

Original Research

Open versus minimal invasive surgery in ruptured tubal ectopic pregnancy- A comparative study

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ABSTRACT:

Aim: To compare open and minimal invasive surgery in ruptured tubal ectopic pregnancy. **Methodology:** 86 cases of ruptured tubal ectopic pregnancies were divided into two groups of forty-three patients each. Patients in groups I and II had laparotomies and laparoscopies, respectively. Parameters like hemoperitonium, gravida, parity, past spontaneous loss, previous MTP, and length of hospital stay etc. were recorded. **Results:** The mean parity was 2 in group I and 3 in group II, gravida was 2 in group I and 4 in group II, Hb at admission was 7.6 gm% in group I and 8.2 gm% in group II. Previous spontaneous loss was seen in 7.4 ml in group I and 14.2 ml in group II, previous MTP was seen in 9.2 in group I and 11.8 in group II. A significant difference was found ($P < 0.05$). The period of gestation was < 6 weeks seen in 17 patients in group I and 20 patients in group II, 6-10 weeks in 18 patients in group I and 12 patients in group II and > 10 weeks in 8 patients in group I and 10 patients in group II. The total blood loss was < 500 ml seen in 11 patients in group I and 15 patients in group II, 500-1000 ml in 17 patients in group I and 12 patients in group II and > 1000 ml in 15 patients in group I and 16 patients in group II. The presentation was acute abdomen in 31 patients in group I and 29 patients in group II and incidental 12 patients in group I and 13 patients in group II. The location was ampulla seen in 12 patients and 13 patients in group II, cornual in 11 patients in group I and 10 patients in group II, fimbrial in 9 patients in group I and 8 patients in group II and interstitial in 10 patients in group I and 12 patients in group II. The difference was significant ($P < 0.05$). The number of PRBC transfusions was in 5 patients in group I and 7 in group II and the duration of hospital stay was 4.1 days in group I and 7.3 days in group II. The difference was significant ($P < 0.05$). **Conclusion:** In terms of a quicker recovery and shorter hospital stay laparoscopy proved superior than a laparotomy in patients with ruptured tubal ectopic pregnancy.

Keywords: tubal ectopic pregnancies, Gestation, fertilized ovum, human chorionic gonadotrophin

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INTRODUCTION

When a fertilized ovum implants outside of the usual uterine cavity, it results in an ectopic pregnancy.¹ For women who are of reproductive age, it frequently results in morbidity and sporadically in death. The cause of ectopic pregnancy is still unknown, despite the identification of several risk factors.² Diagnosing it can be challenging. In industrialized nations, the diagnosis is based on a combination of serum beta-human chorionic gonadotrophin (β -hCG) levels and serial ultrasound scans. One of the rare medical diseases that can be treated medically, surgically, or expectantly is ectopic pregnancy.^{3,4}

It is demonstrated that greater awareness of ectopic pregnancy and an understanding of the related risk

factors helps identify women at higher risk in order to assist early and more accurate diagnosis, even if women with ectopic pregnancy typically have no identifiable risk factors. The majority of risk factors are linked to the possibility of previous fallopian tube injury. In gynecology, laparoscopy and laparotomy have both been used for a number of years.⁵ Minimally invasive surgery has been regarded as the safest and most successful surgical approach since the early 1990s. The management of ruptured ectopic pregnancy in affluent countries is largely based on laparoscopy due to the availability of experienced labor, efficient logistics, enhanced anesthesia and cardiovascular monitoring, well-coordinated surgical care, and affordable health insurance.⁶ Laparoscopic

methods were used to treat ruptured tubal ectopic pregnancy to minimize intraoperative blood loss, the need for analgesics, length of hospital stay, and increased recovery time, while also demonstrating efficacy in treating patients with extensive hemoperitonium.⁷This prospective study compared ruptured tubal ectopic pregnancy managed by open and minimal invasive surgery.

METHODOLOGY

This observational comparative study consists of 86 cases of ruptured tubal ectopic pregnancies. All selected patients gave their written consent before

starting the study. The ethical research & review committee approved the study.

