<100(MINIMAL)	9	15
100-500	24	40
600-1000	11	18.33
>1000	16	26.67
TOTAL	60	100

#### MEAN(B-HCG) value

In the present study, the B HCG values range between maximum value of 9277 and minimum value of 492 with median value of B HCG is 1540.

## DISCUSSION

The covid-19 pandemic presented many challenges to gynaecologists all over the world working hard to improvise the care of their patients. There were efforts to limit the various elective surgeries during the COVID-19 pandemic, but emergency procedures must still be performed. For many of these urgent procedures, such as ruptured ectopic pregnancy, haemorrhagic ovarian cysts, or ovarian torsion, laparoscopy may offer the best surgical approach and outcomes for the patient. However, some have suggested that laparoscopic procedures should be avoided, and laparotomy procedures be universally employed owing to concerns about aerosolization of viral particles through the pneumoperitoneum. So all the patients which were diagnosed as ruptured ectopic pregnancy admitted in our hospital underwent laparotomy during this study period in covid-19 pandemic. In the present study majority of cases belonged to age group of 25-29 years (46.67%) similar to most of the studies from developing countries. Younger age group has high prevalence because they are more active sexually, predisposed to STI, PID and their sequelae. Studies in USA, however reported an increasing incidence of ectopic pregnancy with advancing age. The difference observed in our country might be owing to the fact that women here enter in to married life earlier and end reproduction earlier too. In the ICMR multi-centric case control study of ectopic pregnancy, majority of women were young. (12) In the present study group, majority of women with ectopic pregnancy were multi gravida (53.33%). The various studies done by Shraddha Shetty K, et al (83.9%) Panchal D, et al (81.66%) and Poonam, et al, (83.6) also had multigravida as the majority of patients. (12, 13, 14). The higher incidence in multigravida is probably due to previous miscarriages and infection resulting in tubal damage. Ectopic pregnancies are generally diagnosed earlier due to their association with symptoms like bleeding and pain. Most frequent gestational age at diagnosis was around 6-8 weeks in present study, which is similar to the observation made by khaleeqe et al (15). In the absence of amenorrhea woman may not be aware of an ongoing pregnancy and hence may not anticipate a pregnancy associated complication. This subjects her to increased risk of rupture due to delayed diagnosis. There are many risk factors associated with ruptured EP, but only predominant ones have been evaluated repeatedly in few studies like parity, previous history of ruptured EP, use of LNG pill, PID etc. PID has been associated with Ectopic Pregnancy in a number of studies like Rashmi et al 8.1%, In March Banks' study (1998) - 4% In Savita Devi's study(2000) -25% in Rose et al, study (2002)-34.4%.The etiological risk factors associated in the present population were PID in 80% of cases.(16) Use of LNG –EC (levonorgestrel emergency contraception) has been found associated with risk of developing EP incidences ranging from 2.3% -

4.1%(17,18) In the present study the use of LNG –EC was seen in 3.33% cases of ruptured EP. In literature 97% of ectopic pregnancies occur in the Fallopian tubes. The majority occur in the ampullary or isthmic portions of the Fallopian tubes. About 2-3% occurs as interstitial ectopic pregnancies (arising in the part of the tube which goes through the endometrial cavity). The other locations include cervical, fimbrial, ovarian and peritoneal sites, as well as previous caesarean section scars.(19,20). The present study shows 95% of cases occurring in the ampullary or isthmic portions of fallopian tube which is similar to the above literature. Two cases (3.33%) were diagnosed with ovarian pregnancy, and it was confirmed by histopathology also. Incidence of 1.25% was reported by Singh et al and Wakankar et al. (21, 22) It was observed that all of the cases had to undergo a laparotomy, because of unstable condition at presentation and unavailability of laparoscopy during covid-19 pandemic. Salpingectomy [94.87%] by open method was the most common modality of treatment. Out of this 19.9% cases had salpingectomy with contralateral tubectomy by modified Pomeroy's method as they were not desirous of further childbearing. Laparotomy with salpingectomy was the most common modality of treatment in other studies too (Shetty et al 90.3%, Maji et al 81.9%)(12,22 )In some studies lack of expertise in laparoscopy and presentation of the patient late in night when seniors are not around also led to increase in the rate of laparotomy. There was no mortality in the current study. Maternal mortality due to ectopic pregnancy is reported between 0% and 1.3% in various studies. (12,23,24). It is possible to prevent maternal mortality in low-resource countries by maintaining basic clinical and surgical skills.

## CONCLUSION

During the covid-19 pandemic, majority of the cases of ectopic pregnancy presented late to the hospital as ruptured ectopic due to social isolation. But fortunately there has not been even a single mortality. Laparotomy followed by salpingectomy was the main treatment modality which was used in the present study due to late presentation of patients and non-availability of laparoscopy in our set up due to theoretical risk of aerolization of the virus. RCOG/BSGE has given guidance to reserve laparoscopy if the alternate conservative or medical management options were not viable. The ideal situation would be to screen all patients before surgery. If this is not possible, PPE should be used and all the strategies to decrease aerosol diffusion in the operating theater should be followed. These strategies increase safety of laparoscopy so that it can be used even in emergency procedure like ruptured ectopic pregnancy and decrease the incidence of laparotomy.

