

The Reproductive Outcome Following Hysteroscopic Septal Resection in Patients with Primary Infertility or Recurring Miscarriages

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Abstract

Aim: The purpose of this study was to assess the reproductive outcomes for women who were experiencing recurrent miscarriages or infertility after hysteroscopic septal excision.

Methods: At "Hi-Tech medical college and hospital, Bhubaneswar" a prospective clinical experiment was carried out. Twenty patients with primary infertility and twenty with recurrent miscarriages were among the forty patients who were enrolled; all patients had uterine septums. Every individual had a hysteroscopic septal resection. Pregnancy rates and related outcomes like live births, preterm births, term births, and miscarriages were the main outcome measures.

Results: The results showed that after hysteroscopic metroplasty, patients with uterine septum and primary infertility had significantly improved reproductive outcomes. Twelve pregnancies out of twenty patients represented a significant rise in the pregnancy rate to 54%. While term delivery and live birth rates were much higher at 30% and 44%, respectively, abortion and premature labor rates were relatively low at 4% and 9%, respectively. Additionally, it was noted that patients experiencing repeated pregnancy loss had significantly improved reproductive outcomes. While the percentage of preterm births decreased non-significantly from 10.1% to 7.3%, the rate of term deliveries increased significantly from 3.7% to 50.9%, and the rate of live births increased significantly from 7.3% to 54.6%.

Conclusion: For patients who experienced repeated miscarriages, hysteroscopic metroplasty resulted in considerable improvements in reproductive outcomes, such as a decrease in the number of abortions and an increase in the rates of term deliveries and live births. Furthermore, a noteworthy improvement in the rates of conception was noted in patients whose main infertility could not be explained.

Keywords: Recurrent miscarriage; Hysteroscopic metroplasty; Uterine septum; Unexplained infertility.

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Introduction

Anomalies of the reproductive tract are relatively common, affecting roughly 3% of infertile women and 3-5% of the overall population [1]. Although these defects typically don't cause any symptoms, they may be connected to infertility or recurrent miscarriages. More than 25% of women who lose their pregnancies repeatedly have them identified [2]. About 2-3% of these cases involve uterine septum, a common congenital uterine condition linked to pregnancy troubles and infertility issues [3].

Recurrent miscarriages are the primary cause for treating uterine septum, however some patients may also have reproductive problems, which are frequently found during infertility evaluations. Because they offer more benefits than traditional procedures—like fewer expenditures, shorter hospital stays, and quicker recovery—minimally invasive treatments are being favoured. The advent of operational hysteroscopy has simplified the management of these anomalies, which were formerly treated with more intrusive operations such as laparotomies. Hysteroscopic metroplasty is mainly used as a prophylactic procedure to lower the

incidence of spontaneous abortions in infertile patients [4].

Hysteroscopic metroplasty significantly improves pregnancy outcomes for women with unfavorable obstetrical histories, according to a number of studies. Due to a lack of research, its significance for patients experiencing infertility that cannot be explained is still unknown. Retrospective studies have revealed that hysteroscopic metroplasty can lead to better pregnancy outcomes [5].

This study aimed to evaluate the reproductive outcomes in women who had primary infertility or recurrent miscarriages after hysteroscopic septal excision.

Methodology

Study design: The Department of Obstetrics and Gynaecology at Hi-Tech medical college and hospital, Bhubaneswar ' conducted this study from 'July 2018 to July 2019'.

Participants: 40 women were enrolled who had undergone repeated abortions, preterm deliveries, infertility, or both with different lengths of septate uteri.

Exclusion Criteria: To rule out other potential causes, an infertility examination was performed for patients in Group I who had uterine septa and primary infertility. Tests were carried up to rule out other causes of recurrent losses in Group II, which included patients with uterine septa and recurrent miscarriages. Patients with uterine myomas, adnexal illnesses, endocrine disorders, and aberrant semen parameters in their spouses were not included in our sample.

Study Setting: The participants were split into two groups: Group II comprised patients with a history of two or more spontaneous abortions in the first or second trimester, with or without a history of preterm delivery. Group I consisted of patients with unexplained primary infertility for at least a year.

To confirm the diagnosis, 3D ultrasonography and diagnostic hysteroscopy were performed on each patient. Hysteroscopic metroplasty was performed due to a septate uterus with a history of unexplained primary infertility, recurrent losses, and/or preterm delivery.

Ethical Considerations: Before surgery, the process to each patient was explained and got their written informed consent. The same operator performed the surgeries under general anesthesia, scheduling them during the early proliferative phase of the menstrual cycle.

Procedure: Hegar's dilator was used to dilate the cervix to a size '10' during the treatment. The uterus was perforated to receive a 4 mm 30° telescope with

a hysteroscopic monopolar loop and a 10 mm working element with its sheath.

As the distending medium, 1.5% glycine was utilized while keeping the inflow pressure between 70 and 100 mmHg. To make sure there was no difference of more than one liter, the fluid volumes entering and leaving the system were regularly observed.

A cutting current of 60–80 W was set. Up until both tubal ostia (openings) were plainly visible, the septum was separated upward. When the hysteroscope could move freely from one cornual end to the other and both tubal ostia were visible at the same time when the hysteroscope was positioned in the center of the cavity, the resection of the septum came to an end. Laparoscopy was done concurrently on infertile patients to evaluate the fallopian tubes and any other problems. For recurrent abortion situations, laparoscopy was not done. Any issues that arose along the process were recorded.

