

Outcomes of Hysteroscopic Resection of Uterine Septum in Ain Shams University Maternity Hospital – a retrospective analysis

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Abstract: Objective: The aim of the current work is to study the outcomes of hysteroscopic uterine septum resection at Early Cancer Detection Unit at Ain Shams University Maternity Hospital over a 12-year period between 1996 and 2007. **Patients and Methods:** The current study is a retrospective analysis of outcomes of hysteroscopic procedures for resection of uterine septum performed at Early Cancer Detection Unit at Ain Shams University Maternity Hospital over a 12-year period between 1996 and 2007. Data were retrieved from patients' case records available at the Early Cancer Detection Unit. Operative procedure details and notes were obtained from patients' case records. Patients were contacted directly, through mail and/or phone calls to complete follow-up data, procedure outcomes as well as missing data. **Results:** A total of 110 women, who underwent hysteroscopic septum resection during the period between 1996 and 2007, were included in the study. Of the included 110 women, 42 (38.18%) had primary infertility, 20 (18.18%) had secondary infertility and 48 (43.64%) had recurrent miscarriage. Uterine perforation occurred in 1 (0.91%) case. Excessive bleeding (> 500 ml estimated blood loss) occurred in 2 (1.82%) cases. No blood transfusion was needed. Of the included 110 women, only 35 (31.82%) were accessible for follow-up; of them 31 cases responded to phone calls while 4 responded to mail. Of the accessible 35 women, 9 (25.71%) had hysteroscopic septum resection performed for recurrent miscarriage. Of those 9 women, 4 (44.44%) had term deliveries, while 5 (55.56%) had persistent recurrent miscarriage. Of the accessible 35 women, 26 (74.29%) had hysteroscopic septum resection performed for infertility; of them 15 (57.69%) remained infertile, while 11 (42.31%) women got pregnant; of them, 2 (18.18%) had preterm deliveries while 9 (81.82%) had term deliveries. **Conclusion:** In conclusion, operative hysteroscopy is a safe and effective approach for resection of uterine septa. It should be the standard treatment for women with uterine septa presenting with recurrent miscarriage or infertility.

[Shalakani A., Hanafi S., Ali M. S. and Abdelhafeez M. A. **Outcomes of Hysteroscopic Resection of Uterine Septum in Ain Shams University Maternity Hospital – a retrospective analysis.** *J Am Sci* 2013;9(4):275-278]. (ISSN: 1545-1003). <http://www.jofamericanscience.org>. 38

Key words: Operative hysteroscopy – hysteroscopic resection of uterine septum– metroplasty

1. Introduction

Septate uteri have been associated with recurrent miscarriage, preterm labor and infertility. Evidence suggests that surgical correction of complete or incomplete uterine septa significantly reduces these adverse sequelae^[1-2]. The traditional surgical treatment for uterine septa was the abdominal metroplasty, which necessitated opening of the endometrial cavity, and was associated with considerable intraperitoneal adhesions, intrauterine synechiae, in addition to the inherent complications of laparotomy^[3]. Hysteroscopic approach is currently the accepted technique for dealing with such uterine septa. It has the advantage of being minimally-invasive, can be performed on outpatient basis, associated with significantly shorter recovery time and significantly lower risk of intrauterine synechiae and intraperitoneal adhesions, and it does not commit the patient to a subsequent Cesarean delivery^[3-4]. The aim of the current work is to retrospectively revise the outcome of hysteroscopic resection of uterine septum procedures performed over a 12-year

period in one of the fewest highly specialized units in Egypt and the Middle East, which is the Early Cancer Detection Unit at Ain Shams University Maternity Hospital. The surgeons were one of the three authors entitled above with supervision of all details of the technique.

2. Patients and Methods

The current study is a retrospective analysis of outcomes of hysteroscopic procedures for resection of uterine septum performed at Early Cancer Detection Unit at Ain Shams University Maternity Hospital over a 12-year period between 1996 and 2007. Data were retrieved from patients' case records available at the Early Cancer Detection Unit. Operative procedure details and notes were obtained from patients' case records. Patients were contacted directly, through mail and/or phone calls to complete follow-up data, procedure outcomes as well as missing data.

Procedure of hysteroscopic resection of uterine septum:

Instrumentation:

- Hamou endomat infusion [model 26 33 10 20] at an infusion rate of 300 ml/min, pressure of 120 mm Hg and suction 0.2.
- Fibroptic light: Xenon nova [model 20 13 15 20] (Karl Storz[®], Tuttlingen, Germany).
- Hysteroscope: rigid telescope, 30°, Hamou II hysteroscopy [model 25157 BT] Karl (Karl Storz[®], Tuttlingen, Germany), with a Hopkins II lens system. The sheath had an outer diameter of 5 mm, with an operative channel for instruments [model 26 163 V] with 2.9 mm rod lens.
- Camera: Karl Storz[®] endoscope, telecom DXpal [model 20 23 20 20].
- Semi-flexible instruments: scissors, grasping forceps, unipolar and bipolar electrode.
- Monitor: TVCR Goldstar [model No. KKV-9050, 50/60 Hz, AC, 100-270 V] to display the videotape and hysteroscopic procedure events.
- Collin's speculum, tenaculum and uterine sound were ready to be used when needed.

