Research Paper

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A Comparison of Laparotomy And Laparoscopy as a Modality of Management For Ectopic Pregnancy

Medical Science

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ABSTRACT

Incidence of Ectopic pregnancy (pregnancy outside the uterine cavity) increased 4 fold from 5/1000 to 20/1000 in last 20 years and in spite of advance in diagnostic technique like Trans-vaginal USG and β-HCG, majority of cases of ectopic pregnancy present as emergency and is still a major cause of maternal mortality, responsible for 9 % of maternal mortality. Laparoscopy, in present time is valuable modality of treatment for ectopic pregnancy which provides ease of confirmation of diagnosis and treatment simultaneously, less operative time and less post-operative complication, so we did a retrospective analysis to evaluate whether 'laparoscopy' as a treatment modality for ectopic pregnancy can be applied as a protocol during emergency or not. All the patients with ectopic pregnancy (61 patients) presented to our hospital from July 2009 to May 2013 (4 years) are included in this study and retrospective analysis of all cases done on the basis of patients haemodynamic condition, location and type of ectopic pregnancy, whether ruptured or unruptured, choice of modality of management: Laparoscopy or laparotomy, intra operative, post-operative complication, and need of conversion from laparoscopy to laparotomy. And we found that out of total 61 patients with ectopic pregnancy 58 were tubal pregnancy, and 3 were ovarian ectopic pregnancy. 31 patients (52%) were managed by laparoscopy and 30 patients (48%) by laparotomy. Laparoscopy was
Mostly (94%) performed on patient with unruptured tubal pregnancy and who were haemodynamically stable whereas laparotomy was done in patient who were haemodynamically unstable (23/33), and with ovarian pregnancy (3/33). Salpingectomy was the procedure in both routes of surgery. And 4 patients required conversion of laparoscopy to laparotomy due to intra operative complication. 2 patients managed by laparotomy had complication like septicemia and wound infection postoperatively. We conclude that Laparoscopy should be the choice in un-ruptured ectopic pregnancy, whereas degree of shock should govern the route of surgery in patients with ruptured pregnancy.

Introduction

Ectopic pregnancy is pregnancy outside the uterine cavity. When fertilized embryo gets implanted at other than its normal site like fallopian tube, ovary, cervix, broad ligament or peritoneal cavity it is called ectopic pregnancy.[1] Incidence of ectopic pregnancy has increased 4 fold in last 20 years from 5% to 20% due to increased incidence of PID and advance in ART.[2] But mortality due to ectopic pregnancy has reduced by 80 % due to early diagnosis by trans-vaginal USG, β-HCG, availability of immediate treatment and blood transfusion facility. Despite advance in diagnostic technique like trans-vaginal USG and β-HCG, majority of cases of ectopic pregnancy present as emergency and is still a major cause of maternal mortality and responsible for 9 % of maternal mortality.[3,4]

Various mode of management are available for ectopic pregnancy. 1st laparotomy was performed by Dr. John Bard from New York in 1759. And until 1980 endoscopy was only used for diagnosis of ectopic till it was reported as first laparoscopic surgery for ectopic pregnancy by Bruhart et al.[5]

Advance and innovations in laparoscopic technique has leaded the debate whether laparoscopy or laparotomy is the better modality for surgical management of ectopic pregnancy. Since 2001 it is proved that for haemodynamically stable and unruptured ectopic pregnancy laparoscopic mode is the choice of management where available.[6] But whether we can apply laparoscopy for all cases or not? Hence this study was done to identify whether laparoscopy as a modality for approach towards ectopic pregnancy can be applied for all ectopic pregnancy.

Material and method

All the ectopic pregnancy (61 patients) presented to our hospital from July 2009 to May 2013 (4 years) are included in this study and all these cases are evaluated retrospectively on the basis of following factors

- Patients haemodynamic condition
- Location and type of ectopic pregnancy, whether ruptured or unruptured
- Choice of modality of management: Laparoscopy or laparotomy
- Whether senior consultant was needed to involved in procedure or not
- Intra operative, post-operative complication, need of conversion from laparoscopy to laparotomy.

Result

Incidence of ectopic pregnancy is 1%. Out of total 61 patients 31 were haemodynamically stable and 30 had variable degree of shock. Out of total 61 patients with ectopic pregnancy 58 were tubal pregnancies, and 3 were ovarian ectopic pregnancy. Out of 61 patients 32 patients had unruptured and 29 had ruptured ectopic pregnancy. Out of 32 unruptured ectopic pregnancies, 29 were managed by laparoscopy and 3 were managed by laparotomy, and out of 29 ruptured ectopic pregnancies 27 were managed by laparotomy and 2 were managed by laparoscopy. Total 31 patients (45.9%) were managed by laparoscopy and 30 patients (54.1%) by laparotomy.

Table 1: No. of cases managed by laparoscopy or laparotomy

	Unruptured ectopic pregnancy	Ruptured ectopic pregnancy	Total
Laparoscopy	29	2	31
Laparotomy	3	27	30
Total	32	29	61

As shown in table 1, Laparoscopy was mostly (87.5%, 28/32) performed on patients who were haemodynamically stable (31) whereas laparotomy was done in patient who were haemodynamically unstable (20/30), and with ovarian pregnancy (3/30), and who needed conversion from laparoscopy to laparotomy (4/30) and unavailability of expert hand in laparoscopy

(3/30). Salpingectomy was the procedure in both routes of surgery and Average time for laparoscopy was 60 min and for laparotomy is 90 min. No patient had complication postoperatively.

