

Infertile Women with Bilateral Obstructed Tubes: (A presentation of 7 cases):

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OBJECTIVE: Selective salpingography (SS), and tubal cannulation (TC), are possible alternatives to IVF(ICS)-ET treatment for bilateral proximal tubal occlusion. We present a series of infertile patients who presented with bilateral tubal blockage in their hysterosalpingographies (HSG's); and were treated with selective salpingography and tubal cannulation.

STUDY DESIGN: Case presentation of 7 infertile patients with bilateral proximal tubal obstruction who were treated with SS and if required TC to provide tubal patency and followed-up for 3 years.

RESULTS: In 6 of the 7 couples, at least one of the fallopian tubes was opened with SS-TC. At the end of 3 years follow-up of these couples, 4 achieved pregnancy; 2 being spontaneously and 2 with conventional infertility treatment.

2 of these pregnant couples (both conceived spontaneously) had diminished ovarian reserves, as well.

CONCLUSION: SS-TC is an important, effective and a rather neglected potential alternative to assisted reproductive technologies which demands to be studied in randomized controlled trials.

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Key Words: Selective salpingography, Tubal cannulation, Tubal factor, Infertility, Tubal obstruction

Tubal factor constitutes 25-35% of infertility causes in women; and salpingitis is suggested to be the cause for 50% of these cases.^{1,2,3,4} Tubal blockage may involve the proximal, middle, or the distal portion. Proximal blockage of the fallopian tube occurs in 10-25% of women with tubal disease and is mainly due to salpingitis isthmica nodosa (SIN), chronic salpingitis, intratubal endometriosis, polyps, amorphous material (e.g., mucus plugs), or tubal spasm.^{5,6}

Selective salpingography (SS), and if required tubal cannulation (TC), have been suggested to be alternatives to IVF (ICS)-ET treatment for proximal tubal occlusion.⁷ SS has been claimed to have a fertility enhancing effect even in infertile cases with confirmed bilateral tubal patency, probably by inducing lower tubal perfusion pressures.⁸

We present a series of infertile patients who presented with bilateral tubal blockage in their hysterosalpingographies HSG's; and were treated with selective salpingography and tubal cannulation.

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Material and Method

We present a series of 7 infertile couples who applied to our ambulatory care unit with a history of infertility of 1-13 years duration whose HSG's showed bilateral proximal tubal blockage. The ages of the women ranged from 28 to 41. 4 women had previous pregnancy losses. 2 women had diminished ovarian reserve. 2 men presented with oligospermia. None of the couples had any additional endocrinological, anatomic or urological findings.

Selective salpingography and tubal cannulation was performed by an interventional radiologist under fluoroscopic guidance in the angiography room. The intervention was performed on outpatient basis within the follicular phase of the menstrual cycle. Antibiotic prophylaxis was started just before and continued for 5 days following the procedure. The procedure was started with a hysterosalpingogram. After confirmation of tubal occlusion, a fallopian recanalization set (PBN, Denmark) was used to cannulate the tubes. A 9F catheter was progressed into uterine cavity. Through the lumen of 9 F catheter, a second 5.5F catheter was placed at each fallopian tube orifice. Contrast material was injected through this inner lumen and selective salpingograms were obtained to check if occlusion persisted. If so, a 0.014-0.018 inch guidewire was advanced into the tube, over which a 3.5F tracker microcatheter (Boston Scientific, Ireland) was passed through the proximal portion of the tube distal to the catheter. The guide wire was withdrawn and contrast material injected to visualize the tube distal to the catheter. In 6 of the 7 women treated, at least one tube was successfully recanalized. If tubal cannulation was successful, selective salpingograms and HSG's were repeated later to check if tubal patency was maintained.