Hysteroscopy Procedure:

The patient was placed in a dorsal lithotomy position. The thighs were positioned at 90° angle to the pelvis and perineum was positioned just past the edge of the table to create enough space for the surgeon to manipulate the hysteroscope. Vulva, perineum and vagina were prepared with a non-irritating Povidone iodine solution (Bedatine[®] antiseptic solution). The hysteroscope was introduced into the cervical canal either via *conventional technique* (where vaginal speculum was inserted and the anterior lip of the cervix was grasped by a single-toothed vulsellum) or via *vaginoscopic technique* (where no speculum was inserted, the tip of the hysteroscope was positioned on vaginal introitus, labia were gently separated by fingers of the other hand, vagina was distended with saline, the hysteroscope was driven to the posterior fornix to visualize the portio and slowly withdrawn backwards to identify the external cervical os, then the hysteroscope is gently introduced through the cervical canal to the internal os). Saline was the standard distension medium used. Glycine was used as distension medium in cases where unipolar electro-surgery was needed, while saline was used when bipolar electro-surgery was used. Once uterine cavity was entered, it was symmetrically explored by rotating the fore-oblique scope in order to identify any abnormalities in the uterine walls and to visualize both tubal ostiae.

Hysteroscopic Septum Resection Procedure:

Division of the septum started from the most inferior point upwards. Division was continued in the midline until the base of the septum was reached, indicated by visualization of blood clots, as the septum is relatively fibrotic and bloodless. Either scissors, unipolar or bipolar electro-surgery were used for cutting the septum, leaving only the uppermost 0.5 cm. The cutting current was 60-70 W. Laparoscopy was used in some cases where the septum was thick or when the diagnosis of bicornuate uterus had been ruled out. Prophylactic antibiotics were given in such cases in the form of ampicillin/sulbactam 1.5 g/12 hours for 3 days.

3. Results

A total of 110 women, who underwent hysteroscopic septum resection during the period between 1996 and 2007, were included in the study. The mean age of included women was 29.2 ± 6.1 years (range: 18 – 45 years). The median parity was 0 (range: 0 – 5). The median no. of previous abortions was 2 (range: 0 – 10). The mean duration of illness was 6.7 ± 4.7 months (range: 3 – 22 months).

Of the included 110 women, 42 (38.18%) had primary infertility, 20 (18.18%) had secondary infertility and 48 (43.64%) had recurrent miscarriage. Of the included 110 women, conventional technique was performed in 60 (54.55%) women, while vaginoscopic technique was performed in 50 (45.45%) women. General anesthesia was needed in 108 (98.18%) women, paracervical block was adequate in 1 (0.91%) woman, while no anesthesia was needed in 1 (0.91%) woman.

Unipolar electro-surgery was used in 75 (68.18%) cases while bipolar surgery was needed in 21 (19.09%) cases, scissors (without electro-surgery) was used in 14 (12.73%) cases. Knife electrode was used in 89 (80.91%) women, loop electrode in 1 (0.91%) woman, and needle electrode was used in 6 (5.45%) woman. The distension medium used was glycine in 79 (71.82%) cases and saline in 31 (28.18%) cases. Laparoscopic assistance was used in 23 (29.91%) cases. The mean operative time was 28.1 ± 14 min (range: 20 – 60 min).

The procedure passed uncomplicated in 107 (97.27%) cases. Uterine perforation occurred in 1 (0.91%) case; that was managed conservatively, with no need for exploration. Excessive bleeding (> 500 ml estimated blood loss) occurred in 2 (1.82%) cases. No blood transfusion was needed. Of the included 110 women, only 35 (31.82%) were accessible for follow-up; of them 31 cases responded to phone calls while 4 responded to mail. The remaining 75 (68.18%) women were inaccessible either due to lack

of channel of contact or lack of response to mail or phone calls.

Of the accessible 35 women, 9 (25.71%) had hysteroscopic septum resection performed for recurrent miscarriage. Of those 9 women, 4 (44.44%) had term deliveries, while 5 (55.56%) had persistent recurrent miscarriage. Of the accessible 35 women, 26 (74.29%) had hysteroscopic septum resection performed for infertility; of them 15 (57.69%) remained infertile, while 11 (42.31%) women got pregnant; of them, 2 (18.18%) had preterm deliveries while 9 (81.82%) had term deliveries (Table-2).