Information like name, age, etc. was noted. There were two groups of forty-three patients each. Patients in groups I and II had laparotomies and laparoscopies, respectively. Parameters like haemoperitonium, gravida, parity, past spontaneous loss, previous MTP, Hb at admission, gestational period, total blood loss, and postoperative parameters like blood loss, blood demand, and length of hospital stay etc. were recorded. The results were compiled and entered in MS excel sheet and were subjected for statistical analysis using chi-square test. P value less than 0.05 was considered significant.

RESULTS

Table I Baseline characteristics

Parameters	Group I	Group II	P value
Parity	2	3	0.82
Gravida	2	4	0.04
Hb at admission (gm%)	7.6	8.2	0.05
Previous spontaneous loss	7.4	14.3	0.02
Previous MTP	9.2	11.8	0.03

The mean parity was 2 in group I and 3 in group II, gravida was 2 in group I and 4 in group II, Hb at admission was 7.6 gm% in group I and 8.2 gm% in group II. Previous spontaneous loss was seen in 7.4

ml in group I and 14.2 ml in group II, previous MTP was seen in 9.2 in group I and 11.8 in group II. A significant difference was found (P< 0.05) (Table I, graph I).

Graph I Baseline characteristics

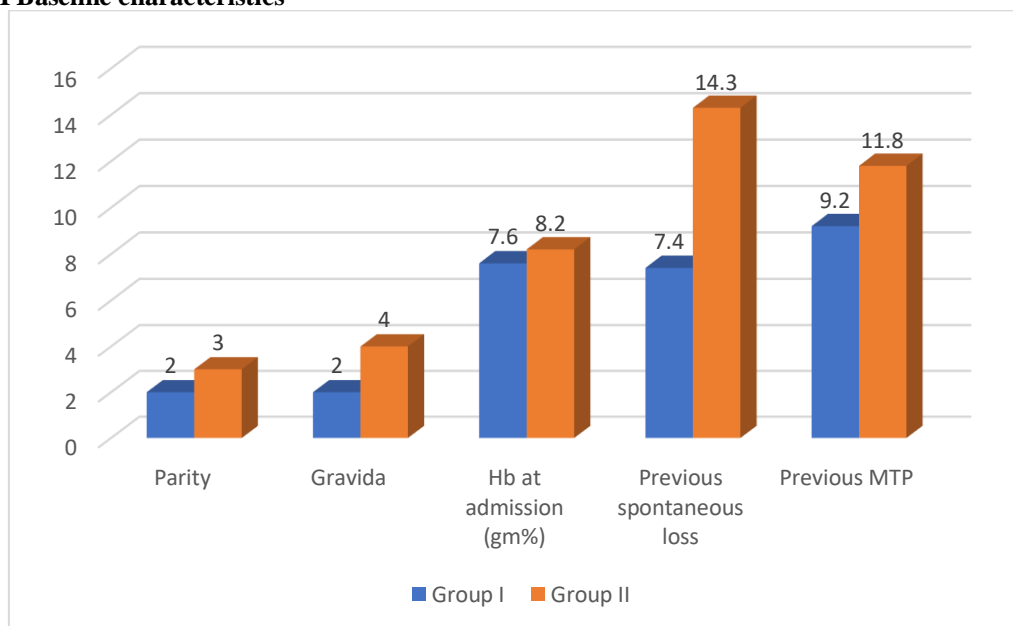


Table II Assessment of parameters

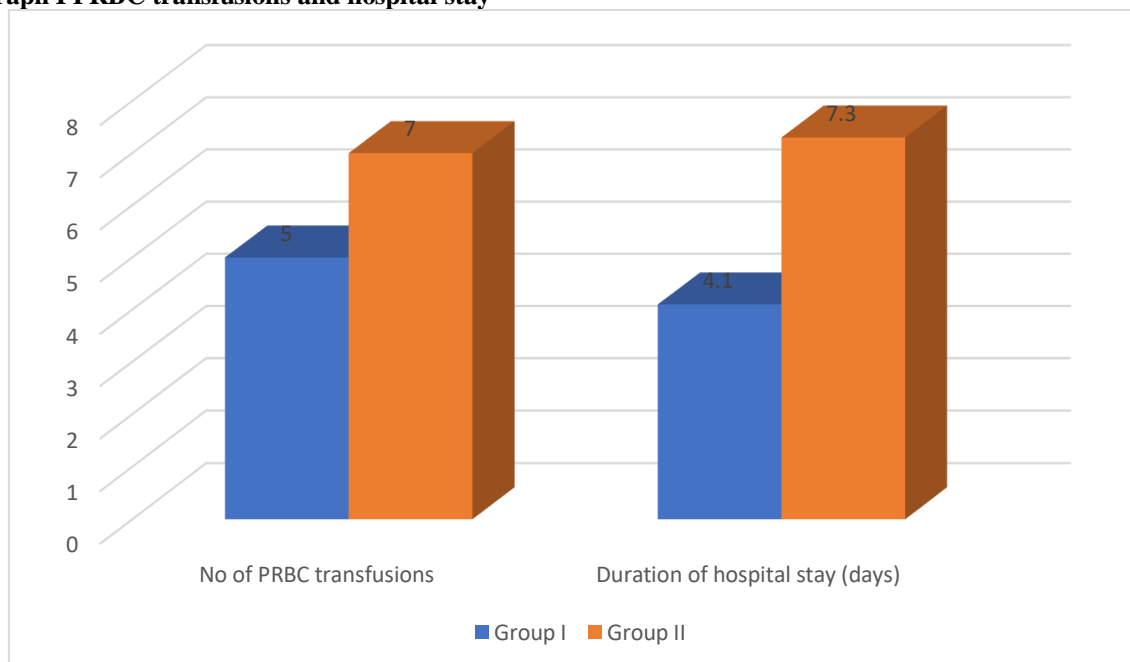
Parameters	Group I	Group II	P value
Period of gestation (weeks)			0.05
<6	17	20	
6-10	18	12	
>10	8	10	
Total blood loss (ml)			0.76
<500	11	15	
500-1000	17	12	
>1000	15	16	

Presentation			0.14
Acute abdomen	31	29	
Incidental	12	13	
Location			0.17
Ampulla	12	13	
Cornual	11	10	
Fimbrial	9	8	
Interstitial	10	12	

