

Hysteroscopic Tubal Cannulation: Our Experience

Mohapatra Purnachandra, Swain Sasmita, Pati Tapasi

Department of Obstetrics and Gynecology, SCB Medical College, Cuttack - 753007, Orissa.

OBJECTIVE - To find out the feasibility of hysteroscopic tubal cannulation in proximal tubal obstruction and the incidence of pregnancy following achievement of tubal patency. **METHODS** - Hysteroscopic tubal cannulation was performed along with concomitant laparoscopy in 24 cases (age 23 to 35 years) of proximal tubal obstruction between January 2000 and December 2002. Successful cases were followed up for pregnancy. **RESULTS** - Out of 24 cases, 18 had secondary and 6 primary infertility. Cannulation of at least one tube was achieved in 20 (83%) cases. Two patients had tubal perforation with no serious consequence. Successful intrauterine pregnancy was achieved in 5 (21%) cases. **CONCLUSION** - Hysteroscopic tubal cannulation is an effective and safe form of treatment for proximal tubal obstruction.

Key words: infertility, proximal tubal obstruction, hysteroscopic tubal cannulation

Introduction

Amongst various factors responsible for infertility, tubal factor accounts for 25% to 35% of female infertility. Proximal tubal obstruction is associated with 10% - 20% of cases of tubal infertility'. In 1985, Forteier Haney² described the pathologic spectrum of disease in women with utero-tubal junction obstruction. The most frequent lesion was obliterative fibrosis (38%) followed by salpingitis isthmica nodosa (24%), intramucosal endometriosis (14%) and chronic tubal obstruction (12%). Polyps involving tubal ostia and tubal ostial membranes were detected in some women. Sulak et al¹ resected tubal segments and found that 11 of 18 patients had no demonstrable tubal occlusion. However, six patients had amorphous material of unknown etiology within the tubal lumen. It was thought that these plugs may play a significant role in 3% to 10% of infertile patients. They suggested that mechanisms of restoring fertility may include separation of mild agglutination of tubal folds, the dislodging of debris or mucous plugs, and the disruption of fimbrial adhesions.

Surgical methods of correction of proximal tubal obstruction include tubotubal anastomosis or macro/micro-surgical tubal implantation. Transcervical approach for tubal cannulation avoids surgery and can be performed as out patient procedure with little

or no analgesia. It is less costly and convenient to the patient. It may be performed using hysteroscopic, fluoroscopic, falloposcopic or ultrasonic techniques". Hysteroscopic tubal cannulation with concomitant laparoscopy is a rational alternative.

Normal intramural part of the tube ranges from 1.5 to 2.5 cm in length and takes a straight to slightly curved course to the uterotubal junction. It is 0.8 to 1.2 mm in diameter and can accommodate a cannula of 1 to 1.2 mm diameter without epithelial damage. Each ostium is situated at the apex of the uterotubal gutter and can be seen hysteroscopically as a sharp membranous ring at the bottom of the saucer shaped depression. If one passes a flexible smooth J shaped cannula through the internal os, and directs it towards the left or right, it will follow the uterotubal gutter towards the respective tubal ostium. The isthmic portion of the tube takes a 40° to 60° bends as it extends beyond the uterotubal junction and is a potential site for tubal perforation.

Material and Methods

We performed hysteroscopic tubal cannulation along with concomitant laparoscopy in 24 cases of proximal tubal obstruction between January 2000 and December 2002. Age of the patients ranged from 23 to 35 years. Out of 24 cases, 18 had secondary and 6 primary infertility. Duration of infertility ranged from 2 to 12 years.

The cases were diagnosed by hysterosalpingography (HSG) and diagnostic hysterolaparoscopy. Patients with genital tuberculosis and active genital infection were excluded from the study. The tubal cannulation catheter consists of a 30 cm long cannula with a Teflon catheter and a steel guide wire of 0.018 mm diameter. Hysteroscopy was performed and normal

Paper received all 27/12/2003 ; accepted all 05/04/2004

Correspondence :

Dr. Sasmita Swain

Asst. Professor,

Department of Obstetrics and Gynecology,

Qr. No. 3R-8, Near Cancer Wing, SCB Medical College,

Cuttack - 753007, Orissa.