Graph 1: Ectopic pregnancies managed by laparotomy

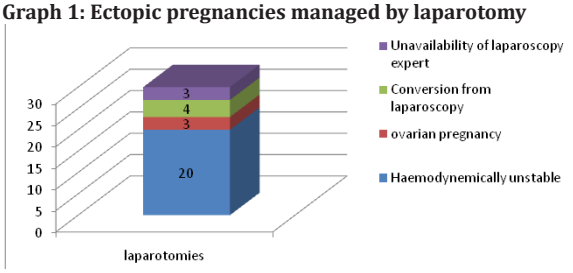


Table 2: Postoperative period in laparoscopy and laparotomy

Postoperative morbidity	Laparoscopy N=31	Laparotomy N=30	P value
Requirement of blood transfusion	10 (33%)	21 (70%)	P=0.04
Septicemia	0	1	P=0.3
Wound infection	0	2	
Mean hospital stay	4.3±1.7	5.4±2.3	P=0.16

As shown in table 2, 10 patient managed by laparoscopy and 21 managed by laparotomy required blood transfusion. And in patients managed by laparotomy 1 patient developed septicemia and 2 develop wound infection whereas no one from managed by laparoscopy developed such complications. Mean hospital stay in patients managed by laparoscopy was 4.3±1.7 days where as in patients managed by laparotomy was 5.4±2.3.

Discussion

Ectopic pregnancy constituted 1% of total deliveries in the current study which is comparable to that reported in some of the other local studies, where the frequency ranged from 0.9 to 1.02%.[9]. Mean age of patients was 28 years, comparable to that of the other studies.[10] The most common clinical presentation was pain in abdomen followed by amenorrhea and vaginal bleeding which was consistent with findings of other studies.[10-11] Only 37.5% of all women presented with shock at admission. Some series showed fewer women presenting with shock.[10] while another showed slightly higher proportion of patients resenting with shock compared to this study.[11] Reason could be the availability of laparoscopic service helping us to diagnose earlier all suspected cases. Major risk factors for ectopic were pelvic inflammatory disease and history of previous abortion, similar to that of another study.[12] Majority of patients (84.4%) with ectopic pregnancy were diagnosed in the present study based on clinical suspicion aided with urine β human chorionic gonadotropic hormone and trans- vaginal ultrasound. Similar results were reported in another study.[10]

Table 1 show that, out of 32 unruptured ectopic pregnancies 29 were managed by laparoscopy but 3 were managed by laparotomy due to unavailability of laparoscopic expert. And out of 29 ruptured ectopic pregnancy 2 patients who had mild hemoperitoneum and were haemodynamically stable were managed by laparoscopy and rest 27 managed by laparotomy.

Graph 1 show that out of all 29 patients managed by laparotomy, 20 were haemodynamically unstable, 3 were diagnosed to have ovarian ectopic pregnancy, 4 needed conversion to laparotomy from laparoscopy and 3 due to unavailability of expertisation.

Table 2 show that requirement of blood transfusion is 33% in patient managed by laparoscopy which is much lower than in patients managed by laparotomy which is 70%. This can be because selection of laparoscopy in cases of unruptured ectopic and patients who are haemodynamically stable. Chances of complications like septicemia and wound gape is also very less in laparoscopy than laparotomy. Operative time and mean hospital stay is also less in laparoscopy than laparotomy for ectopic pregnancy.

The proportion of cases of ectopic pregnancy treated by laparoscopy ranges from 1.5% to 97% in different studies.[12] the incidence of laparoscopy in this study was 52%, which was comparable to that of other studies.[13] Laparoscopy was instituted only in haemodynamically stable patients in this study. Similar preference of patients was seen in another study where hemodynamic stability of patients was the influencing factor for opting for laparoscopy.[15] However, with trained surgeons, skilled anesthetist and supportive staff; laparoscopy is still possible even with massive hemoperitoneum after resuscitation of patient as shown in a study. With reference to the operative findings, different types and sites of ectopic pregnancy were also reviewed. Even cornual ectopic pregnancy and organized type of ectopic pregnancy which are difficult to be managed surgically were also managed by laparoscopy. Therefore, laparoscopy could be as feasible as laparotomy in the management of ectopic pregnancy though the present sample is too small to make a universal recommendation. In either routes of surgery, salpingectomy was the mainstay of treatment. Total number of hospital stay was comparatively shorter in laparoscopy group compared to laparotomy group. Similar results are shown in different studies and this was noted as an advantage.[13-15]

CONCLUSION

Laparoscopy is more reliable and safe approach than laparotomy in all types of unruptured ectopic pregnancy, but in cases of ruptured ectopic pregnancy, degree of shock governs the choice of surgical management. Additionally, laparoscopy has a great role in diagnosis of clinically suspicious cases. Therefore, laparoscopy should be opted whenever possible. However, larger studies with larger number of sample are needed to draw conclusion.

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