The period of gestation was <6 weeks seen in 17 patients in group I and 20 patients in group II, 6-10 weeks in 18 patients in group I and 12 patients in group II and >10 weeks in 8 patients in group I and 10 patients in group II. The total blood loss was <500 ml seen in 11 patients in group I and 15 patients in group II, 500-1000 ml in 17 patients in group I and 12 patients in group II and >1000 ml in 15 patients in group I and 16 patients in group II. The presentation

was acute abdomen in 31 patients in group I and 29 patients in group II and incidental 12 patients in group I and 13 patients in group II. The location was ampulla seen in 12 patients and 13 patients in group II, cornual in 11 patients in group I and 10 patients in group II, fimbrial in 9 patients in group I and 8 patients in group II and interstitial in 10 patients in group I and 12 patients in group II. The difference was significant ($P < 0.05$) (Table II).

Graph I PRBC transfusions and hospital stay



The number of PRBC transfusions was in 5 patients in group I and 7 in group II and the duration of hospital stay was 4.1 days in group I and 7.3 days in group II. The difference was significant ($P < 0.05$) (Graph II).

DISCUSSION

An ectopic pregnancy occurs when a fertilized egg implants and grows outside the uterus, usually in one of the fallopian tubes. The majority of ectopic pregnancies occur in the fallopian tubes, but they can also happen in other locations such as the cervix, ovary, or abdominal cavity.⁸ Even in the absence of tubal illness, ectopic pregnancy is more likely in women visiting infertility clinics. Furthermore, the incidence of ectopic pregnancies rises with the use of ART. The likelihood of an ectopic pregnancy after in vitro fertilization (IVF) is 2-5%, and it may be higher in cases with tubal illness. In fact, the first IVF pregnancy was a tubal ectopic pregnancy, which occurred before the first IVF live delivery.^{9,10} While not always raising the risk of an ectopic pregnancy,

