
Evaluation Of Tubal Patency Using Hysterosalpingography Following Salpingostomy And Medical Treatment Of Tubal Pregnancy

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Abstract

Objective: Ectopic pregnancy adversely affects the patency of the fallopian tube & consequently the future pregnancy. There are different modalities of conservative treatment of tubal pregnancy as methotrexate and salpingostomy¹. There is little information about the success rate of maintenance of tubal patency after methotrexate & salpingostomy². Therefore, the aim of this study is to evaluate the ipsilateral tubal patency by using hysterosalpingography, after treatment of tubal pregnancy by methotrexate therapy versus salpingostomy.

Patients and Methods

This was a case-series study that was done at Ain Shams & Al-Azhar University Maternity Hospitals to evaluate the ipsilateral tubal patency using hysterosalpingography (HSG) following salpingostomy and medical treatment of tubal pregnancy. This study included patients who were admitted at Ain Shams & Al-Azhar University Maternity Hospitals, for having tubal pregnancy & were treated either by methotrexate or salpingostomy, over a 3-year period, between January 2007 and December 2009. The patients seeking fertility were re-evaluated for fallopian tubes patency by hysterosalpingogram 3 months after discharge. The study included 2 groups of women: group I [n=200]: women who were treated by methotrexate, and group II [n=140]: women who were treated by salpingostomy.

Results

HSG was done in 200 cases of tubal pregnancy that were treated by methotrexate and 140 cases who were treated by salpingostomy. The patency of the ipsilateral tube was 85% after methotrexate treatment and 84.2% after salpingostomy. There was no statistically significant difference between the two groups.

Conclusion

The findings suggest similar success rate in maintaining the patency of the fallopian tube with either methotrexate & salpingostomy.

Key Words: Ectopic pregnancy – hysterosalpingography – methotrexate – infertility – salpingostomy.

Introduction

Ectopic pregnancy is a potentially life threatening condition³. The rate of ectopic pregnancy is increasing tremendously in the last decade⁴. On the other hand, the early diagnosis of ectopic pregnancy is being available due to the more sensitive ways of diagnosis as sensitive assays of β subunit of human chorionic gonadotrophins and high resolution transvaginal ultrasonography. Now, advances in treatment of ectopic pregnancy allowed conservative modalities for saving the tubes for future pregnancy as methotrexate & salpingostomy⁵.

Methotrexate is a chemotherapeutic agent that acts by inhibiting DNA synthesis. Both systemic and local treatment can be useful in treatment of early unruptured ectopics⁶. Some women are not good candidates for medical treatment & need surgical treatment including females with the following characters^{7,8}: 1) hemodynamically unstable patient 2) impending tubal rupture (severe abdominal pain) or > 300 ml of free fluid in pelvic cavity 3) breast feeding 4) hypersensitivity to methotrexate 5) Immunodeficiency. 6) Unable to complaint with postmedical treatment follow up. 7) Clinically important abnormality in baseline hematologic renal or hepatic laboratory values.

Hysterosalpingography is an important modality for diagnosing the patency of fallopian tube. If the results demonstrate obstruction of both fallopian tubes, the spontaneous pregnancy is impossible⁹. The equipment was a Legend CR9 (General Electrics, Hungary).

There are little information about the tubal patency among patients who had been treated by medical treatment and salpingostomy, so the results of subsequent HSG are viewed in the present study.

In this study, the ipsilateral tubal patency is evaluated by hysterosalpingography following treatment of ectopic pregnancy by methotrexate and salpingostomy.

Patients and Methods

This was a case-series study that was done at Ain Shams & Al-Azhar University Maternity Hospitals. The study included women who were admitted at Ain Shams University & Al-Azhar University Maternity Hospitals, for having tubal pregnancy & were treated either by methotrexate or salpingostomy, over a 3-year period, between January 2007 and December 2009. The patients seeking fertility were re-evaluated for fallopian tubes patency by HSG 3 months after discharge. The study included 2 groups of women: group I [n=200]: women who were treated by methotrexate, and group II [n=140]: women who treated by salpingostomy.

