การผ่าตัดผู้ป่วยตั้งครรภ์นอกมดลูกในโรงพยาบาลลำปาง เปรียบเทียบระหว่าง การผ่าตัดผ่านกล้องและการผ่าตัดเปิดหน้าท้อง

ประเทือง เหลี่ยมพงศาพุทธิ พ.บ., อุไรวรรณ คมไพบูลย์กิจ พ.บ.
กลุ่มงานสูตินรีเวชกรรม โรงพยาบาลลำปาง

บทคัดย่อ

วัตถุประสงค์: เพื่อเปรียบเทียบวิธีการผ่าตัดผ่านกล้องกับการผ่าตัดเปิดหน้าท้องในผู้ป่วยตั้งครรภ์นอกมดลูกที่มารับการรักษาใน รพ.ลำปาง

วัสดุและวิธีการ: เป็นการศึกษาย้อนหลังของผู้ป่วยตั้งครรภ์นอกมดลูก 149 รายที่รักษาใน รพ.ลำปาง ระหว่างเดือนตุลาคม 2555 - กันยายน 2557 บันทึกระยะเวลาการผ่าตัด จำนวนวันนอนโรงพยาบาล ปริมาณเลือดที่พบในช่องท้องและการใช้ยาระงับปวดภายหลังผ่าตัด วิเคราะห์เปรียบเทียบระหว่างกลุ่มที่ได้รับการผ่าตัดผ่านกล้องกับกลุ่มที่เปิดหน้าท้องด้วย student t-test และ Fisher's exact probability test

ผลการศึกษา: มีผู้ป่วยตั้งครรภ์นอกมดลูก 149 ราย คิดเป็นอุบัติการณ์ร้อยละ 1.38 ของการเกิดมีชีพ ผู้ป่วยได้รับการผ่าตัดผ่านกล้อง 44 รายและเปิดหน้าท้อง 105 ราย กลุ่มผ่าตัดผ่านกล้องใช้เวลาผ่าตัด 62.1±15.7 นาที ผ่าตัดผ่านหน้าท้องใช้เวลา 50.9±15.3 นาที ($p<0.001$) กลุ่มผ่าตัดผ่านกล้องพบปริมาณเลือดในช่องท้องน้อยกว่ากลุ่มผ่าตัดผ่านหน้าท้อง (201±174 *vs* 895±701 มล., $p<0.001$) ร้อยละของผู้ป่วยที่ต้องใช้ยาระงับปวดภายหลังผ่าตัดและการให้เลือดในผู้ป่วยผ่าตัดผ่านผ่านหน้าท้องมีมากกว่า ($p=0.032$ และ $p<0.001$ ตามลำดับ) แต่จำนวนวันนอนโรงพยาบาลไม่แตกต่างกัน ($p=0.209$)

สรุป: การรักษาผู้ป่วยตั้งครรภ์นอกมดลูกด้วยการผ่าตัดผ่านกล้องสามารถทำได้ในกรณีที่ผู้ป่วยเสียเลือดในช่องท้องไม่มากและให้ผลการรักษาดีกว่าการผ่าตัดเปิดหน้าท้องในแง่ของการใช้ยาระงับปวดและการให้เลือด

คำสำคัญ: ตั้งครรภ์นอกมดลูก, การผ่าตัดผ่านกล้อง, การผ่าตัดเปิดหน้าท้อง

ติดต่อบทความ : *นพ.ประเทือง เหลี่ยมพงศาพุทธิ กลุ่มงานสูตินรีเวชกรรม รพ.ลำปาง 280 ถ.พหลโยธิน ต.หัวเวียง อ.เมือง จ.ลำปาง 52000 โทรศัพท์ 0-5423-7400 ต่อ 8321 E-mail:prateung@yahoo.com*

Introduction

Ectopic pregnancy (EP) is a common complication of pregnancy during the first trimester. The complication is not only fetal loss, but also maternal morbidity and maternal death. The incidence is approximately 20 per 1000 pregnancies.[1] Clinical presentation varies from mild, as abnormal bleeding per vagina and abdominal pain, to severely life threatening, as hypovolemic shock and syncope derived from massive internal hemorrhage. Although the incidence of EP increased, the development of diagnostic methods means that patients were detected earlier and it was possible to treat them more conservatively. EP can be successfully treated with medical or surgical intervention depends on the clinical circumstances, the site of the ectopic pregnancy, and the available resources [2]

Laparoscopic surgery has more advantages than laparotomy, such as less operative blood loss, shorter operating time, less analgesic requirement, shorter hospital stay and shorter period of convalescence[3]. The cost effectiveness for treatment of EP with laparotomy and laparoscopy was similar.[4] In Lampang Hospital, most ectopic pregnancy cases were treated surgically (laparotomy and laparoscopy). Laparoscopic surgery has been introduced since 2007. This study aimed to compare laparotomy and laparoscopy management undertaken for EP in our hospital.

