

# Hysteroscopic tubal catheterization in diagnosis and treatment of proximal oviductal obstruction

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*Summary:* Hysteroscopic tubal catheterization in patients with proximal tube obstruction, was successful in our material in 11 out of 15 cases.

In 36.6% women this pathology was connected to the presence of pathologic microflora in the oviducts, as confirmed by bacteriological examination of tubal fluid. The pregnancy rate in endoscopically treated patients reached 13.3%. Three months follow-up HSG showed that in 78% of cases insertion of a catheter into their oviducts resulted in their complete patency.

Hysteroscopic tubal catheterization failed in 4 women, who were subsequently qualified to IVF.

The present study shows that hysteroscopic tubal catheterization in patients with proximal tubal obstruction can be used both as a diagnostic and considerably effective therapeutic method.

*Key words:* Tubal catheterization; Hysteroscopy; Proximal oviductal obstruction.

## INTRODUCTION

It is estimated that approximately 25% - 40% of female infertility cases are caused by oviductal factor. Proximal tubal obstruction occurs in 10% - 20% of those cases<sup>(1, 2, 3, 4, 5)</sup>. Usually, fallopian tubes abnormalities are revealed by means of hysterosalpingography. According to literature, false positive results of this procedure vary from 30% to 50%, the main reason being shortage of possibilities of differential diagnosis between

functional spasm or mechanical occlusion. This method also fails in determining the origin of lesions, resulting in this pathology<sup>(6, 7, 8)</sup>.

The most common therapy used up to date in cases of proximal tubal obstruction has been microsurgery. However, only 1/3 resected parts of oviducts show any pathology, as confirmed by histological examination<sup>(4, 9, 10)</sup>. Those results together with the fact that patients may become pregnant in a short time after HSG or laparoscopic chromoperturbation, suggest that at least in some cases of interstitial tube obstruction the reason is amorphous plugs or adhesions, localised in uterotubal junction<sup>(10, 11, 12, 13)</sup>.

At present, transcervical tube cannulation is a new method of treatment, alternative to the above described<sup>(2, 5, 11, 13, 14, 15)</sup>.

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Received 30-5-1994 from the  
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Revised manuscript accepted for publication  
30-6-1994.

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The aim of the study is to make a preliminary evaluation of the diagnostic and therapeutic advantages of hysteroscopic tubal catheterization in women with proximal tubal obstruction.

## MATERIALS AND METHODS

Our study was performed on 15 infertile women aged 23 to 34 years (mean age 27.4) with proximal tube obstruction, treated in our clinic between 1992 and 1993. Twelve of the fifteen patients revealed primary infertility and three of them - secondary. The infertility duration had lasted for 3 to 7 years.

In all cases the diagnosis had been established by HSG and laparoscopy within 6 months previous to this study.

Hysteroscopic tubal cannulation was performed by means of 7 mm CO<sub>2</sub> endoscope and 4-F end-hole, calibrated Teflon catheter (Balt) with guidewire and syringe combined with its proximal part. Catheterization was done under laparoscopic control.

The whole procedure started with bacteriological examination of the vagina and cervical canal, followed by gynecological bimanual palpation.

Tube cannulation was preceded by visual evaluation of the uterine ostia.

In cases where any morphological abnormalities occurred, they were dissected by hysteroscopy. The catheter was introduced into the operating channel of the hysteroscope, placed at the tubal ostia and pressure applied. The flexible tip inserted in the tube did not exceed 1 cm to

1.5 cm. Whenever cannulation succeeded, tubal fluid was aspirated for bacteriological and cytological examination. Then, using a fixed catheter, we applied contrast to confirm tubal patency laparoscopically.

When the pathological microorganisms were cultured, just after cannulation, antibiotic was administered according to antibiogram.

Three months follow-up HSG was made on all non-pregnant patients, on whom catheterization was successfully performed.

## RESULTS

The results of hysteroscopic tube cannulation in cases of proximal tubal obstruction obtained in our study are shown in Table 1.

Hysteroscopic evaluation of tubocornual area and tubal ostia performed prior to catheterization allowed the recognition of the abnormalities, existing there, in six of fifteen patients. In three cases we found polyps and/or adhesions, and in another three fibrotic ostial obstruction. Hysteroscopic removal of polyps and adhesions led to subsequent catheterization.

As shown in table 1, hysteroscopic tube cannulation was successful in 11 cases. Post cannulation tubal patency was bilateral in seven patients and unilateral in four. Concomitant laparoscopy performed

Table 1. - *Results of hysteroscopic tube catheterization in 15 women with proximal bilateral tubes obstruction.*

State of cornual area and tubal ostia at hysteroscopy	No. of patients	Post cannulation tubal patency (No. of patients)		
		unilateral	bilateral	absent
No pathological changes	9	3	5	1
Polyp in one ostium * second ostium normal	2	1	1	-
Adhesions in one ostium second ostium normal *	1	-	1	-
Fibrose obstruction of both tubal ostia	3	-	-	3
Total	15	4	7	4

(\*) Abnormalities were removed by hysteroscope.

