LAPAROSCOPIC SURGICAL APPROACH FOR ECTOPIC PREGNANCY

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ABSTRACT

The objective of our study is evaluation of therapeutic laparoscopy in the treatment of ectopic pregnancy. This is a prospective study carried out for the period from October 2000 till June 2004, in the department of obstetric and Gynaecology in Azadi General Hospital in Kirkuk city, north of Iraq. Surgical Laparoscopic approach was performed for 40 women with the provisional diagnosis of ectopic pregnancy. The duration of the operation ranged between 20-70 minutes. Salpingostomy was carried out for 22 patients (55%), 7 patients (17.5%) had salpingectomy, one patient (2.5%) had fimbrial expression, 3 patients (7.5%) had wedge resection of ovarian ectopic, one patient (2.5%) had segmental resection, two patients (5%) had complete tubal abortion with no active bleeding, and 4 patients (10%) were converted to laparotomy. Most of the involved patients had no major intraoperative or postoperative complications with shorter hospital stay. Subsequent intrauterine pregnancy rate was 80%. No recurrent ectopic was elected in this series. In conclusion, inspite of the limited number of patients, the obtained results proved the usefulness of operative laparoscopy in the treatment of ectopic pregnancy with maximum safety and efficiency. The follow up of patients showed improvement in future fertility. More work is needed to confirm our results.

INTRODUCTION

Ectopic pregnancy causes major maternal morbidity and mortality, with pregnancy loss, and its incidence is increasing worldwide.[1-3] Although a proportion of women with ectopic pregnancy have no identifiable causal factor, the risk is increased by several factors: previous ectopic pregnancy,[4] tubal blockage from infection or surgery,[5] a history of infertility, treatment for in vitro fertilization, increasing age[2,4] and smoking.[6,7] With transvaginal ultrasound, it should be possible to locate the pregnancy site by 5 weeks gestation.[8] This is particularly important in patients at increased risk of tubal pregnancy. Traditional surgical procedures were the only management carried out for ectopic pregnancy previously. The greatest advances in the management of ectopic pregnancy are medical treatment and laparoscopic surgical treatment. The technique of laparoscopic salpingostomy was pioneered and developed by Pouly et al. (1986),[9] where they have dealt with more than 1000 such cases by laparoscopic surgery. The laparoscopic surgical approach was introduced in Azadi General Hospital in October 2000 and this study was done to evaluate this procedure.

PATIENTS AND METHODS

This study was conducted in Azadi general hospital in Kirkuk, from October 2000 till June 2004. The study involved 40 patients with a diagnosis of ectopic pregnancy based on clinical evaluation, laboratory tests and endovaginal ultrasonography. Laparoscopy was done for confirmation of diagnosis and treatment. Patients selected for laparoscopic surgical approach were haemodynamically stable, the gestational sac was less than 5cm and there was no medical contraindication to general anaesthesia or laparoscopic procedure. The consent of patient was obtained prior to the procedure. Umbilical incision was used for introduction of telescope; two other routes in both iliac fossae were used. Heparinized Ringers Lactate solution in concentration of 5000 international units of heparin in one liter of Lactate Ringers Solution was used for irrigation. After a thorough assessment of the pelvic organs the site of ectopic pregnancy is localized. Both tubes and ovaries were checked. The decision for the type of laparoscopic surgical procedure done depended on:

1. **Age of the patient.**
2. **Parity.**
3. **Future fertility desired or not.**
4. **Site of ectopic.**
5. **The ectopic pregnancy had ruptured or not.**
6. **The condition of contralateral tube.**
7. **The haemodynamic state during laparoscopy.**

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Salpingostomy procedures were used for patients who were younger, lower parity with desired future fertility, when the ectopic was in the ampullary region of the tube especially if it was unruptured. The procedure was done as follow:

With a needle electrode, an incision of 1-2 cm was done on the antemesantaric surface of the tube on the bulge created by the ectopic gestation; this was sufficient to reveal the plane of cleavage between the wall of the tube and the gestational sac.

The gestational products were removed either by traction and counter-traction using tubal grasping forceps or evacuation done by gentle irrigation (aqua dissection) to dissect and dislodge the ectopic and clots using Heparinized Lactated Ringer's solution.

All the products of conception were removed either by suction or delivery of products through the 10 mm sleeve by grasping forceps.

Bleeding was controlled with cauterization or applying pressure with grasping forceps for 5 minutes.

Salpingectomy technique was used for older patients, who completed their families, with no desire for future fertility, if the ectopic was ruptured with active bleeding or the tube was obviously damaged with unhealthy fimbria and in recurrent ectopic in the same tube.

The technique was done by desiccating the tube between the uterus and the ectopic pregnancy and by electro-coagulation; the tub ovarian artery was compressed and desiccated.

A cut along the desiccated path was done, closer to the specimen and repeated until the tube was free and can be removed.

Fimbrial expression was done by milking the pregnancy out of the end of the tube by gentle pressure by grasping forceps on the tube.

Wedge resection of ovary was done by excision of the part of ovary occupied by ectopic pregnancy by electro-coagulation with removal of product through a l0 mm sleeve.

The diagnosis was confirmed by histopathology.