Material and method

A retrospective analytical study was conducted on 149 patients with EP treated surgically in Lampang Hospital between October 2011 and September 2014. Forty-four patients were treated with laparoscopic surgery while 105 cases were treated with laparotomy. Exclusion criteria were patients whose operative finding or histological diagnosis not compatible with EP; e.g. rupture corpus luteal cyst. Clinical data was recorded and analyzed by descriptive statistics. Comparison between groups was obtained by using student's t-test and Fisher's exact probability test. A p-value of 0.05 was regarded as significant

Results

There were total 10,816 life-births during the study period. Among these; 149 were EP and treated surgically, so the incidence of EP was 1.38%. The demographic data showed no significant differences of mean age, body weight, gravida, contraception used, ultrasonographic findings of free fluid, missed period of menstruation or presenting signs of shock between the two groups. The classic symptoms of abdominal pain and bleeding per vagina were the same in both groups. Abdominal pain predominated in the laparotomy group as did the amounts of hemoperitoneum and the confirmed diagnosis of tubal pregnancy by ultrasound (Table 1). In

the emergent cases, obvious clinical diagnosis had to suffice and only 74 cases or 70.5% of the laparotomy group were urine pregnancy tested while 40 cases (90.9%) of the laparoscopy group were tested, and 107 cases out of 114 (93.8%) gave in a positive result. (Table 2)

The operative procedures, ectopic pregnancy sites and sides were not significantly different for laparoscopy and laparotomy. (Table 3) However, tubal damage and rupture of fallopian tubes were found more frequently in the laparotomy group (58.1%) compared with only 10.0% in the laparoscopy group ($p< 0.001$). The laparotomy group had hjgher amount of hemoperitoneum, blood loss, blood transfusion rate and consumed more narcotic drugs postoperatively. The laparoscopy group had longer operative time significantly but the average length of stay was not different. (Table 4-5)

Table 1. Demographic data, gravid and clinical presentation, comparing between groups

Data	Laparoscopy (n=44)	Laparotomy (n=105)	p-value
Age (yrs)	26.8 ± 6.4	28.2 ± 7.2	0.276
Body weight (mean±SD, kg)	51.8 ± 7.0	54.5 ± 10.7	0.071
Gravida			
1	12 (27.3%)	34 (32.4%)	0.832
2	15 (34.1%)	33 (31.4%)	
3 or more	17 (38.6%)	38 (36.2%)	
Contraception			
Oral contraceptive pill	7 (15.9%)	13 (12.4%)	0.811
Post - coital pill	0	4 (3.8%)	
Tubal resection	3 (6.8%)	9 (8.6%)	
Condom	1 (2.3%)	2 (1.9%)	
Not used	33 (75.0%)	77 (73.3%)	
Symptoms			
Amenorrhea (mean±SD, wks)	6.6 ± 3.0	5.9 ± 3.0	0.179
Abdominal pain	22 (50.0%)	79 (73.3%)	**0.001**
Abnormal uterine bleeding (AUB)	11 (25.0%)	5 (4.8%)	
Abdominal pain and AUB	10 (22.7%)	20 (19.1%)	
Antenatal screening	1 (2.3%)	1 (0.9%)	
Signs			
Shock	4 (9.1%)	17 (16.2%)	0.192

Table 2. Preoperative investigation, comparing between groups

Investigation	Laparoscopy (n=44)	Laparotomy (n=105)	p-value
Ultrasound finding of free fluid*			
Massive	0	2 (4.1%)	0.623
Moderate	11 (26.8%)	13 (27.1%)	
Minimal	15 (36.6%)	20 (41.7%)	
no	15 (36.6%)	13 (27.1%)	
Ultrasound interpretation			
Suggestive	38 (86.4%)	37 (35.2%)	**<0.001**
Equivocal	2 (4.6%)	4 (3.8%)	
Negative study	1 (2.3%)	7 (6.7%)	
N/A	3 (6.8%)	57 (54.3%)	
Urine pregnancy test			
Positive	37 (84.1%)	70 (66.7%)	
Negative	3 (6.8%)	4 (3.8%)	
N/A	4 (9.1%)	31 (29.5%)	0.012

* 40 patients had no data, N/A= not available

Table 3. The procedures via laparoscopy or laparotomy

Procedures	Laparoscopy (n=44)	Laparotomy (n=105)	p-value
Salpingectomy	40 (90.9%)	92 (87.6%)	0.893
Salpingo-oophorectomy	3 (6.8%)	11 (10.5%)	
Cornuectomy	1 (2.3%)	2 (1.9%)	

Table 4. The nature of ectopic pregnancy and operative outcome.

