



Reproductive outcome after hysteroscopic septoplasty in patients with recurrent pregnancy loss or subfertility

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Objectives: The aim of the study is to assess the reproductive outcome (conception rate and live birth rate) after hysteroscopic septoplasty using hysteroscopy with scissors compared with monopolar resectoscope.

Methods: A randomized clinical trial done at gynecology department at Mansoura university hospital from July 2020 to March 2023. Women with uterine septum and suffering from recurrent pregnancy loss or subfertility were included in the study. 40 patients were eligible to inclusion criteria and were randomized by computer program into 2 groups: resectoscope group and scissors group. Patients were followed up until the end of first clinical pregnancy or for 1 year after hysteroscopic septoplasty.

Results: Resectoscope group had conception rate 50% and live birth rate 38.9%, while scissors group had conception rate 57.9% and live birth rate 52.6%. There was no statistically significant difference among the patients of both groups regarding the conception rate and live birth rate after hysteroscopic septoplasty.

Conclusions: Hysteroscopic septoplasty improves the conception rate and livebirth rate in patients with recurrent pregnancy loss or subfertility whatever the technique of septoplasty either by scissors or resectoscope.

Key words: Uterine septum, Hysteroscopy, Recurrent pregnancy loss, Subfertility

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Introduction

Women with septate or subseptate uterus usually present with subfertility, recurrent pregnancy loss, preterm birth, and occasionally by other complaints such as dysmenorrhea. Approximately 3.5–6.4% of subfertile women and 6% of women with recurrent pregnancy loss, have a septate uterus. (1) Women with canalization defects, such as septate and subseptate uterus, in comparison to women with unification defects, such as unicornuate, bicornuate and didelphic uterus, appear to have poorer reproductive outcome in addition to a reduced conception rate. Moreover, women with septate uterus appear to have poorer outcome throughout the course of pregnancy than women with subseptate uterus. (2)

Hysteroscopic septoplasty is currently standard practice to restore normal uterine anatomy, with the aim of improving reproductive outcomes. However, there is a debate until now about the effectiveness of the procedure and still the use of the procedure is not supported until adequate studies would have demonstrated its effectiveness. (3)

The aim of this study was to assess the reproductive outcome in patients with uterine septum suffering from recurrent pregnancy loss or subfertility after hysteroscopic septoplasty.

Methods and Material

This was a randomized clinical trial done at gynecology department at Mansoura university

hospital from July 2020 to March 2023. Women with uterine septum and suffering from recurrent pregnancy loss or subfertility were included in the study. Those with contraindications for surgery or who refused to participate were excluded.

Uterine septum was diagnosed by HSG and Three-dimensional Transvaginal ultrasound according to ESHRE/ESGE criteria. 40 patients were eligible to inclusion criteria and were randomized by computer program into 2 groups: resectoscope group and scissors group. 20 patients were done using monopolar resectoscope and 20 patients were done using hysteroscope with scissors.

Patients in both groups were prescribed cyclic estrogen and progesterone for 2 months after hysteroscopic septoplasty. Patients were followed up until the end of first clinical pregnancy or for 1 year after hysteroscopic septoplasty at the outpatient clinic, and those who can not attend were followed up by telephone call. 2 patients in the resectoscope group and 1 patient in scissors group lost their follow up.

The primary outcome measure was conception rate and the secondary outcome was live birth rate. Live birth was defined as the birth of a living foetus beyond 24 weeks of gestational age.

Statistical analysis

The collected data was coded, processed and analyzed using SPSS program (Version 24) for windows. The appropriate statistical tests were used when needed. P values less than 0.05 (5%) is considered to be statically significant.

Ethical consideration:

Study protocol was approved by Institutional Research Board. Informed written consent was obtained from each participant sharing in the study.

