

## Hysteroscopic metroplastic procedure and infertility

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### Abstract

**Aim:** There are many studies to support the idea that hysteroscopic metroplastic procedure improves reproductive result in primary infertility in women with a history of obstetric problems. However, the role of uterine septum in patients with inexplicable infertility is still not clear because of lack of information. Our aim was to assess whether the hysteroscopic metroplastic procedure impacts the inexplicable infertility in women with uterine septum.

**Methods:** In this study, 28 women with uterine septum and inexplicable infertility were included. All patients underwent hysteroscopic septal resection. The reproductive outcome in these patients was studied and analyzed within the first year of metroplastic procedure.

**Results:** All cases (N=28) got pregnant within a year after the metroplastic procedure. Twenty-three of them had children at normal birth weight on the due date of delivery. Only two cases resulted in spontaneous abortion, losing their children; only three women had premature live birth. All women had pregnancies with one foetus. Eleven of them had cerclage.

**Conclusion:** Hysteroscopic metroplastic procedure, in women with uterine septum, significantly improves the reproductive outcome.

**Keywords:** hysteroscopy, infertility, septal resection.

## Introduction

Anomalies of the reproductive tract are frequent and noticed in 3-5% of the general population and in almost 3% of infertile women (1).

In general, they are symptomatic (2), but they can also be associated with recurrent abortions or infertility (3,4). Among these abnormalities, uterine septum [5<sup>th</sup> class, American Classification of Infertility (5)], is the most recurrent one and is associated with obstetrical complications and infertility.

- Class V (septate uterus): Septate uterus results from failure of resorption of the septum between two uterine horns. The septum can be complete (Va) or partial (Vb). In the first case, the septum extends to the internal uterine orificium. Histologically, the septum may be composed of myometrium or of fibrous tissue. The uterine fundus is typically convex, but it might be flat or slightly concave, as well (<1 cm fundal cleft). Women with septate uterus have the highest incidence of reproductive complications. Differentiation between a septate and a bicornuate uterus is important because the septate uterus is treated by using hysteroscopic resection, whereas the bicornuate uterus is treated laparotomically.

*Uterine septum:* The midline septum can be of variable length and can be muscular or fibrous.

*Septate Uterus:* The midline septum can be of variable length and can be muscular or fibrous. Even though the composition of the septum varies from fibrous to muscular, this does not distinguish septate uterus from other forms of uterine anomalies.

Müllerian abnormalities consist in as many as 15-25% of the spontaneous abortions (6). The metroplasty improves the doppler velocimetric index of the uterine artery (7). Septal resection helps in the improvement of the positive outcome of the pregnancy in these women. Before hysteroscopy was being used, the treatment of these abnormalities required intense invasive laparotomic surgery. While today, with the technological progress in medicine and most of all

in hysteroscopy, the septal resection, known as metroplasty, has become the chosen mode for septum correction providing the following advantages:

- Shorter operating hours
- Mini-invasive surgery
- Shorter hospitalization period
- Less intra and post-operative complications

There are lots of literature data proving that hysteroscopic metroplastic procedure significantly improves pregnancy outcome in women having complicated obstetrical anamnesis (7). Even though, its role in patients with unexplained infertility is yet unclear because of insufficient literature. A few retrospective studies have shown improvement of pregnancy outcome after hysteroscopic resection (8-11)

## Objective

This prospective study aims at analyzing the reproductive results after hysteroscopic metroplastic procedure in patients with uterine septum and primary infertility.

## Methods

### *Selection of patients*

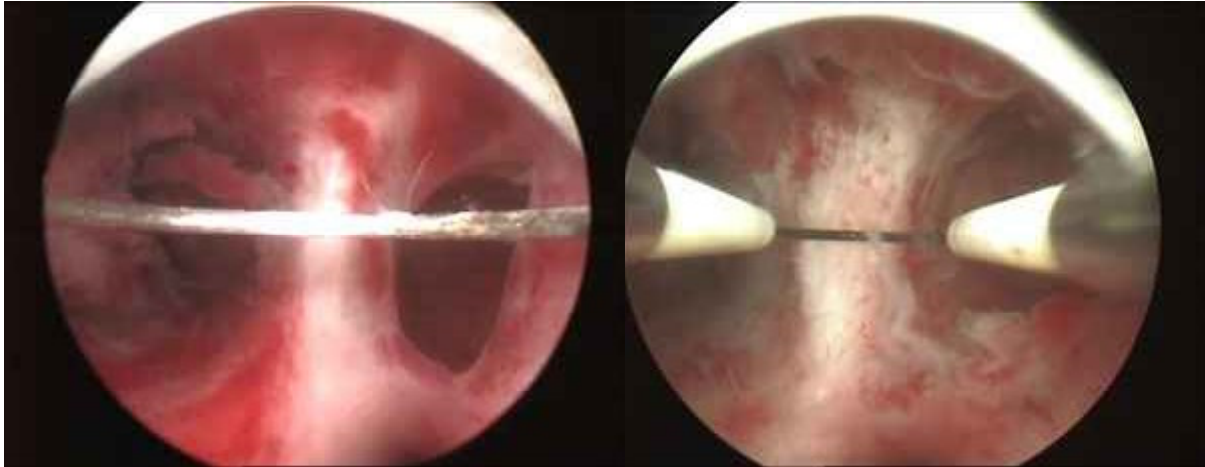
Patients were selected from the infertile population of women 18 to 35 years of age. Women over 35 years old were excluded from the study in order to eliminate age-related indicators. All the women were considered for possible infertility causes and no one was diagnosed with other pathology than uterine septum. The diagnosis was made through hysteroscopy, but only in two cases when bicornuate uterus was suspected, hysterolaparoscopy has been performed. Women with pelvic lesions were excluded from the study. After laparoscopy, septum hysteroscopic resection has been performed (Figures 1-2).