certain forms of contraception—such as intrauterine contraceptive devices and progestogen-only contraception—are linked to a higher prevalence of ectopic pregnancy in cases of contraceptive failure.¹¹ Smoking is considered to be linked to one-third of all incidences of ectopic pregnancy. If a woman receives a positive pregnancy test and exhibits syncope along with indicators of shock such as pallor, tachycardia, and collapse, she may have a ruptured ectopic pregnancy, which should be highly suspected. Abdominal distension and noticeable soreness could be present.^{12,13} Although discomfort, cervical excitement, and an adnexal mass may be found during a bimanual examination, extreme caution must be used as this could worsen bleeding. Young, fit women who have ectopic pregnancy frequently manage to

achieve impressive hemodynamic compensation. Although decompensation with shock is a symptom of substantial intraperitoneal hemorrhage, tachycardia is a particularly crucial indicator. Extensive clinical examination is unsuitable in an emergency situation where there is a high clinical suspicion of tubal rupture and the patient has collapsed; instead, rapid surgical intervention is recommended.^{14,15} This prospective study compared ruptured tubal ectopic pregnancy managed by open and minimally invasive surgery.

In our study, the mean parity was 2 in group I and 3 in group II, gravida was 2 in group I and 4 in group II, Hb at admission was 7.6 gm% in group I and 8.2 gm% in group II. Previous spontaneous loss was seen in 7.4 ml in group I and 14.2 ml in group II, previous MTP was seen in 9.2 in group I and 11.8 in group II. Cohen¹⁶ conducted a comparison between laparotomy and surgical laparoscopy in terms of safety and viability for women with extensive hemoperitoneum and ruptured ectopic pregnancy. Sixty women were diagnosed with severe hemoperitoneum and ruptured ectopic pregnancy; twelve underwent emergency laparotomy and forty underwent emergency laparoscopy. Between the groups, there was no difference in hemodynamic condition at presentation. The group that underwent laparoscopy had a considerably reduced median operating time (50 minutes versus 60 minutes; $P = 0.01$). The laparotomy group experienced a considerably higher median intra-abdominal blood loss (1500mL vs. 1000mL; $P=0.002$). Regarding perioperative problems, length of hospital stay, and treatment with blood products, there was no difference between the groups.

It was found that the period of gestation was <6 weeks seen in 17 patients in group I and 20 patients in group II, 6-10 weeks in 18 patients in group I and 12 patients in group II and >10 weeks in 8 patients in group I and 10 patients in group II. The total blood loss was <500 ml seen in 11 patients in group I and 15 patients in group II, 500-1000 ml in 17 patients in group I and 12 patients in group II and >1000 ml in 15 patients in group I and 16 patients in group II. Murtaza et al¹⁷ included 167 patients of ectopic pregnancy. Of these 167 patients, 32 came with ruptured ectopic pregnancy and other 135 with un-ruptured EP. Out of total 167 patients, ruptured EP was found in 19.2% and non-ruptured in 80.8% patients. Regarding blood transfusion and need of analgesia, significant association was found between laparoscopy and laparotomy. As compared to laparotomy, during laparoscopy large number of patients did not require blood transfusion (95.3%) and analgesia (64.1%). Regarding total operating time, duration of hospital's stay and estimated blood loss, significant difference was found between the two groups.

In our study, the presentation was acute abdomen in 31 patients in group I and 29 patients in group II and incidental 12 patients in group I and 13 patients in group II. The location was ampulla seen in 12 patients

and 13 patients in group II, cornualin 11 patients in group I and 10 patients in group II, fimbrial in 9 patients in group I and 8 patients in group II and interstitial in 10 patients in group I and 12 patients in group II. The number of PRBC transfusions was in 5 patients in group I and 7 in group II and the duration of hospital stay was 4.1 days in group I and 7.3 days in group II. Murphy et al¹⁸ compared surgical laparoscopy to laparotomy. The operating times for laparoscopy and laparotomy were not considerably different. Estimated intraoperative blood loss, postoperative hospital stays, narcotic needs, recovery times, and overall hospital costs were all much lower in individuals who underwent laparoscopy. Rates of intrauterine pregnancy and rates of EP did not differ statistically.

CONCLUSION

In terms of a quicker recovery and shorter hospital stay laparoscopy proved superior than a laparotomy in patients with ruptured tubal ectopic pregnancy.

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