Results

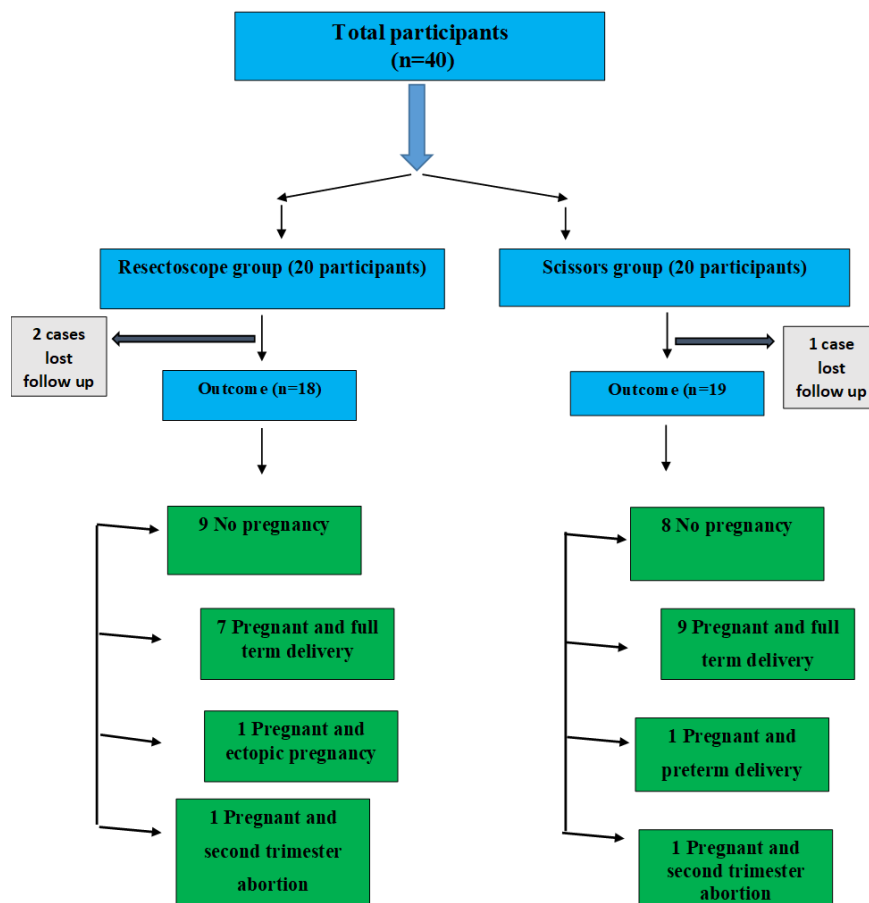


Figure (1): Flow chart of the studied groups

Table (1): Reproductive outcome among the studied groups after hysteroscopic septoplasty

Reproductive outcome	Resectoscope group (n=18)	Scissors group (n=19)	Test of significance	P value
No pregnancy	9 (50%)	8 (42.1%)	MC	0.897
Pregnant and full-term delivery	7 (38.9%)	9 (47.4%)		
Pregnant and ectopic pregnancy	1 (5.5%)	0 (0%)		
Pregnant and second trimester miscarriage	1 (5.5%)	1 (5.2%)		
Pregnant and late preterm delivery	0 (0%)	1 (5.2%)		
Time to get pregnant (months) Median (IQR)	7 (3-11)	6 (3-15)	Z=0.155	0.882

This table shows no statistically significant difference between both groups after hysteroscopic septoplasty as regard full-term pregnancy, miscarriage, preterm delivery, and time to get pregnant. The median time to get pregnant is

7 months after septoplasty in resectoscope group, and 6 months in scissors group, with no significant difference between both groups.

Table (2): Conception and live birth rate among all patients in both groups according to their presentation after hysteroscopic septoplasty.

	Conception rate	Live birth rate
RPL(n=17)	11 (64.7%)	9 (52.9%)
Primary subfertility (n=10)	3 (30.0%)	3 (30.0%)
Secondary subfertility (n=10)	6 (60.0%)	5 (50.0%)

This table shows that patients suffering from RPL were 17 in number with conception rate 64.7% and live birth rate 52.9%, patients suffering from primary subfertility were 10 in number with

conception rate 30% and live birth rate 30%, and patients suffering from secondary subfertility were 10 in number with conception rate 60% and live birth rate 50%

Table (3): Live birth rate between two groups according to patient clinical presentation after hysteroscopic septoplasty

	Resectoscope group	Scissors group	P value
RPL	4/10 (40%)	5/7 (71.4%)	0.335
Primary subfertility	1/4 (25.0%)	2/6 (30.0%)	0.778
Secondary subfertility	2/4 (50.0%)	3/6 (50.0%)	1.0

Fisher exact test was used

This table shows no statistically significant difference in live birth rate between the two groups

after hysteroscopic metroplasty according to the patient clinical presentation.

