

# The Evaluation of Reproductive Outcome of Septated Uterus Corrected by Hysteroscopic Metroplasty

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تاریخ پذیرش: ۸۵/۹/۱۲

تاریخ ارائه: ۸۵/۵/۱۵

## ارزیابی نتایج باروری رحم های سپتوم دار اصلاح شده با متروپلاستی هیستروسکوپیک

### خلاصه

**مقدمه:** ناهنجاریهای مادر زادی رحمی ناشی از اختلالات اتصال سیستم مولرین شایع ترین ناهنجاریهای سیستم تناسلی هستند. هدف از این مطالعه ارزیابی نتایج بررسی بعد از متروپلاستی هیستروسکوپیک در زنان با رحم سپتوم دار که از نازایی یا سقط راجعه رنج می برند، بود.

**روش کار:** این مطالعه توصیفی از سال ۲۰۰۳ تا ۲۰۰۴ در بیمارستان رسول اکرم دانشگاه ایران ۱۹ زن در سنین ۲۱-۳۵ سال با نازایی اولیه یا سقط راجعه و رحم سپتوم دار تحت رزکسیون هیستروسکوپیک سپتوم قرار گرفتند. همه سپتوم ها با قیچی برداشته و بیماران پیگیری شدند. بیمار در روز اول بعد از عمل و تقریباً ۲ ماه بعد برای نتایج جراحی ویزیت شدند. این ارزیابی به وسیله HSG (هیستروسالپینگوگرافی) انجام شد. مشخصات فردی و نتایج و عوارض جراحی در پرسشنامه جمع آوری و آمار توصیفی با نرم افزار آماری SPSS پردازش گردید.

**نتایج:** مدت نازایی بیماران بین ۲ تا ۴ سال و با میانگین ۵/۴ و انحراف معیار ۲/۳ متفاوت بود. میانگین دوره پیگیری برای ۹ زن حدود ۳/۷ ماه بود که ۶ نفر از آنان بین ۱۲-۳ ماه بعد از جراحی باردار شدند.

**نتیجه گیری:** به نظر می رسد که رزکسیون هیستروسکوپیک سپتوم بهبود مشخصی در نتایج باروری در زنان با سابقه نازایی و سقط قبلی به همراه دارد.

**کلمات کلیدی:** رحم سپتوم دار، ناباوری، اولیه، متروپلاستی هیستروسکوپیک، سقط راجعه

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## Introduction

Congenital uterine anomalies, resulting from müllerian fusion defects, are the most common malformations of the reproductive system observed in 3-5% of the general population (1,2), but the frequency increases by 5 to 25% in women with recurrent miscarriages, late abortions and preterm deliveries (2,3,4,5). Uterine septum is the most common congenital anomaly with an incidence of 2-3% in general population (2). Its presentations are poor reproductive performance, including high incidence of first and second trimester abortion, preterm delivery (often as a result of premature rupture of the membrane), as well as abnormal fetal presentations and increased caesarean section rate (6-10). However, a group of patients with septate uteri may present with primary or secondary infertility, which is discovered only during the infertility work-up (11,12). The interference of a septated uterus with woman's fertility remains a controversial issue. (6,10) Hysteroscopic division of the uterine septum (metroplasty) is now the accepted treatment for such cases, despite the lack of good prospective randomized controlled trials and the small size of many reported series. A majority of these studies are retrospective and compare the reproductive outcome before and after metroplasty (1,13). Before the development of modern operative hysteroscopy, the accepted surgical technique was either removal (Strassmann or Jones) or section (Tompkins) of the septum (14,15). Nowadays, the septum can be effectively treated by operative hysteroscopy as a first therapeutic option. It has many advantages such as shorter operating and hospitalization periods, reduced risk of postoperative pelvic adhesions, and an increased rate of vaginal delivery (16-17). The aim of this study was to assess the achievement of pregnancy as well as the reproductive outcome after hysteroscopic septum resection in women with recurrent abortions or infertility.

