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## Laparotomy vs. laparoscopic salpingostomy in the treatment of ectopic pregnancy in Chulalongkorn Hospital.

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Wisawasukmongchol W, Bunyavejchevin S, Suwajanakorn S, Limpaphayom K.  
Laparotomy vs. laparoscopic salpingostomy in the treatment of ectopic pregnancy  
in Chulalongkorn Hospital. *Chula Med J* 1997 Mar;41(3): 191-8

**AIM** : *To compare operative time, blood loss, blood transfusion needs and length of hospital stay of laparotomy and laparoscopic salpingostomy in the treatment of ectopic pregnancy in Chulalongkorn Hospital.*

**Materials and Methods** : *We reviewed the medical records of 42 patients who had undergone salpingostomy for ectopic pregnancy at Chulalongkorn Hospital between January, 1991 - May, 1996. Twenty nine patients had laparoscopic salpingostomy and thirteen patients had salpingostomy by laparotomy.*

**Results** : *There was no significant difference of the mean operative time in both groups (86.15 vs. 80.35 min,  $p=0.35$ ). Blood loss during the operations was higher for laparotomy salpingostomy than for laparoscopic salpingostomy (180.77 vs. 50.00 ml,  $p=0.012$ ). Laparotomy salpingostomy required more blood transfusions than laparoscopic salpingostomy (533.33 vs. 13.79 ml,  $p=0.001$ ). The mean hospital stay was significantly higher for the laparotomy salpingostomy than for the laparoscopic salpingostomy*

(5.31 vs. 1.93 days,  $p < 0.001$ ). Analgesic drug requirements (Morphine) was significantly higher in laparotomy groups (24.62 vs 7.24 mg,  $p < 0.001$ )

**Conclusion :** *The treatment of ectopic pregnancy by laparoscopic salpingostomy is safe and effective. Blood loss during operation and blood transfusion requirements are less than for laparotomy salpingostomy. Patients treated by laparoscopic salpingostomy required shorter hospital stays. This operative technique is encouraged.*

**Key words :** *Laparoscopic salpingostomy, Ectopic pregnancy.*

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วิรัช วิศวสุขมงคล, สุวิทย์ บุญยะเวชชีวิน, สมชาย สุวจนกรณ์, กอบจิตต์ ลิ้มปพยอม.  
การศึกษาเปรียบเทียบการผ่าตัดหลอดมดลูกชนิดซาลพิงโกสโตมีทางหน้าท้อง และผ่าน  
กล้องลาพาโรสโคปีในการรักษาการตั้งครรภ์ที่หลอดมดลูกในโรงพยาบาลจุฬาลงกรณ์.  
จุฬาลงกรณ์เวชสาร 2540 มีนาคม;41(3): 191-8

**วัตถุประสงค์** : เพื่อเปรียบเทียบ เวลาที่ใช้ในการผ่าตัด เลือดที่เสียและที่ได้รับระหว่าง  
ผ่าตัดและจำนวนวันที่อยู่โรงพยาบาลของการผ่าตัดหลอดมดลูกชนิด  
ซาลพิงโกสโตมีทางหน้าท้องและผ่านกล้องลาพาโรสโคปี ในการรักษา  
การตั้งครรภ์ที่หลอดมดลูก ในโรงพยาบาลจุฬาลงกรณ์

**วัสดุและวิธีการ** : ทำการรวบรวมบันทึกผู้ป่วย 42 ราย ที่ได้รับการผ่าตัดหลอดมดลูกชนิด  
ซาลพิงโกสโตมีในการรักษาการตั้งครรภ์ที่หลอดมดลูกระหว่างเดือน  
มกราคม พ.ศ.2534 ถึง พฤษภาคม พ.ศ. 2539 ผู้ป่วย 29 รายได้รับการ  
ทำผ่าตัดหลอดมดลูกผ่านกล้องลาพาโรสโคปี และ 13 รายได้รับการผ่าตัด  
หลอดมดลูกทางหน้าท้อง