Inclusion criteria: patients diagnosed as tubal pregnancy & treated by single modality either by methotrexate or salpingostomy, no laparotomy or history of pelvic infections in the 3 months period after treatment. HSG was done under fluoroscopic observation with a balloon tipped catheters. An abnormality was documented if the dye was not seen to spill from the tubal end.

Technique: Hysterosalpingography is carried out within the first ten days after the last menstrual period and when menstrual flow has ceased. The patient is advised to abstain from sexual intercourse in the days after her menses and prior to the procedure, to ensure that she is not pregnant during the procedure. Using an aseptic technique, a speculum is used to distend the vagina and a Leech-Wilkinson is inserted into the uterine cavity. Diluted, water soluble, hyperosmolar iodinated contrast agent (urograffin) is then hand injected into the uterine cavity via the Foley catheter. A normal hysterosalpingogram depicts a smooth triangular uterine outline with opacification of both fallopian tubes and free spillage of contrast into the peritoneum.

Statistical analysis: All retrieved data were recorded on an investigative report form. These data were analyzed with SPSS® for Windows®, version 15.0 (SPSS, Inc, USA). Description of quantitative (numerical) variables was performed in the form of mean, standard deviation (SD) and range. Description of qualitative (categorical) data was performed in the form of number of cases and percent. Analysis of numerical variables was performed by using student's unpaired t-test (for two groups) or ANOVA (for more than two groups).

Results

A total 340 cases were recruited from January 2007 till December 2009 in 3 year interval. 200 cases were treated by methotrexate (group I) while 140 were managed surgically by salpingostomy (group II).

Table (1): shows the demographic characteristics of the patients under the study.

	Group I (N=200)		Group II (N=140)		t	P
	Mean	SD	Mean	SD		
Age	26.8	4.6	27.1	3.8	0.7	0.4 (not significant)
Parity	2.03	0.8	2.1	0.9	0.9	0.3 (not significant)

Table (2): shows the clinical characteristics of the patients under the study

	Group I (N=200) No. (%)	Group II (N=140) No. (%)	X ²	P
Previous PID	34 (17.0)	30 (21.4)	0.7	0.3 (not significant)
Previous laparotomy	18 (9.0)	12 (8.6)	0.02	0.9 (not significant)
History of infertility	31 (15.5)	25 (17.9)	0.001	0.9 (not significant)

Table (3): shows a comparison between the two studied groups as regards the tubal patency (ipsilateral and contralateral tubes) after treatment (outcome).

	Group I No. (%)	Group II No. (%)	X ²	P
Ipsilateral tubal patency	170 (85.0)	118 (84.2)	0.001	0.9 (not significant)
Contralateral tubal patency	163 (81.5)	125 (89.3)		

Table (4): comparison between rates of occlusion among cases in group I as regards the number of doses of methotrexate

	Single dose (N=170) No. %	Two doses (N=30) No. %	X ²	P
Patency	149 87.6	21 70.0	4.9	0.02 (significant)
Occlusion	21 12.3	9 30.0		

Table (5): comparison between rate of patency in the ipsilateral and contralateral tubes in group II as regards the method of salpingostomy

	Laparoscopy N=80 No. %	Laparotomy N=60 No. %	X ²	P
Ipsilateral tubal Patency	68 85.0	50 83.3	0.001	0.9 (not significant)
Contralateral tubal patency	71 88.7	54 90.0		

Discussion

More than 25 years have past since the use of methotrexate as the accepted management of early cases of ectopic pregnancy in many hospitals. The patient characters were compared between the two groups. The mean age of group I, who were treated by methotrexate, was 26.8 years (\pm 4.6 SD), and mean parity was 2.03 (\pm 0.8 SD), while the mean age of group II, who was treated by surgical treatment, was 27.1 years (\pm 3.8 SD) and mean parity was 2.1 (\pm 0.9 SD). There is no significant difference statistically between the two studied groups as regards the mean age and mean parity. Table (1)

The risk factors of ectopic pregnancy were compared between the two groups. The two groups were compared as regards the presence of previous PID or laparotomy. There is a higher percentage of PID among group II compared to group I but the difference is not significant statistically. There is a higher percentage of previous laparotomy among group I compared to group II but the difference is not significant statistically. The two groups were compared as regards the previous history of infertility. Higher percentage of infertility among group II compared to group I but the difference is not significant statistically. Table (2)