Data	Laparoscopy (n=44)	Laparotomy (n=105)	p-value
Site of ectopic pregnancy			
Ampulla	33 (75.0%)	60 (57.1%)	0.192
Fimbria	3 (6.8)	24 (22.9%)	
Isthmus	2 (4.6%)	8 (7.6%)	
Interstitial	1 (2.3%)	3 (2.9%)	
Ovary	3 (6.8%)	8 (7.6%)	
N/A	2 (4.5%)	4 (3.8%)	
Tubal damage			
Unruptured	40 (90%)	44 (41.9%)	**<0.001**
Ruptured	4 (10%)	61 (58.1%)	
Side			
Left	18 (40.9%)	46 (43.8%)	0.861
Right	26 (59.1%)	57 (54.3%)	
N/A	0	2 (1.9%)	
Operative time (min)	62.1 ± 15.7	50.9 ± 15.3	**<0.001**
Hemoperitoneum (ml)	201 ± 174	895 ± 701	**<0.001**
Estimated blood loss (ml)	35.9 ± 37.7	394 ± 575	**<0.001**
Blood transfusion (case)	2 (4.5%)	52 (49.5%)	**<0.001**
Length of stay (day)	3.3 ± 1.2	3.5 ± 0.7	0.209
Postoperative analgesic drug used			
Narcotic	26 (59.1%)	77 (73.3%)	**0.032**
Paracetamol	13 (29.5%)	26 (24.7%)	
No need	5 (11.4%)	2 (1.9%)	

Discussion

Laparoscopic surgery is minimally invasive surgery for patient with EP who are clinically stable during normal office hours. Emergency cases and those with unstable hemodynamics, hypovolemic shock or massive intra-abdominal hemorrhage, are not suitable for laparoscopic surgery. Its outcomes give less adhesion of pelvic organs and less post-operative pain. The incidence of EP in Lampang Hospital found in this study was 1.38%, comparable with data from the CDC.[1] The most common procedure in both groups was salpingectomy. We preferred radical salpingectomy because of the definite treatment and the lack of serial serum beta hCG in our hospital in the past. We also found one patient had 2 episodes of ectopic pregnancy, the first with ampulla pregnancy and the second with interstitial pregnancy of the same side, but finally she had a healthy baby after 2 laparoscopic treatments.

The mean operative time in laparoscopy group was longer than the laparotomy group, similar to the study of Duggal et al.[5] This result may be affected by our experience in laparoscopy and limited equipment in our hospital. After five years' experience of laparoscopic surgery treatments in ectopic pregnancy, the average operation time was approximately one hour depending on other procedures such as removing blood clots and specimens, adhesiolysis or fimbrioplasty. Some patients requested tubal resection on the other side which can be undertaken with the same setting of bipolar electric cautery forceps and scissors.

The amount of hemoperitoneum in laparotomy was greater than in laparoscopy because in our practice, if the pre-operative diagnosis is ruptured ectopic pregnancy or hemodynamic instability, we prefer laparotomy. The previous study by Akhan et al[6] concluded that hemodynamic stability and intra-abdominal free blood affect the surgeons' decision about performing laparotomy or laparoscopy. Large amounts of free fluid shown on ultrasound increase the risk of conversion to laparotomy during laparoscopic treatment of ectopic pregnancy.[7] However, Cohen et al[3] found that in patients with a ruptured ectopic pregnancy and massive hemoperitoneum, laparoscopy is feasible and safe with significantly shorter operating time. Laparoscopy is not only suitable for early ectopic pregnancy but also safe in patients who do not have severely compromised hemodynamics.[8,9]

The estimations of blood loss, blood transfusion requirements and analgesic drug use in the laparoscopic group were less than in the laparotomy group, the same result as a previous study by Murphy et al. [10] The length of stay was not significantly different between groups. Contrary to the previous studies by Duggal et al and Akhan et al [5,6] who found

shorter length of stay in laparoscopic group. In our practice, the patients were able to stay in hospital as long as they needed, regardless the surgical procedure.