**ผลการศึกษา** : ระยะเวลาในการผ่าตัดไม่แตกต่างกัน (86.15 vs 80.35 นาที,  $p=0.35$ )  
เลือดที่ออกระหว่างผ่าตัด ในการผ่าตัดทางหน้าท้องมากกว่าการผ่าตัด  
ผ่านกล้องลาพาโรสโคปี (180.77 vs 50.00 มล,  $p = 0.12$ ) การผ่าตัด  
ทางหน้าท้องต้องให้เลือดระหว่างการผ่าตัดมากกว่าการผ่าตัดผ่านกล้องฯ  
(533.33 vs 13.79 มล.  $p=0.001$ ) ระยะเวลาในการอยู่โรงพยาบาลของ  
ผู้ป่วยที่ได้รับการผ่าตัดทางหน้าท้องสูงกว่าการผ่าตัดผ่านกล้องฯ อย่างมี  
นัยสำคัญทางสถิติ (5.31 vs 1.93 วัน,  $p < 0.001$ ) จำนวนยาแก้ปวด  
(มอร์ฟีน) ที่ใช้หลังผ่าตัดในการผ่าตัดทางหน้าท้องมากกว่าอย่างมีนัย  
สำคัญทางสถิติ (24.62 vs 7.24 มก.,  $p < 0.001$ )

**สรุป** : การผ่าตัดรักษาการตั้งครรภ์ที่หลอดมดลูกโดยการผ่าตัดผ่านกล้องลาพา-  
โรสโคปีนั้นปลอดภัยและมีประสิทธิภาพดี เลือดที่ออกระหว่างการผ่าตัดและ  
จำนวนเลือดที่ต้องให้แก่ผู้ป่วยในการผ่าตัดผ่านกล้องฯ น้อยกว่าการ  
ผ่าตัดทางหน้าท้อง ผู้ป่วยที่รับการผ่าตัดผ่านกล้องฯ อยู่โรงพยาบาลสั้น  
กว่า ต้องการยาแก้ปวดน้อยกว่า การผ่าตัดท่อมดลูกชนิดซาลพิงโกสโตมี  
ผ่านกล้องลาพาโรสโคปีควรได้รับการสนับสนุนต่อไป

Most tubal gestation occurs during the years of peak fertility and prompt treatment is important for conservation of reproductive potential. The incidence of ectopic pregnancy is rapidly increasing.<sup>(1,2)</sup> These patients are presenting earlier in the course of the disease<sup>(3,4)</sup> often with only vague symptoms, such as slight lower abdominal pain, menstrual irregularity and possibly some cervical or adnexal tenderness upon pelvic examination. The treatments have shifted from radical intervention such as salpingectomy, to conservative treatments to preserve fertility. These include salpingostomy and other nonsurgical treatment.<sup>(5)</sup> Laparotomy salpingostomy has become a standard conservative procedure with reports of subsequent intrauterine pregnancy rates of 40-60% and repeat ectopic gestation rates of 10-15%.<sup>(6-8)</sup> Laparoscopic salpingostomy is one of the conservative surgical treatments with subsequent intrauterine pregnancy rates of 52-64%<sup>(9,10)</sup> and an ectopic gestation rate of 10-12%.<sup>(9,10)</sup> Because of the increasing experience and cases of salpingostomy at Chulalongkorn Hospital, the cases of laparotomy and laparoscopic salpingostomy were reviewed to compare the operative time, blood loss, blood transfusion and length of hospital stay.

## Materials and methods

The medical records of 42 patients who had undergone salpingostomy for ectopic pregnancy at Chulalongkorn Hospital between January, 1991 and May, 1996 were reviewed.

Twenty-nine cases of laparoscopic salpingostomy and 13 cases of laparotomy salpingostomy had been performed by the same standard operative techniques.

The linear salpingostomy was done by either laparotomy or laparoscopy. A fine-needle electrode was used to open the tube over the ectopic gestation on its antemesenteric site. The conception products were removed with fine forceps. The ectopic site was irrigated with Ringer's lactate solution and hemostasis was accomplished by electric cauterization. In some cases, Vasopressin (Pitressin<sup>®</sup>; Parke-Davis, Morris Plains, NJ) 5 IU in 20 ml of saline, was injected into the mesosalpinx for hemostasis. The tubal incision was left opened and allowed to heal by secondary intention. The operative time, blood loss, blood transfusion and length of hospital stay were noted. Statistical analysis of data between the groups was carried out by use of the student t-test using SPSS V.6.13 for Microsoft window 95<sup>®</sup> software.

## Results

The laparoscopy and laparotomy groups were similar in age parity, previous abortion, size of ectopic, and hemoperitoneum. (as shown in Table 1). The operative time were higher in laparotomy than laparoscopy groups significantly ( $86.15 \pm 18.16$  vs  $80.36 \pm 18.10$  min,  $p = 0.012$ ). The blood transfusion needs were significantly higher for the laparotomy group ( $533.34 \pm 214.74$  vs  $13.79 \pm 74.28$  ml,  $p = 0.001$ ). There are no

significantly difference between intraoperative estimated blood loss (180.77±263.86 vs 50.00±42.43 ml). The patients in the laparotomy group required a longer hospital stay than the laparoscopy group (5.31±1.44 vs 1.93±0.65 days, p =

0.0001). The narcotic drug requirements (Morphine) were significantly higher in laparotomy group than in the laparoscopic group (24.62±17.30 vs 7.24±11.31 mg, p < 0.0001) (Table 2).