## Material and Methods

This descriptive study was performed at Rasule-Akram Hospital of Iran Medical University, Tehran. During the period From 2003 to 2004, 19 women (aged 21-35 years) with primary infertility or recurrent abortion and septate uteri of varying length (2-9 years), who agreed to undergo hysteroscopic metroplasty were studied. Women aged >35 years were excluded from the study to avoid the inclusion of subjects with age-related subfertility. Also women with pelvic lesion, such as endometriosis, that could adversely affect infertility were excluded. The trial was performed in accordance with the declaration of Helsinki.

In addition to a detailed history and through clinical examination, all of the patients, and their partners had complete infertility investigations, including sexually transmitted disease work-up, semen analysis, endocrine evaluation as necessary, assessment of ovulation, and hysterosalpingography (HSG). The initial diagnosis of septated uterus was made by HSG. Before laparoscopy and hysteroscopy, the process of the study and metroplasty was completely explained for the patients, and proper consent was obtained.

Under general anesthesia, laparoscopy and hysteroscopy were performed simultaneously, and septum of uteri was resected by hysteroscopy. As it is mentioned, in all cases, the surgical procedures were performed under general anesthesia, in the early proliferative phase of the cycle.

The cervical canal was dilated to 9<sup>mm</sup>, and then a rigid hysteroscope (model A4830; Olympus) was introduced through the cervical canal. The uterine cavity was distended with normal saline. The septum resection was performed with a scissor at 90°, equidistantly between the anterior and the posterior wall. After visualization of the uterine cavity, the resection was started from the lower margin of the septum and continued upwards with progressive horizontal incisions in the midline. The procedure was considered complete when a normal cavity was obtained and the hysteroscope could be moved freely from one tubal ostium to the other without an

intervening obstruction. In cases of complete septate uterus, the uterine septum was removed, starting from the cervical part with scissors and followed by hysteroscopic resection of the intrauterine part. The patients did not have notable bleeding after procedures.

The patients were seen on the first postoperative day and returned for a follow-up visit approximately 2 months later, for the assessment of surgical outcomes. This was accomplished with HSG. Demographic characteristics, physical examination, results of operation and follow up were collected and analyzed by descriptive statistics and SPSS 11.5.

### Results

The study included 19 women aged  $\leq 35$  (between 21-34) years with a septate uterus and otherwise unexplained infertility or recurrent abortion, prospectively seen in the clinic. And the mean age of the patients was 28.13 (SD=3.39) years. Meanwhile the duration of infertility period among the patients differed from 2 to 14 years with the mean of 5.4 (SD=3.26) years. From the total number of 19 women who were enrolled in our study, 3(15.7%) had recurrent abortion, 2(10.5%) had ectopic pregnancy, 13(68.4%) had primary infertility and 1(5.2%) had delivered dead fetus before septum resection.

All septa were removed and patients were followed up. Three patients were lost to follow-up and in seven cases the follow-up period was too short (less than three months after hysteroscopic metroplasty). Therefore, nine patients were followed up and six of them (66.6%) achieved a pregnancy within 3-12 months after their surgery. Mc donald cerclage was performed at 12-14 weeks of pregnancy. The mean follow-up period was 7.3 (SD=1.94) months and passing 14-38 weeks of their pregnancy period.

Of these 6 patients, 5(83.3%) had primary infertility for 3-9 years and 1(16.6%) of them had secondary infertility.

By the way, they were treated by various assisted reproductive treatment before septum resection.

### Discussion

The etiology of reproductive failure in patients with uterine anomalies has remained unclear. The mechanisms by which septate uteri cause early pregnancy loss and infertility have not been established. For that matter, the issue of whether the septate uterus is a cause of infertility remains controversial (1,18).

However, it seems that in women with recurrent abortion, metroplasty significantly improves the subsequent reproductive outcome (1).

