

## A Single Center Experience on Reproductive Outcome Following Hysteroscopic Treatment of Patients with Septate Uterus

Septat Uteruslu Hastalarda Histeroskopik Tedavi Sonrası Reprodüktif Sonuçlar: Tek Merkez Deneyimi

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### ABSTRACT

**Objective:** To determine the pregnancy rates after uterin septum resection, in an infertile women population.

**Methods:** We recruited 255 infertile women who have preoperative diagnosis of uterine septum and whom underwent hysteroscopic operation. We calculated the birth rates and the pregnancy rate between the primary and secondary infertile groups of women.

**Results:** The clinical pregnancy rate, the live birth rate, and the abortion rate were 35.4% (primer infertile [n=52, 35.6%], seconder infertile [n=31, 35.2%]), 30.7% (primer infertile [n=46, 31.5%], seconder infertile [n=26, 29.5%]) and 4.7% (primer infertile [n=6, 4.1%], seconder infertile [n=5, 5.6%]) respectively. Term birth rate and preterm birth rate were 22.6% and 8.1% respectively in all infertile patients.

**Conclusion:** The major finding of the current study is that septate uterus treatment improves obstetrical outcomes in infertile patients with an overall pregnancy rate of 35.4%.

**Key Words:** septate uterus; reproductive outcome; hysteroscopy

**Received:** 01.15.2020

**Accepted:** 02.07.2020

### ÖZET

**Amaç:** İnfertil popülasyonda, histeroskopik uterin septum rezeksiyonu sonrasında gebelik oranlarının belirlenmesini hedefledik.

**Yöntem:** Uterin septum ön tanısı alan 255 infertil kadına operatif histeroskopi uygulandı. Primer ve sekonder infertil gruplarda doğum oranları/gebelik oranları hesaplandı.

**Bulgular:** Klinik gebelik oranları, canlı doğum oranları ve düşük oranları sırasıyla %35.4, %30.7 ve %4.7 olarak hesaplanmıştır. Miadında doğum oranları ve preterm doğum oranları ise sırasıyla %22.6 ve %8.1 olarak bulunmuştur.

**Sonuç:** Çalışmanın en önemli bulgusu; infertil hastalarda uterin septum tedavisi sonrası %35.4'lük gebelik oranı ile obstetrik sonuçlara olumlu yönde etkisidir.

**Anahtar Sözcükler:** uterin septum; reprodüktif sonuçlar; histeroskopi

**Geliş Tarihi:** 15.01.2020

**Kabul Tarihi:** 07.02.2020

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doi:<http://dx.doi.org/10.12996/gmj.2020.140>

**INTRODUCTION**

During the embryogenesis the failure of formation or failure of fusion of the paramesonephric ducts results with mullerian duct anomalies. The incidence of congenital malformations in the general population and infertile population is 4.3% and 3.5%, respectively. Septate uterus is the most common type of structural uterine malformations that can be a reason of spontaneous abortion and infertility. The ratio of the congenital malformations incidence reaches high levels in this population who have habitual abortions (13%) (1-3).

Depending on the extension of the defect, septate uterus can be partial or complete. There is a large series of reports in the literature that indicate a high rate (>60%) of spontaneous abortion leading by septate uterus (4-8). Hysteroscopic metroplasty is a safe and simple approach to perform for the resection of the septate uterus (9-15). The advantages of this procedure are short operation time, ability to see the uterine cavity, low morbidity rate, decreased hospitalization time and absence of pelvic adhesion formation (16).

In the current study, we aimed to determine the reproductive outcomes after hysteroscopic resection of septate uterus in women with primary/secondary infertility.

**METHODS**

This retrospective study was conducted using data from the infertility department of our hospital. We recruited 255 infertile women who have preoperative diagnosis of uterine septum and whom underwent hysteroscopic operation. 234 of all being applied hysteroscopic septum resection between the years 2010-2015. It was detected by hysteroscopy that twenty-one of all have several uterine anomalies like unicornuate uterus, bicornuate uterus and, uterus didelphys. Data were obtained from patients' charts, pathology records or from direct contact with the patients. The study was performed with the permission of the Training Plan and Coordination Board Committee.

All patients underwent a full diagnostic investigation for the etiology of infertility. The diagnostic procedure included physical examination, blood tests including hormonal, hematologic parameters, ultrasound, hysterosalpingography and finally a diagnostic hysteroscopy.

**Table 1:** Distribution of the diagnosis.

Type of uterine anomaly	Primer infertile	Secunder infertile
Incomplete septate uterus	118 (74.2%)	78 (81.3%)
Complete septate uterus	28 (17.7%)	10 (10.4%)
Unicornuate uterus	12 (7.5%)	7 (7.3%)
Bicornuate uterus	1 (0.6%)	0
Uterus didelphys	0	1 (1%)
Total	159 (100%)	96 (100%)

**Table 2:** Reproductive results of septate uterus cases after hysteroscopic resection according to the groups.

	Primer infertile (n=146)	Secunder infertile (n=88)	p-value
Age	24.33±3.81	32.40±5.20	<0.001
Pregnancy rate	52 (35.6%)	31 (35.2%)	0.952
Live birth rate	46 (31.5%)	26 (29.5%)	0.092
Abortus rate	6 (4.1%)	5 (5.6%)	0.586
Preterm birth rate	9 (6.1%)	10 (11.3%)	0.084
Term birth rate	37 (25.3%)	16 (19.3%)	0.084

**DISCUSSION**

In the current study, we aimed to determine the reproductive outcome of a largest number of infertile patients who underwent hysteroscopic septal resection. The pathway about the impact of the uterine septum on fertility and pregnancy outcome has not been clarified yet. Although hysteroscopic septum resection is standardly being performed in women who desire fertility (18-20).