The patency of the ipsilateral tube was compared between the two groups. There is no statistically significant difference between the two studied groups as regards the rates of tubal patency and occlusion after treatment. Systematic reviews involving 400 cases treated by parenteral methotrexate show tubal patency rates to be as high as 92%. Some regimens are treated by single dose protocol of methotrexate therapy at 50 mg/ M2 of surface area⁵. Further, Stoval⁶ stated 82.6% of ipsilateral tubal patency rate in patients received methotrexate. In a small randomized study of an ultrasound guided intratubal methotrexate injection versus linear salpingostomy, HCG levels decreased rapidly after surgery, with similar success rates & tubal patency. Based on this study, medical treatment of early ectopic pregnancy may carry a viable option of treatment and yields tubal patency rate comparable to surgical treatment⁷. Hajenius⁸ et al reported similar tubal patency 90% & 92% respectively in patients receiving single dose of methotrexate and cases treated by linear salpingostomy.

Also, similar studies as Guven¹¹ 2007 showed similar rates of tubal patency of 83.9%, Elito¹⁰ 2006 stated 84% patency rate. In accordance, Fujishite¹² 2004 study reported 90% tubal patency after salpingostomy without tubal suturing and 94% in salpingostomy with tubal suturing. In a more recent study by same author 2008 reported 63.4% tubal patency after laparoscopic salpingostomy¹³. Colacurci¹⁴ 1998, reported bilateral tubal patency in 90% of cases if HCG < 10.000 U/L, and 60% if HCG > 10.000 U/L. In studies done by Spalding¹⁵ 1997, Keckstein¹⁶ 1990, Vermesh¹⁷ 1989, the rates of ipsilateral tubal patency after salpingostomy were 68%, 64%, 80%, respectively. In another study done by, Mordechai Pansky¹⁸ 1989, in which tubal patency was examined by hysterosalpingogram after successful treatment by methotrexate, the rate of patency was 85.7%. Tolaymat¹⁹ 1999 stated that the rate of tubal patency after methotrexate treatment was 72% & 81% after treatment by salpingostomy and he found no statistically significant difference between the two groups. Olofsson²¹ 2001 in a similar study reported a similar patency rates after methotrexate and surgical treatment.

The contralateral tube was assessed in the two groups and there is a higher rate of occlusion of contralateral tube among medical treatment but the difference is not significant statistically. In the study of Guven¹¹ 2007, the rate of patency of the contralateral tube was 56.7%. Similar results of 81.5% was produced by Langer²¹ 1990. In a study done in Sao Paolo by Elito¹⁰ 2006, the

contralateral tubal patency after methotrexate was 97% and 83% after salpingostomy with statistically no significant differences between the two lines of treatment. Table (3)

The rate of occlusion among cases in group I as regards the number of doses of methotrexate was assessed. Higher percentage of patent tubes among cases with single dose and the difference is significant statistically this in agreement with Guven¹¹ 2007 who stated that tubal patency after single dose of methotrexate was 83.9% and 56.7% after multiple doses of methotrexate and he stated that multiple doses of methotrexate carry a negative effect on tubal patency. Table (4)

The rate of occlusion in the affected & contralateral tubes in group II is assessed as regards the route of salpingostomy. Higher rate of occlusion among cases done with laparotomy but the difference is not significant statistically. This is in agreement with Vermesh¹⁷ 1989, who reported tubal patency 89% after laparoscopy and 80% after laparotomy with no significant difference between the two groups. In contrast, Lunderff²² 1991, demonstrated that laparoscopic treatment of ectopic pregnancy results in less impairment of the pelvic status compared with conventional conservative surgery. Table (5)

In haemodynamically stable patients with unruptured tubal pregnancy, systemic methotrexate and laparoscopic salpingostomy were successful in treating the majority of cases. We found no significant difference between the treatments in the homolateral patency rate. Subsequent fertility outcome has to be awaited to show which treatment yields better fertility prospects.

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