**REFERENCES**

1. Platts S, Ranawaka J, Oliver R, Patra Das S, Kotabagi P, Neophytou C, et al. Impact of severe acute respiratory syndrome coronavirus 2 on ectopic pregnancy management in the United Kingdom: A multicentre observational study. *BJOG* 2021;128:1625-34
2. Morris SN, Fader AN, Milad MP, Dionisi HJ (2020) Understanding the “Scope” of the problem: Why laparoscopy is considered safe during the COVID-19 pandemic. *Journal of minimally invasive gynaecology* 27(4)
3. Centres for Disease Control and Prevention (2020) Information for Healthcare Professionals about Coronavirus (COVID-19). USA.
4. LABline (2020) Impact of 2019 novel Coronavirus and blood safety. *Transfusion Transmitted Diseases Committee*.
5. Van Den Eeden SK, Shan J, Bruce C, Glasser M (2005) Ectopic pregnancy rate and treatment utilization in a large managed care organization. *ObstetGynecol* 105(5): 1052-1057.
6. Júlio Elito Júnior Edward Araujo Júnior *Rev. Bras. Ginecol. Obstet.* vol.42 no.12 Rio de Janeiro Dec. 2020 Epub Jan 11, 2021.
7. Hoffman B, Schorge J, Bradshaw K, Halvorson L, Schaffer J, Corton M. *Williams Gynecology, Third Edition*. 3rd ed. (Hoffman B, Schorge J, Bradshaw K, Halvorson L, Schaffer J, Corton M, eds.). United States: McGraw-Hill Education; 2016.
8. Barnhart KT, Franasiak JM. *ACOG Practice Bulletin* No. 193: Tubal Ectopic Pregnancy. *Obstet Gynecol.* 2018;131(3):e91-e103. doi: 10.1097/AOG.0000000000002464.
9. Heather Murray, Hanadi Baakdah, Trevor Bardell, and Togas Tulandi, *Diagnosis and treatment of ectopic pregnancy CMAJ.* 2005; 173: 905–912.
10. Hajenius PJ, Mol F, Mol BW, Bossuyt PM, Ankum WM, et al. (2007) Interventions for tubal ectopic pregnancy. *Cochrane Database of Systematic Reviews* 2: 324.
11. American Association of Gynecologic Laparoscopists. COVID-19: joint statement on minimally invasive gynecologic surgery. Available at: <https://www.aagl.org/news/covid-19-joint-statement-on-minimally-invasive-gynaecologic-surgery/>.
12. Shetty S, Shetty A. A clinical study of ectopic pregnancies in a tertiary care hospital of Mangalore, India. *Innov J Med Health Sci.* 2014;4(1).
13. Panchal D, Vasihanav G, Solanki K. Study of Management inpatient with Ectopic pregnancy. *National journal of Integrated Research in Medicine.* 2011;2(3):91
14. Poonam Y, Uprety D, Banerjee B. Ectopic Pregnancy-two years review from BPKHIS, Nepal. *Kathmandu Uni. Med J.*, 2005;3:365-9.
15. Khaleeqe F, Siddiqui RI, Jafarey SN. Ectopic pregnancies: A three-year study. *J Pak Med Assoc.* 2001;51(7):240-2.
16. Jophy R, Thomas A, Mhaskar A. Ectopic pregnancy-5-year experience. *J ObstetGynecolInd.* 2002;52:55–8.
17. Lo, S. S. and Ho, P. C. The profile of women who seek emergency contraception from the family planning service. *Hong Kong Med J* 2012;18:299.
18. Gainer, E., Mery, C. and Ulmann, A. Levonorgestrel only emergency contraception: real-world tolerance and efficacy. *Contraception* 2001;64:17.
19. Dr Mary Harding, Ectopic Pregnancy, emergency Medicine and Trauma 23 Dec 2015 <https://www.ectopic.org.uk/professionals/clinical-features>.
20. Nicole Riddle, Jamie Shutter, Fallopian tubes Benign or nonneoplastic conditions, Ectopic / tubal pregnancy 4 August 2017, last major update April 2013
21. Singh S, Mahendra G, Vijayalakshmi S, Pukale RS. Clinical study of ectopic pregnancy in a rural setup: A two-year survey. *Natl J Med Res.* 2014;4(1):37-9
22. Wakankar R, Kedar K. Ectopic Pregnancy-A rising Trend. *IntSciStud.* 2015 Aug;3(5):18-22.
23. Udigwe GO, Umeononihu OS, Mbachu II. Ectopic pregnancy: a 5-year review of cases at nnamdi azikiwe university teaching hospital (NAUTH) Nnewi. *Niger Med J.* 2010;51(4):160.
24. Mufti S, Rather S, Mufti S, Rangrez RA, Wasiqa K. Ectopic pregnancy: An analysis of 114 cases. *JKPract.* 2012;17(4):20-3.