Tel. 0671 2305272 Email :drsroutray@yahoo.com

saline was used as distending medium. The site of ostium was located, the outer sheath with the guard was introduced through the operating sheath and negotiated into the ostium. The guard was withdrawn and the inner teflon catheter was introduced in the tubal lumen under hysteroscopic vision. Concomitant laparoscopy was done to confirm entry of the catheter. In some cases stretching of the tube through laparoscopy was required while negotiating the catheter. Once this was accomplished, the cannula was withdrawn followed by the guide wire. Selective chromopertubation with methylene blue was performed through the outer catheter to confirm the patency of the tube. Same procedure was repeated on the other side. The patient was discharged the next day. Follow up HSG was done after the next menstrual cycle.

Results

Out of 24 cases, both the tubes were cannulated in 16 (66%) and only one tube in 4 (17%) cases. there was procedural failure in 4 (17%) cases, all due to failure to negotiate the ostium. Two patients had tubal perforation with no significant consequences. Follow-up hysterosalpingography showed tubal patency in 16 cases and cornual block in four. Successful intrauterine pregnancy was achieved in 5 (21%) cases, in one patient in her first cycle, in two in their second cycle and in two in their sixth cycle after the procedure. All these five women had live deliveries. Those who did not conceive were followed up for two years after which they were advised regarding other options. There was no ectopic pregnancy or abortion.

Discussion

Tubotubal anastomosis and tubal implantation conventionally performed for proximal tubal obstruction are prolonged, tedious and skilled surgical procedures and have the disadvantage of postoperative adhesion formation. Results are also not encouraging. In addition, such surgery requires some days of hospitalization and recovery time thereafter. Whereas, transcervical hysteroscopic tubal cannulation avoids the need for incisional surgery and the whole procedure is performed in a simple manner under magnified view with a certain degree of skill.

Advantages of combined hysteroscopic and laparoscopic approach are proper assessment of the distal tubes and ovaries, the elimination of spasm as

a factor, absence of radiation, more precise application of instruments and confirmation of achievement of tubal patency during the procedure. Successful tubal cannulation of at least one tube was achieved in 83% of our cases. Success in other series varies from 74% to 91%^{3,7}. Pregnancy rate in our series is 21%, which is similar to 20% to 40% reported in other series". Pregnancy success was not only related to the skill of the surgeon but also to the severity of tubal disease.

None of our patients had ectopic pregnancy so far. Incidence of ectopic pregnancy following tubal cannulation has been reported in upto 17% of cases. The distal tubal status is a primary determinant for ectopic pregnancy.

Considering the effectiveness, safety and simplicity of the procedure, hysteroscopic tubal cannulation should be tried as the first procedure for proximal tubal block in preference to in vitro fertilization (IVF). If the procedure is not successful or pregnancy is not achieved, then IVF or surgical repair is recommended.

References

1. Sulak PJ, Letterie GS, Coddington CC et al. Histology of proximal tubal occlusion. *Fertil Steril* 1987;48:437-40.
2. Fortier KJ, Haney AF. The pathologic spectrum of uterotubal junction obstruction. *Obstet Gynecol* 1985;65:93-8.
3. Novy ML, Thurmond AS, Patton P et al. Diagnosis of cornual obstruction by transcervical fallopian tube cannulation. *Fertil Steril* 1988;50:434-40.
- 4) Thurmond AS, Rosch J. Nonsurgical tubal recanalization for treatment of infertility. *Radiology* 1990;174:371-4.
- 5) Kerin J, Daykhovsky L, Segalowitz J et al. Faloposcopy: a microendoscopic technique for visual exploration of the human fallopian tube from the uterotubal ostium to the fimbria using a transvaginal approach. *Fertil Steril* 1990;54:390-400.
- 6) Bustillo M, Coulam CB. Color Doppler ultrasound guidance for wire tuboplasty. *Hum Reprod* 1993;8:1715-8.
- 7) Trivedi P, Padhye A, Agarwal R et al. Hysteroscopic tubal cannulation, our experience. *J Obstet Gynecol Ind* 2001;51:114-6.