**Table 1.** Patients' characteristics.

	Laparotomy (Mean ± SD., Range)	Laparoscopy (Mean ± SD., Range)	t-test(P) (Mean ± SD., Range)
Age(yr)	25.92 ± 5.97 (18-36)	27.14 ± 6.34 (17-44)	0.562
Parity	0.154 ± 0.376 (0-1)	0.286 ± 0.535 (0-2)	0.429
Previons abortion	0.769 ± 0.927 (0-3)	0.714 ± 0.937 (0-3)	0.862
Size of ectopic pregnancy (cm)	2.85 ± 0.94 (1-4)	2.75 ± 0.92 (1-4)	0.754
Hct (%)	32.08 ± 4.21 (25-38)	34.895 ± 4.43 (25-42)	0.081
Haemoperitoneum (ml)	453.85 ± 556.20 ( 0-2000)	159.05 ± 225.65 (0-800)	0.862

**Table 2.** Postsalpingostomy Status.

	Laparotomy (Mean $\pm$ SD., Range)	Laparoscopy (Mean $\pm$ SD., Range)	t-test(P)
Bleeding (ml)	180.77 $\pm$ 263.86 (0-1000)	50.00 $\pm$ 42.43 (20-150)	0.346
Operative time (min)	86.15 $\pm$ 18.16 (60-120)	80.36 $\pm$ 18.10 (45-120)	* 0.012
Blood Transfusion (ml)	533.34 $\pm$ 214.74 (0-2000)	13.793 $\pm$ 74.28 (0-400)	* 0.001
Hospital stay (days)	5.31 $\pm$ 1.44 (4-9)	1.93 $\pm$ 0.65 (1-3)	* 0.001
Analgesic (Morphine) requirement (mg)	24.62 $\pm$ 17.3 (10-50)	7.24 $\pm$ 11.31 (0-30)	* 0.001

## Discussion

Recent studies have demonstrated that laparoscopy can be used for conservative treatment of ectopic gestation.<sup>(9-11)</sup> It has been reported in the U.S.A. that it is more economical and there is a shorter recovery period for laparoscopic salpingostomy than for laparotomy salpingostomy in the U.S.A.<sup>(12)</sup> Up to now there has been lack of data about the effectiveness and outcome between the two techniques in Southeast Asian countries, especially in Thailand.

In our survey, the average amount of blood loss during the laparoscopy (50 ml) was similar to those of previous reports<sup>(10,13)</sup> and significantly lower than for laparotomy. The procedure of linear salpingostomy is rather bloodless particularly when is performed by laparoscopy and bleeding can usually be easily controlled with electric cautery.

The size of the ectopic pregnancy should be considered.<sup>(14)</sup> Large ectopic gestations of more than 3 cms<sup>(14)</sup> are considered to be the

upper limit for safe laparoscopy. A diameter of more than 4 cms may cause difficulty in removal, bleeding control and increment of the rate of per-sistent Beta hCG. There is a report that the absolute limit is 6 cms and a diameter above 4 cms is regarded as a relative contraindication. From this study, we were able to treat all tubal gestations up to 4 cms. We concluded that 4 cms size may be the upper limit for safe laparoscopic salpingostomy. The clients in the laparoscopic group required shorter hospital stays and had less analgesic drug requirements due to the advantages of the smaller incision. The patients undergoing laparoscopy required approximately 4 days less in the hospital than those undergoing laparotomy. This resulted in saving of up to 8,000 Baht (\$ ~ 300 US) per patient. An uncommon but significant complication of salpingostomy has been a postoperative persistence of trophoblastic activity.<sup>(9,15,16)</sup> From our study (29 cases), we found no cases of persistent hCG. The mean±SE duration until hCG resolution was 18.4±3.2 days with ranges of 7-37 days.<sup>(17)</sup> The low incidence of persistent hCG may be due to the small sample sizes.

Due to the retrospective design of our study, the fertility outcome was difficult to determine. This is the first report of outcome of laparoscopic salpingostomy when compared with laparotomy salpingostomy in Thailand. Prospective design study with long term follow-up is now going on and results will be reported.

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