Table (4): Conception rate and live birth rate among both groups after hysteroscopic septoplasty

	Resectoscope group (n=18)	Scissors group(n=19)	Test of significance	P value
Conception rate	9/18 (50%)	11/19 (57.9%)	$\chi^2=0.232$	0.630
Live birth rate	7/18 (38.9%)	10/19 (52.6%)	$\chi^2=0.703$	0.402

χ^2 : chi square test, p value >0.05 not significant

This table shows that resectoscope group had conception rate 50% and live birth rate 38.9%, while scissors group had conception rate 57.9%

and live birth rate 52.6%, with no statistically significant difference between both groups

Discussion

Few clinical dilemmas in reproductive medicine have persisted over decades with little progress toward resolution. Regrettably, the impact of a uterine septum on reproductive outcome is one of the most important dilemmas. (4)

In analysis of our results, we found clear association between uterine septum and increased probability of spontaneous miscarriage in the first and second trimester, and the correlation was higher in the first trimester.

In our study, 60% in resectoscope group and 40% in scissors group suffered from first trimester miscarriage, while 30% in resectoscope group and 5% in scissors group suffered from second trimester miscarriage. This is similar to the results of Zlopasa et al., they found a percentage of first trimester spontaneous miscarriage 77.8% and 15.9% second trimester miscarriage. (5) Moreover, in the study of Saravelos et al, 72.6% had first trimester miscarriage and 13.2% second trimester miscarriage. (6)

In our study, there was significant reduction in miscarriage rate. 17 patients suffering from recurrent pregnancy loss, 11 (64.7%) of them conceived and resulted in 9 live births (52.9%) from the first conception. There was no statistically significant difference between live birth rate in patients with RPL in both arms, 5/7 (71.4%) in scissors group and 4/10 (40%) in resectoscope group with p value 0.335. Thus, there is no advantage of one method over the other regarding the reproductive outcome.

This result is in agreement with the study of Noventa et al. (7) that showed the proportion of miscarriage and preterm labor was lower after hysteroscopic septoplasty with p value (0.0001). (7) However, Rikken et al. (3) contradict our results, they found no improvement in reproductive outcome from the intervention. Nevertheless, Rikken et al study had several limitations, including the small sample size and heterogeneity in terms of patient's characteristics and reproductive disorders. (3)

In this study, the median time between septoplasty and conception was similar in both groups, with median 7 months in resectoscope arm and 6 months in scissors arm. This period includes the 2 months of cyclic estrogen and progesterone after septoplasty, which was given to all patients. This is in agreement with Cararach et al. (8) who compared incision of septate uterus by scissors versus resectoscope. (8)

In this study, 22 out of 40 cases suffered from primary and secondary subfertility. 8 out of 22 (36.4%) cases have other causes of subfertility (PCOS, male factor, tubal block, C.S niche).

Although in other studies like Pabuçcu and Gomel (9) and Litta et al. (10), cases with other causes of subfertility were excluded. (9,10) We did not exclude

them from this study. We offered these patients hysteroscopic septoplasty after informative counselling and taking consent hoping for aiding other lines of subfertility management, and decreasing chances of miscarriage and preterm labor after conception is achieved after a period of subfertility. However, this inversely affects the reproductive outcome in our study and did not allow to show the direct correlation between the uterine septum and subfertility, and the effect of hysteroscopic septoplasty on subfertility.

In this study, 3 out of 10 cases (30%) suffering from primary subfertility conceived and resulted in live birth, and 6 out of 10 cases (60%) suffering from secondary subfertility conceived and resulted in 5 live birth (50%). Thus, offering hysteroscopic metroplasty may help women suffering from unexplained subfertility either primary or secondary, and may be offered in presence of other causes of subfertility to increase chances of conception and decrease the chances of miscarriage and preterm labor.