Table-1: Characteristics of Women who underwent Resection of Uterine Septum

Age (Years)	
Range:	18 – 45
Mean ± SD:	29.2 ± 6.1
Parity	
Range:	0 – 5
Median (IQR):	0 (0 – 1)
No. of Previous Abortions	
Range:	0 – 10
Median (IQR):	2 (1 – 4)
Duration of Illness (months)	
Range:	3 – 22
Mean ± SD:	6.7 ± 4.7
Presenting Complaint [No. (%)]	
Primary infertility	42 (38.18%)
Secondary infertility	20 (18.18%)
Recurrent miscarriage	48 (43.64%)
Hysteroscopy Technique [No. (%)]	
Conventional:	60 (54.55%)
Vaginoscopic:	50 (45.45%)
Need for Anesthesia [No. (%)]	
No:	1 (0.91%)
General:	108 (98.18%)
Paracervical block:	1 (0.91%)
Type of Electricity [No. (%)]	
No electricity (Scissors)	14 (12.73%)
Unipolar:	75 (68.18%)
Bipolar:	21 (19.09%)
Electrode [No. (%)]	
No electrode (Scissors)	14 (12.73%)
Knife:	89 (80.91%)
Loop:	1 (0.91%)
Needle:	6 (5.45%)
Distension Medium [No. (%)]	
CO ₂ :	0 (0%)
Glycine:	79 (71.82%)
Saline:	31 (28.18%)
Laparoscopic Assistance [No. (%)]:	23 (29.91%)
Operative Time (min)	
Range:	20 – 60
Mean ± SD:	28.1 ± 14.0
Complications [No. (%)]	
Perforation:	1 (0.91%)
Bleeding:	2 (1.82%)

Table-2: Follow-up of Women who underwent Resection of Uterine Septum

Follow-up of Women [No. (%)]	
Accessible	35/110 (31.82%)
Inaccessible	75/110 (68.18%)
Lack of channel of contact	34/75 (45.33%)
Lack of response to mail	6/75 (8%)
Lack of response to phone calls:	35/75 (46.67%)
Accessible Women [No. (%)]	
Recurrent Miscarriage:	9/35 (25.71%)
Delivered at term:	4/9 (44.44%)
Recurrent miscarriage:	5/9 (55.56%)
Infertility:	26/35 (74.29%)
Remained infertile	15/26 (57.69%)
Got pregnant:	11/26 (42.31%)
Term delivery	9/11 (81.82%)
Preterm delivery	2/11 (18.18%)

4. Discussion

In spite of the relatively low proportion of accessible women for follow-up (31.82%), the results of the current retrospective analysis of a total of 110 women who underwent hysteroscopic uterine septum resection over a 12-year period in the Early Cancer Detection Unit at Ain Shams University Maternity Hospital is quite promising. The overall complications rate was relatively low (2.73%), including perforation (0.91%) and excessive vaginal bleeding (1.82%). The term pregnancy rate in women who had presented with recurrent miscarriage was 44.44%. The pregnancy rate in women who had presented with infertility was 42.31%; of this, 81.82% had term deliveries, while 18.18% had preterm deliveries.

Laparoscopy was needed in about 23% of procedures in the current work. Laparoscopy was routinely used in all procedures of hysteroscopic uterine septum resection performed by Parsanezhad *et al.* and Rock *et al.* [5-6]. The risk of uterine perforation was nullified in the study conducted by Rock *et al.*; the difference compared to the current work is not significant, however [0% vs. 2.73%; $p > 0.05$] [6]. Interestingly, the incidence of complications (either excessive bleeding [7%] or uterine perforation [10%]) was significantly higher in the study conducted by Parsanezhad *et al.* when compared to the current work and that conducted by Rock *et al.* [5-6]. It seems that routine use of direct laparoscopy did not decrease the risk of complications, and may encourage the surgeon to try to completely resect the septum, which may be associated with paradoxically higher risk of uterine perforation or excessive bleeding.

The relatively low rate of term pregnancy (in women with recurrent miscarriage) and the relatively low rate of pregnancy (in women with infertility)

found in the current work seems to be false, and resulted from the high drop-out rate.

The rate of pregnancy and term delivery in the current work is low, when compared to other studies. In the study conducted by Rock *et al.*, the pregnancy rate was 85.7%^[6]. In the study conducted by Parsanezhad *et al.*, the pregnancy rate was 78%^[5]. Tomazevic *et al.* studied the outcome of hysteroscopic uterine septum resection in 730 women. The rate of preterm birth was 35% before the procedure. Of the included 730 women, 607 (83.15%) women got pregnant and had delivery of viable neonates, of them only 46 (7.5%) had preterm delivery^[7]. Venturoli *et al.* analyzed the reproductive history of a large group of women undergoing hysteroscopic resection of uterine septum over a 5-years period. With a drop-out rate of zero during the follow-up. The pregnancy rate was 52%, of them 15% ended in miscarriage, 10% ended in preterm deliveries and 53% ended in term deliveries^[8]. The reason for the discrepancy between pregnancy rates of the current work and these studies seems to be false, and caused by the high drop-out rate during follow-up encountered in the current study (68.18%).

In conclusion, operative hysteroscopy is a safe and effective approach for resection of uterine septa. It should be the standard treatment for women with uterine septa presenting with recurrent miscarriage or infertility.

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3/2/2013