Conclusion

Laparoscopic treatment is a minimally invasive procedure that can be performed in regional hospitals in Thailand and is preferable to laparotomy if the patient has stable hemodynamics and is not in hypovolemic shock. Our study demonstrated that, when compared with laparotomy, laparoscopic treatment in EP provided satisfactory outcomes, especially in term of blood transfusion and postoperative analgesic drugs used.

Acknowledgement

The authors wish to thank Andrew Sherratt for his help in approving the English language use.

References

1. Centers for disease control and prevention (CDC). Ectopic pregnancy--United States, 1990-1992. MMWR Morb Mortal Wkly Rep 1995;44:46.
2. Cohen A, Almog B, Satel A, Lessing JB, Tsafrir Z, Levin I. Laparoscopy versus laparotomy in the management of ectopic pregnancy with massive hemoperitoneum. Int J Gynaecol Obstet 2013;123:139-41.
3. Nama V, Manyonda I. Tubal ectopic pregnancy: diagnosis and management. Arch Gynecol Obstet 2009;279:443-53.
4. Takacs P, Chakhtoura N. Laparotomy to laparoscopy: changing trends in the surgical management of ectopic pregnancy in a tertiary care teaching hospital. J Minim Invasive Gynecol 2006;13:175-7.
5. Duggal BS, Tarneja P, Sharma K, Rath K, Wadhwa RD. Laparoscopic management of ectopic pregnancies. Med J Armed Forces India 2004;60:220-3
6. Akhan SE, Baysal B. Laparotomy or laparoscopic surgery? Factors affecting the surgeons choice for the treatment of ectopic pregnancy. Arch Gynecol Obstet 2002;266:79-82.
7. Takacs P, Latchaw G, Gaitan L, Chakhtoura N, De Santis T. Risk factors for conversion to laparotomy during laparoscopic management of an ectopic pregnancy. Arch Gynecol Obstet 2005;273:32-4.
8. Maruri F, Azziz R. Laparoscopic surgery for ectopic pregnancies: technology assessment and public health implications. Fertil Steril 1993;59:487-98.
9. Baumann R, Magos AL, Turnbull A. Prospective comparison of videopelviscopy with laparotomy for ectopic pregnancy. Br J Obstet Gynaecol 1991;98:765-71.
10. Murphy AA, Nager CW, Wujek JJ, Kettel JM, Torp VA, Chin HG. Operative laparoscopy versus laparotomy for the management of ectopic pregnancy: a prospective trial. Fertil Steril 1992;57:1180-5.

Ectopic Pregnancy Managed by Laparoscopy and Laparotomy: a Comparative Study in Lampang Hospital

Prateung Liamponsabuddhi M.D., Uraiwan Khomphaiboonkij M.D.
Department of Obstetrics and Gynecology

Lampang Hospital. Lampang, Thailand

Lampang Med J 2017; 38(1): 10-18

Abstract

Objective: To compare laparotomy and laparoscopy management undertaken in ectopic pregnancy (EP) at Lampang Hospital.

Material and Methods: A retrospective analytical study was conducted on 149 patients with ectopic pregnancies who had been hospitalized in Lampang Hospital between October 2012 and September 2014. The operative time, length of stay in hospital, volume of blood in the intra-abdominal cavity, and postoperative analgesic drugs used were compared for laparoscopy and laparotomy treatments. Student t-test of means and Fisher's exact probability test were used for the statistical comparison.

Results: The incidence of EP was 1.38% of total life births in Lampang Hospital. Among 149 patients with EP, 44 patients underwent laparoscopy and 105 patients underwent laparotomy. The mean operative time of laparoscopy was significantly longer (62.1±15.7 *vs* 50.9±15.3 minutes, $p<0.001$). The amounts of hemoperitoneum and blood loss in laparotomy were significantly greater than in laparoscopy. Percentage of patients required analgesic drugs and blood transfusion postoperatively were significantly higher in laparotomy ($p=0.032$ and $p<0.001$ respectively). However, the length of stay was not significantly different ($p=0.209$).

Conclusion: Laparoscopy in ectopic pregnancy had better outcomes especially in regard to blood transfusion and postoperative analgesic drugs used, when compared with laparotomy.

Keywords: Ectopic pregnancy, laparoscopy, laparotomy