There was no significant difference in live birth rate between resectoscope arm and scissors arm in patients with primary and secondary in subfertility. Thus, there is no advantage of one method over the other regarding the reproductive outcome.

This comes against the surprising results of the TRUST (The Randomised Uterine Septum transection Trial) that showed that hysteroscopic septum resection does not improve live birth rates or other reproductive outcomes in women with a septate uterus. (3) However, this trial was argued by many authors like Adewole et al. (11) and Ludwin. (12)

Thus, the patients enrolled in this study were counselled about the pros and cons of intervention and the paucity of good quality data. After counselling, according to the principles of shared decision-making, an informed decision was then made to undergo the procedure.

The Limitation of the current study is the small sample size, in addition to short duration of follow up. Further studies with larger sample size and longer duration of follow up are required to provide conclusive evidence.

Conclusion

Hysteroscopic septoplasty improves live birth rate in patients suffering from recurrent pregnancy loss with no significant difference between hysteroscopy with scissors and resectoscope. Hysteroscopic septoplasty improve the conception rate and livebirth rate in patients with primary and secondary subfertility after excluding and treating other causes of subfertility, whatever the technique of septoplasty either by scissors or resectoscope.

Reference

1. Valle RF, Ekpo GE. Hysteroscopic Metroplasty for the Septate Uterus: Review and Meta-Analysis. *Journal of Minimally Invasive Gynecology*. 2013;20(1):22-42.
2. Chan YY, Jayaprakasan K, Tan A, Thornton JG, Coomarasamy A, Raine-Fenning NJ. Reproductive outcomes in women with congenital uterine anomalies: a systematic review. *Ultrasound in Obstetrics & Gynecology*. 2011;38(4):371-82.
3. Rikken JFW, Kowalik CR, Emanuel MH, Bongers MY, Spinder T, Jansen FW, et al. Septum resection versus expectant management in women with a septate uterus: an international multicentre open-label randomized controlled trial. *Hum Reprod*. 2021;36(5):1260-7.
4. Schlaff WD. The impact of uterine septum on reproductive outcome—half-empty or half-full? *Fertility and Sterility*. 2021;116(2):296-7.
5. Zlopaša G, Škrablin S, Kalafatić D, Banović V, Lešin J. Uterine anomalies and pregnancy outcome following resectoscope metroplasty. *International Journal of Gynecology & Obstetrics*. 2007;98(2):129-33.
6. Saravelos SH, Cocksedge KA, Li T-C. The pattern of pregnancy loss in women with congenital uterine anomalies and recurrent miscarriage. *Reproductive BioMedicine Online*. 2010;20(3):416-22.
7. Noventa M, Spagnol G, Marchetti M, Saccardi C, Bonaldo G, Laganà AS, et al. Uterine Septum with or without Hysteroscopic Metroplasty: Impact on Fertility and Obstetrical Outcomes-A Systematic Review and Meta-Analysis of Observational Research. *J Clin Med*. 2022;11(12):3290.
8. Cararach M, Penella J, Ubeda A, Labastida R. Hysteroscopic incision of the septate uterus: scissors versus resectoscope. *Human Reproduction*. 1994;9(1):87-9.
9. Pabuçcu R, Gomel V. Reproductive outcome after hysteroscopic metroplasty in women with septate uterus and otherwise unexplained infertility. *Fertility and Sterility*. 2004;81(6):1675-8.
10. Litta P, Spiller E, Saccardi C, Ambrosini G, Caserta D, Cosmi E. Resectoscope or Versapoint for hysteroscopic metroplasty. *International Journal of Gynecology & Obstetrics*. 2008;101(1):39-42.
11. Adewole AA, Kalu E, Okohue JE, Alabi CO, Ola B. Septum resection versus expectant management: paucity of good quality data. *Human Reproduction*. 2021;36(9):2626-7.
12. Ludwin A. Septum resection does not improve reproductive outcomes: truly? *Human Reproduction*. 2020;35(7):1495-8.