Several mechanisms have been proposed to explain the adverse effect of a septate uterus on the course of pregnancy. The diminished size of uterine cavity as well as cervical incompetence have been suggested as possible etiological factors (2,10,19). However, according to the most widely accepted theory, the septum is thought to be consisted of fibroelastic tissue with inadequate vascularization and altered relations between myometrial and endometrial vessels, thus exerting a negative effect on fetal placentation (2,15,20). Contrary to this classical concept, Dabirashrafi, et al in their study in 1995 found significantly less connective tissue, a higher amount of muscle tissue, and more vessels in the septum. Thus, they suggested that pregnancy wastage is caused by poor decidualization and placentation, due to the reduced amounts of connective tissue, as well as by higher or uncoordinated contractility due to the increased muscle content.(2)

In this study, the hysteroscopic resection of septum was accompanied by a significant improvement in pregnancy outcome. As it was mentioned, from the patients of this study with uterine septum and infertility, 6 out of 9 (66.6%) conceived after hysteroscopic metroplasty. All of them were treated with various assisted reproductive treatments. Significant improvement in the pregnancy outcome after hysteroscopic metroplasty was also described by other investigators (table 1).

Table 1: Productive outcomes of different studies after hysteroscopic metroplasty for the septate uterus in women with primary infertility

Author	N	Hysteroscopic adjuncts	Live Births (%)
Rock et al <sup>(22)</sup>	1	Balloon	1(100)
Vericellini et al <sup>(23)</sup>	10	-	4(40)
Fedele et al <sup>(13)</sup>	23	Scissors	13(56)
		Resectoscope Laser	
Daly et al <sup>(21)</sup>	2	Metal sound	1(50)
Romer and Lober <sup>(24)</sup>	6	Balloon	3(50)
Nagel <sup>(25)</sup>	9	Ultrasound	3(33)
Valle <sup>(26)</sup>	12	Catheter	10(83)
Donnez and Nisolle <sup>(27)</sup>	20	Scissors	17(85)
Current study	9	Scissors	6(66.6)

Furthermore, Daly, et al in 1989, reported that 7 out of 13 (53.8%) patients with infertility conceived after septum resection and Goldenberg, et al in 1995 have observed pregnancies after hysteroscopic metroplasty in 18 out of 34 (54%) patients with uterine septum and infertility.

Thus, chances of conception in this study seemed to be similar to those of the general infertile population either with or without septum resection. This may also be an indirect sign that uterine septum is not an infertility factor. However, the treatment had itself a beneficial effect on the pregnancy outcome in the study.

### Conclusion

Hysteroscopic metroplasty is now the gold standard for management of a septate uterus. It seems that the hysteroscopic septum resection is accompanied by a significant improvement in the reproductive performance of the patients. Therefore, it is concluded that hysteroscopic metroplasty improves the performance of septated uterus, and should be considered as a valuable corrective approach for such patients.

## Abstract

**Introduction:** Congenital uterine anomalies resulting from mullerian fusion defects are the most common malformations of the reproductive system. The purpose of this study was to evaluate the reproductive outcome after hysteroscopic metroplasty in women with septated uterus who suffer from infertility or recurrent abortion.

**Material and Methods:** This descriptive study was performed during the period from 2003 to 2004 at Rasul-e-Akram Hospital of Iran Medical University. A total of 19 women (aged 21-35 years) with primary infertility or recurrent abortion and septate uteri underwent hysteroscopic septum resection. All septa were removed with a scissor at 90° and patients were followed up. The patients were seen on the first postoperative day and visited approximately 2 months later for assessment of surgical outcomes. This assessment was accomplished with hysterosalpingography (HSG). Statistical analysis was carried out using SPSS V. 11.5.

**Results:** The duration of infertility among the patients differed from 2 to 14 years with the mean of 5.4 (SD=3.26) years. The mean follow-up period for 9 women was 7.3 (SD=1.94) months and six of them (66.6%) conceived a pregnancy within 3-12 months after the surgery.

**Conclusion:** It seems that the hysteroscopic septum resection is accompanied by a significant improvement in the reproductive performance of women who suffer from infertility or recurrent abortion.

**Keywords:** Septated Uterus, Primary Infertility, Hysteroscopic Metroplasty, Recurrent Abortion

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