The final diagnose of septate uterus are all made by diagnostic hysteroscopy. Uterine septum classification (partial- Class U2 a or complet- Class U2 b) was made due to the European Society of Human Reproduction and Embryology (ESHRE) and the European Society for Gynaecological Endoscopy (ESGE) 2013 consensus on the classification of female genital tract congenital anomalies (17).

The hysteroscopic septum resection procedures were performed under general anesthesia. After cervical dilatation, the septum was dissected using a 26 Fr resectoscope (Karl Storz, Tuttlingen, Germany) with a cutting monopolar electrode. 1.5% glycine was used as a medium for distention of the uterine cavity. The follow-up period was 24 months' for the pregnancy achievement.

Primer infertility was defined as the absence of the pregnancy after 12 months of contraceptive-free intercourse. Secondary infertility was defined as the inability to conceive after 12 months of contraceptive-free intercourse after having conceived at least once. Data analysis was performed using the SPSS for Windows, version 17 (SPSS Inc., Chicago, IL, United States). Data was shown as a mean (95% Confidence Interval) or number of cases and (percentage), where applicable. Nominal data were analyzed by Pearson's chi-square test. P value less than 0.05 was considered statistically significant.

**RESULTS**

We recruited 255 infertile women who have uterine anomaly confirmed by hysterosalpingography. After the diagnostic hysteroscopy there were 196 patients with incomplete septate uterus and 38 with complete septate uterus (Table-1). Out of 234 infertile women with septate uterus who underwent hysteroscopic treatment, 146 (62.3%) were primer infertile and 88 (37.7%) were secunder infertile. Treatment following hysteroscopic septum resection, reproductive outcomes had been calculated. There was a significant difference only between age and infertility types of patients about reproductive outcome after hysteroscopic resection (p<0.001) (Table 2).

The clinical pregnancy rate, the live birth rate, and the abortion rate were 35.4% (primer infertile [n=52, 35.6%], secunder infertile [n=31, 35.2%]), 30.7% (primer infertile [n=46, 31.5%], secunder infertile [n=26, 29.5%]) and 4.7% (primer infertile [n=6, 4.1%], secunder infertile [n=5, 5.6%]) respectively. Term birth rate and preterm birth rate were 22.6% and 8.1% respectively in all infertile patients.

In the literature, some of the studies showed significant higher pregnancy rate in women with septate uterus who were treated with surgery. Contrast to this, some of them found no significant difference.

In a prospective controlled trial in 2009 (21), which contains forty-four women affected by septate uterus and otherwise unexplained infertility and 132 women with unexplained infertility, survival analysis showed that the probability of a pregnancy in the twelve-months follow up was significantly higher in patients who had undergone metroplasty (38.6% vs 20.4%, respectively).

According to our findings there was a significant correlation between age and type of infertility. But there were no other relationship with the reproductive parameters in these two infertility groups. On the other hand, the major finding of the current study is that septate uterus treatment improves obstetrical outcomes in infertile patients with an overall pregnancy rate of 35.6%.

Septate uterus is the most common type of müllerian anomalies (2). The efficacy of hysteroscopic resection of uterine septum in women with unexplained infertility remains controversial. This is because of the absence of large prospective randomized studies. Pabuccu et al. reported that the pregnancy rates after the hysteroscopic resection of patients whom had unexplained infertility and septate uterus, was 41% and the term birth rate was 29.5% (9).

Up to date, there were two systematic reviews and a meta-analysis (8,14,22) assessed the effect of septum resection on pregnancy and live birth rates in women with infertility, in women who have miscarried, in women who have experienced recurrent pregnancy loss, or all three, and estimated a pregnancy rate of 60–80% and a live birth rate of 45–54%. With the effect of septum resection on unexplained infertility, a higher pregnancy rate (38.6% versus 20.4%;  $P < 0.05$ ) has also been observed in these women (7).

Similar to our study, Tehraninejad et al. reports in their retrospective analyse which contains 248 infertile patients that septum resection by hysteroscopy was followed by an obvious improvement in pregnancy outcome. After hysteroscopic treatment they found that the term delivery rate increased to 33.5%. The other similar point with our study was the wideness of the data (23).

On the other hand, in the light of 78 retrospective articles, Cochrane Database System reported that there is no evidence that hysteroscopic septum resection improves reproductive outcome in women with a septate uterus and outweighs the possible complications of the procedure (24). But there are needs to randomized controlled trials which currently underway: TRUST (The Randomised Uterine Septum Transection Trial) and “Pilot randomized controlled trial of hysteroscopic septal resection” (17). The primer endpoint of this trial is to assess whether hysteroscopic septum resection improves live birth rate. Results have been expected to be clarified the confusion about this topic.

#### Conflict of interest

No conflict of interest was declared by the authors.

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