RESULTS

A total of 40 patients with ectopic pregnancy were selected for laparoscopic treatment. The age of patients ranged between 16- 40 year, the mean age was 28 years, 22 patients were nulliparous and 18 were multiparous.

The site of ectopic pregnancy was in the ampullary region of the right fallopian tube in 18 patients (45%) and in the ampullary region of the left fallopian tube in 17 patients (42.5%), 2(5%) had complete tubal abortion, and 3 patients (7.5%) had ovarian ectopic (Table-l).

Table 1. Distribution of the study population by site of ectopic pregnancy.

The site of ectopic pregnancy	No.	%
Ampullary region of the right fallopian tube	18	45
Ampullary region of the left fallopian tube	17	24.5
No site (complete tubal abortion)	2	5
Ovarian ectopic	3	7.5
Total	40	100

Salpingostomy was carried out for 22 patients (55%), salpingectomy for 7 patients (17.5%), fimbrial expression for one patient (2.5%), wedge resection of ovarian ectopic for 3 patients (7.5%), & segmental resection for one patient (2.5%). Adhesolysis was necessary in some cases, 2 patients needed no interference as they had complete tubal abortion with no active bleeding (Table-2). The remaining 4 cases were converted to laparotomy, two because of uncontrollable bleeding and 2 because of technical problems and traditional salpingectomy was done uneventfully.

The duration of operations ranged between 20-70 minutes.

The duration of stay in the hospital was 24 hours postoperatively.

The postoperative pain was mild and the need for analgesia was less than in patients treated by traditional surgical method.

No intra-operative and post-operative complications elicited. These patients were followed for future fertility.

From the 36 patients, 33 wished to conceive. Pregnancy occurred in 26 patients (80%).

From these patients 3 underwent caesarian section and on exploration of the site of surgery there was no or minimal adhesions.

Table 2. Distribution of the study population by type of procedure.

Procedure	No.	%
Salpingostomy	22	55
Salpingectomy	7	17.5
Wedge resection of ovarian ectopic	3	7.5
Fimbrial expression	1	2.5
Segmental resection	1	2.5
No procedure due to complete tubal abortion	2	5
Laparotomy	4	10
Total	40	100

DISCUSSION

Recently it is rarely necessary to perform laparotomy for an ectopic pregnancy, unless the patient is haemodynamically unstable, the gestational sac is more than 5cm, or if the pregnancy has implanted in the cornual part of the tube.[8] These conditions are unusual and in the routine case of an unruptured ectopic pregnancy, laparoscopic surgery is the gold standard in the surgical management preferably by laparoscopic salpingostomy.[8] It results in lower morbidity, less impact on reproductive health and faster return to normal activity.[10] Our results confirmed the usefulness of laparoscopic surgery in the treatment of ectopic pregnancy as a minimal access procedure with maximum safety and efficiency. It is associated with shorter hospital stay, less blood loss, less post-operative pain, increase in future intrauterine pregnancy rate and no increment in recurrent ectopic pregnancy rate. A study carried out by Mohammed et al in 2002 showed that laparoscopic management of ectopic pregnancy is the most beneficial procedure with maximum safety and efficiency when laparoscopic service is added to the unit.[11] In 1991 an initial series of 223 women with ectopic pregnancy treated by laparoscopic **salpingostomy** using electrocautery with a subsequent intrauterine pregnancy rate of 67% and a recurrent ectopic rate of 12% was published.[12] Laparoscopic surgery is associated with shorter hospital stay, less blood loss[13-15] and significantly less adhesion formation (Lundorff et al. 1991).[16] Intrauterine pregnancy rates varying from 46-100% after conservative surgery.[12,17-19]

Salpingectomy, which can easily performed laparoscopically[20] is best reserved for those patients with recurrent ectopic and who completed their families.[12] Fernandez et al (1998) found that irrespective of type of tubal surgery, laparoscopic treatment resulted in higher rate of intrauterine pregnancy (77% versus 66%).[21]

Hidlebaugh & Omara found lower rate of recurrent ectopic pregnancy 7% versus 17% compared with laparotomy. [15]

Laparoscopy is invaluable, for diagnosis and treatment, can be carried out as single treatment for ovarian ectopic.[22]

Laparoscopic wedge resection is the treatment of choice for ovarian ectopic since 1994.[22]

The limitation of the present study is the small number of the studied population, because laparoscopy was done only during day time, not regularly because of the unstable situation of the country, lack of maintenance of apparatus and technical reasons (lack of spare parts).

Recommendations & Conclusions

1. It is advisable for the patient to consent to laparotomy should unexpected technical problems arise.
2. We need experienced laparoscopic surgeons, well trained staff, good operative laparoscope with all the instruments needed, spare parts and regular maintenance to perform the procedure successfully and safely, day and night.
3. Investment in laparoscopic equipment and training of gynecologists and support staff is essential if women are to benefit from these advances.[23,24]

The results of the study proved the usefulness of operative laparoscopy in the treatment of ectopic pregnancy with maximum safety and efficiency. The follow up of patients showed improvement in future fertility. This experience suggests that achieving such service should be possible in all gynecological units provided that laparoscopic equipment is available and continuous maintenance of the machine and instruments is necessary. Further studies are needed to confirm the results of this study.

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