Two months following the procedure, an office hysteroscopy was performed to determine whether the uterine cavity was normal. It was recommended to patients to attempt spontaneous conception. There was regular contact and follow-up every two months for the duration of the follow-up, which varied from 12 to 18 months. Pregnancies and their results, such as miscarriages, preterm deliveries, term deliveries, and live babies, were among the study's outcomes.

Statistical Analysis: SPSS version 20.0 and Microsoft Excel software were used to code and analyze the data that was gathered. The significance level was established at <0.05 for significant findings and <0.001 for extremely significant results, and a variety of statistical tests were employed to evaluate significance.

Results

The patients in the two groups were similar in terms of age (about 23.15 years old in group I and 24.26 years in group II) and body mass index (approximately 24.11 kg/m² in group I and 24.31 kg/m² in group II). In group I, the infertility duration was 3.4 years on average.

After hysteroscopic septal excision, 54% of patients in group I—which comprised individuals with primary infertility—were able to conceive, whereas 44% were unable to do so. Preterm birth rates were 9% and miscarriage rates were 4%. Nonetheless, the rates of live births and term deliveries were 30% and 44%, respectively.

After hysteroscopic septal excision, the pregnancy rate in group II, which included patients who had experienced repeated miscarriages, was 60.37%; 28.63% of the women were unable to become pregnant. Preterm birth rates were 7.3% and

miscarriage rates were 10.1%, respectively. On the other hand, the rates of live births and term deliveries were 54.6% and 50.9%, respectively. Table 1 indicates that following hysteroscopic septal

excision, there were no statistically significant changes between the two groups with respect to miscarriage, pregnancy rate, term delivery, preterm delivery, and live birth rates.

Table 1: Results of hysteroscopic septal resection on reproduction:

	Group I N=20	Group II N=20
No pregnancy	44%	28.6%
Pregnancy	54%	60.4%
Abortions	4%	10.1%
Preterm deliveries	9%	7.3%
Term deliveries	30%	50.9%
Live-birth	44%	54.6%

In group II (those who are with a history of repeated abortion and uterine septum), there was a substantial increase in term deliveries and live births and a significant decrease in abortion rates when compared the reproductive outcomes before and after hysteroscopic septal removal.

Crucially, neither group experienced any post-operative problems, including bleeding, hemorrhage, intrauterine synechia, hyponatremia, or uterine perforation.

Discussion

In this study, hysteroscopic metroplasty was performed as a preventive intervention for patients with primary infertility that was not explained and to improve obstetric outcomes in patients who had experienced repeated pregnancy loss.

The study's findings demonstrated that hysteroscopic metroplasty significantly improved the reproductive outcomes of individuals with uterine septum and primary infertility. Preterm labor (9%) and miscarriage (4%) were relatively rare, but term delivery (30%) and live births (44%) were high. The pregnancy rate was 54%. After hysteroscopic metroplasty, patients who had previously had repeated pregnancy loss also saw notable improvements in their reproductive outcomes, with a decrease in abortion rates (11.1%) and a rise in term deliveries (50.9%) and live births (54.6%).

These results are consistent with earlier research. For instance, after hysteroscopic metroplasty, Güven *et al.* (2012) [4] reported pregnancy rates of 65.6% and 76.2% among individuals with primary infertility and recurrent pregnancy loss, respectively. Positive results were observed in both groups by Ayas *et al.* (2011), [6] who also noted a noteworthy decrease in the miscarriage rates of individuals with a history of recurrent miscarriages.

After hysteroscopic septum removal, there was a noticeable decrease in the rate of miscarriages and an increase in term births, according to other research, like Tehraninejad *et al.*'s 2013 study [7]. All of these research point to the efficiency of

hysteroscopic metroplasty in enhancing the success of pregnancies for individuals with uterine septum.

Furthermore, after hysteroscopic metroplasty, there is a continuous increase in the number of live births and pregnancy rates among patients with uterine septum and primary infertility, according to studies on this population. For example, Pabuccu and Gomel (2004) [8] reported a pregnancy rate of 41.5%, and Mollo *et al.* (2009) [9] observed that patients who underwent hysteroscopic metroplasty had considerably greater rates of pregnancy and live births than patients with normal uterine cavities. Positive results were also noted in terms of pregnancy rates by Pai *et al.* in 2009 [10].

Furthermore, improvements in reproductive outcomes have been regularly shown in investigations involving patients with uterine septum and recurrent miscarriages. Following hysteroscopic metroplasty, term births increased and abortion rates significantly decreased, according to a 2001 study by Grimbizis *et al.* [11]. According to Saygili *et al.* (2003) [12], Fedele *et al.* (2006) [13], and Roy *et al.* (2011) [14], the technique resulted in fewer miscarriages and more term births.

In conclusion, numerous studies have demonstrated that hysteroscopic metroplasty is beneficial in enhancing the success of pregnancies for individuals with uterine septum, regardless of whether they have recurrent pregnancy loss or primary infertility.

Conclusion

Hysteroscopic metroplasty has the potential to significantly enhance the reproductive outcome for patients experiencing recurrent miscarriages by lowering the rate of abortion and raising the rate of term delivery and live births. Additionally, there was a notable improvement in the conception rate among patients whose main infertility could not be explained.

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