Table 1. Patient characteristic

Patient	Inferility/ Marriage*	Age	History	HSG	Laparoscopy	Ovarian Reserve	D3 FSH miu/ml	D3 LH miu/ml	D3 E2 pg/ml	Prolactin	Male	SS-TC	Conventional	IVF	Outcome
H.G.	5/6	28	-	-Bilateral proximal Obstruction	Bilateral proximal Obstruction	DOR	11,3	7,2	33	11,9	Normal	-Right tube patent with SS-TC -Left remained obstructed	- 2 Cycles of COH+IUI with C.C. - 2 Cycles of COH+IUI with CC+hMG - 4 Cycles of COH+IUI with hMG	-1 cycle with IVF-ET	-Spontaneous pregnancy.
N.M.	9/9	34	-1 abortion.	-Right tube proximally and left tube distally obstructed	-	Normal	8,9	3,9	40	20,3	Oligozoospermia	Both tubes obstructed distally with SS	-	-	-
N.A.	4/8	36	-2 abortions. -Used IUD for 3 years.	-Bilateral proximal obstructions.	-	DOR	12	11	25	8	Normal	Both tubes patent with SS-TC	-	-	-Spontaneous pregnancy with missed abortion.
N.K.	13/13	39	-	-	-Bilateral proximal tubal obstruction	Normal	4	2	39	26	Oligozoospermia	-Left proximal obstruction treated with SS-TC -Right tube patent.	2 Cycles of COH+IUI with CC	-	-Not pregnant in 3 years
R.G.	1/1	40	-1 abortion.	-	-Endometriosis(+) -Left ampullary blockage -Right cornual blockage	Normal	4	9	33	8	Normal	Both tubes patent following SS-TC	2 Cycles of COH+IUI with CC	-	Currently being treated with ART.
S.Ç.	3/3	31	-1 abortion	-Bilateral proximal obstruction	-	Normal	9	7	36		Normal	Both tubes patent following SS-TC	2 Cycles of COH+IUI with CC	-	-Pregnant and term delivery.
E.Ş.	8/10	34	-	-	-Bilateral tubal obstruction; endometriosis(-)	Normal	5	10	42		Normal	Both tubes patent following SS-TC	2 Cycles of COH+IUI with CC	-	-Pregnant and term delivery.

4 of these 6 couples conceived; 2 being spontaneously (1 of these ending with spontaneous abortion), and 2 conceived with conventional infertility therapy within 3 years. In 2 of these conceptions, tubal factor was the only cause for infertility and in the other 2 couples, diminished ovarian reserves had been noted, as well (Table I).

2 of the nonpregnant couples had male factor as well.

Discussion

Proximal blockage of the fallopian tube comprises (10-25)% of with tubal causes for infertility^{5,6} and salpingitis isthmica nodosa (SIN), chronic salpingitis, tubal endometriosis, polyps, obstruction with amorphous material (e.g., mucus plugs), or spasm are the main causes. Tubal obstruction is a time-limited process that may be reversible, such as tubal spasm or plugging by amorphous material, and tubal occlusion is a permanent organic pathology, such as SIN.⁹ Proximal tubal blockage, suggested by failure of contrast medium to enter the intramural or isthmic portion of either tube, is diagnosed in (10-20)% of HSG's performed for infertility.¹⁰

There are no pathognomonic radiographic findings to confirm the presence of tubal obstruction or occlusion. Characteristic findings are seen only in SIN, where a stippled or honeycombed appearance on SG indicates retained contrast medium in small diverticular projections.^{11,12} Repeated HSG or some adjunctive drug treatments to relieve tubal

spasm have been suggested to identify 'temporary tubal obstructions'.^{13,14} Some investigators suggest that SS may serve as a diagnostic test: if tubal patency is established, then obstruction, likely was due to spasm or mucous debris. In support of this, Letterie and Sakas evaluated histologic findings in 15 patients (27 tubal segments) at laparotomy after failed SS.¹⁵ They found that 93% of these patients had severe disease, suggesting that SS might distinguish functional obstructions from true occlusion.

Different therapeutical approaches including surgical (macroscopic or microscopic reanastomosis), transtubal recanalization procedures (sonographically, tactile sensation-guided, fluoroscopically guided or via the hysteroscopic approach)^{16,17,18,19,20} have been suggested for treating proximal tubal obstruction in infertile patients. Procedural success rates, complication rates, fertility promoting outcome of transtubal recanalization procedures are comparable considering patency of at least one tube as the minimum favorable outcome. In this SSTC was performed under fluoroscopic guidance.

It was a controversial issue whether it would be helpful to rechannelize unilateral tubal obstructions until Hayashi et al. reported in their study that it really would in their modest series of 11 patients. None of the patients in our study had a unilateral tubal obstruction.²¹

Time-to-conception has been reported in previous studies, yet within wide confidence intervals. Papaioannou et al. have reported that time to conceive may be as long as 3

years and cumulative pregnancy rates may be as high as 43.2%.²² In our series, the patients were followed for 3 years, and 4 of the 7 couples conceived spontaneously within this time frame. Taking into account this rather long confidence interval for the time-to-conceive, age or the presence of subfertility causes such as a mild male factor or endometriosis singularly or in combinations, or unrepaired extratubal pathologies disrupting the tubo-ovarian relation could be relative contraindications.

It remains to be determined by randomized controlled prospective trials whether SSTC could set a prior step to assisted reproductive technology treatments in a defined subgroup of infertile couples.

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