Table 2. – Results of bacteriological examination of fluid aspirated from tubes in 11 successfully cannulated patients.

Post cannulation tubal patency	No. of patients	Isolated organism	No. of patients
Unilateral	4	Chlamydia tracheomatis	1
		Clostridium perfringens	1
Bilateral	7	Chlamydia trachomatis	1
		Peptostreptococcus	1
Total	11		4 36.3%

to evaluate contrast presence in peritoneal cavity (contrast administrated directly into the oviduct with catheter) confirmed fully restored tubal patency. Simultaneous pelviscopy diagnosed small focal endometriotic lesions apparently, coexisting with tubal obstruction. They were located at the uterine ligaments or the urinary bladder, and therefore cannot be considered primary cause of fallopian tube occlusion.

Unsuccessfully cannulated patients (four of fifteen) were qualified for IVF.

According to this method, tubal fluid was aspirated for bacteriological and cytological examinations when the catheter was inserted 1 cm - 1.5 cm beyond uterotubal junction. Cytology in all successive patients showed the presence of typical tubal mucosa cells.

Results of bacteriological examination of aspirated tubal fluid are presented in Table 2.

Pathogenic microflora was found respectively in four (36.3%) cases - Chlamydia trachomatis twice, and Clostridium perfringens or Peptostreptococcus in one patient. Direct treatment was introduced in each case.

Two out of eleven women, who had been successfully cannulated during our study, conceived within 3 months of procedure. The remaining nine were controlled by follow-up HSG, which showed complete tubal patency (unilateral of bi-

lateral) in seven patients. However, in two cases reocclusion in the utero tubal junction was documented by radiology. Therefore, hysteroscopic tubal catheterization successfully performed in 73% of women analysed, seems to be a successful therapeutic method in 60% of cases, with subsequent pregnancy rate 13.1%.

## DISCUSSION

The transcervical technique for tube catheterization in gynecological practice as a therapeutic method in cases of proximal tube obstruction results in reducing the number of conventional microsurgical operations.

Hysteroscopic tube cannulation remains one of these modern techniques. The main advantage of this endoscopic procedure is the possibility of direct uterine cavity visualisation, especially tubal ostium. It permits the elimination of intrauterine abnormalities resulting in tube occlusion, e.g. cornual polyps and adhesions. In our study this was demonstrated in three cases. Similar observations were published by Mencaglia *et al.* (see 15). The authors were able, by means of tuboscopy to diagnose pathologic cornual abnormalities in 78 patients among 228 studied. Nineteen per cent of those lesions were polyps and adhesion - their removal resulted in easy access of the endoscope into the tube. This was also con-

firmed by Hamou (<sup>16</sup>), who succeeded in obtaining complete tube patency after hysteroscopic adhesion dissection or polyps ablation in some infertile women.

According to other data, the efficiency of hysteroscopic catheterization in proximal tubal obstruction varies from 72% to 92% (<sup>2, 5, 11, 13, 17</sup>). In our study this operation was successful in 73% of cases but the 3 months follow-up results (continued tubal patency) were lower (60%), most probably due to patient selection and the preliminary character of the study.

It is worth noting, that in more than 1/3 of our cases tubal occlusion was accompanied by coexisting infection, usually caused by *Chlamydia trachomatis*. No pathogenic microorganisms were isolated from the cervical canal; the uterine cavity and surgical equipment were also sterile.

Confino *et al.* (<sup>1</sup>) in their study on hysteroscopic tube cannulation concluded, that in more than 50% cases the basis of tube obstructions were filmy adhesions, was an effect of previous acute adnexitis Kerin *et al.* (<sup>9</sup>), presented the same point of view. They were able to detect macroscopically postinflammatory changes in the tubal mucosa. Therefore we find it advisable to collect tubal fluid aspirates after its reocclusion, in order to introduce the proper treatment. In our study, patients to whom antibiotics were administered according to antibiograms, belong to the group of effectively cured ones.

The subsequent intrauterine pregnancy rate we obtained was 13.1%. Daniell (<sup>2</sup>) reports results from six different centers, where hysteroscopic catheterization was used. The pregnancy rate in his material was 24%. However, the duration of our follow-up was as short as three months. Therefore, there is the possibility that the remaining seven successfully treated patients (post cannulation tubal patency confirmed by control HSG) may conceive later.

## CONCLUSIONS

1) In our study hysteroscopic tubal catheterization in patients with obstruction of the proximal part of the fallopian tube is to be considered the therapeutic procedure in 9 out of 15 cases with subsequent pregnancy rate 13.3%.

2) The possibility of direct tubal fluid aspiration by catheter extends diagnostic methods and allows the introduction of appropriate treatment in cases, of any recognised infections.

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