### *Surgery*

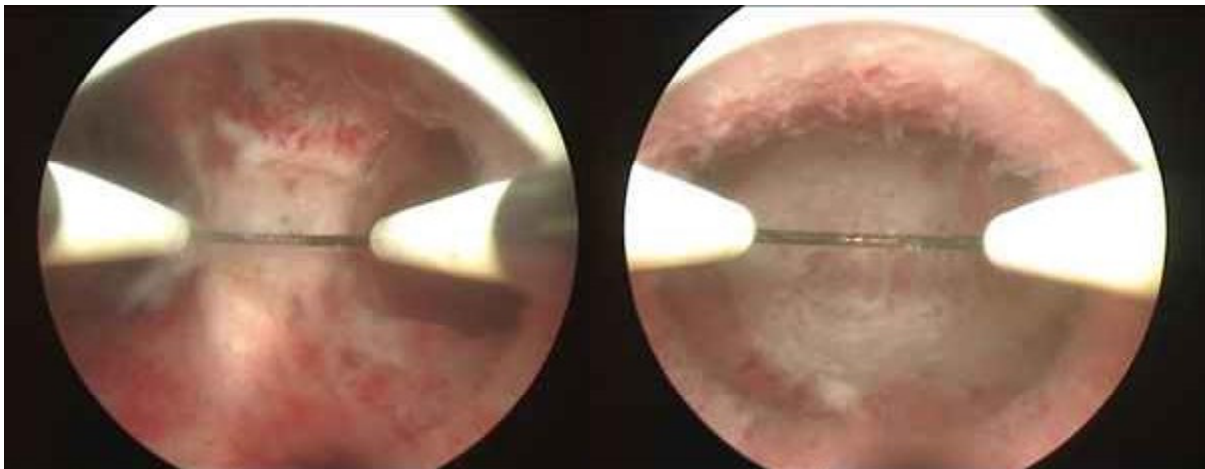
Surgical resection has been performed with Olympus 26 French linear bipolar resectoscope with bipolar electric power. Saline solution has been used for dilatation and it has been monitored in order to avoid intravasation and its complications.

Septum has been moved in antero-posterior direction until the two tubar ostiums became evident. By end of the procedure a complete haemostasis has been performed.

**Figure 1. A-partial septum before resectoscopy; B-partially cut septum during resectoscopy**



**Figure 2. A-Almost cut septum; B- completely cut septum and normal cavity**



### ***Post operative follow up***

Patients were exposed to a cyclic hormonal treatment (jasmine) for two months. After two months a hysteroscopic check was performed to confirm the results of hysteroscopic resectoscopy.

### **Results**

Hysteroscopy has been used to diagnose 21 patients with complete septum of Va class and 7 others with septum of Vb class. After two months, a hysteroscopy was performed in all patients and it was noticed:

- Normal cavity in 22 cases;
- A ridge of less than 1cm in 4 cases, in which no metroplastic procedure was repeated;
- The remained septum was more than 1cm in two cases, in which hysteroscopic metroplastic procedure was repeated after two months.

During the study, five cases were lost and not included in the study. Unprotected sex for a year was recommended to all cases in which hysteroscopic metroplastic procedure was performed (Table 1). All patients got pregnant with unique

fetus within the first year after resectoscopic procedure.

Considering that septum is frequently associated with cervical canal insufficiency, a cerclage was proposed to all patients. In 13 of them, who accepted, a McDonald cerclage was performed.

## Discussion

Uterine septum is a frequent abnormality. Its mechanism is unclear and it is associated with low infertility. Possible factors that might lead to low infertility are the reduction of the uterine cavity and cervical insufficiency (12-14).

Ecographic changes that are noticed at the septal wall, compared to the uterine lateral wall, might be the infertility cause in women with uterine septum. Uterine wall contains fiber-elastic tissue with changes in endometrial-myometrial vessels, which cause a negative impact on the placenta development (15). Metroplastic procedure is an acknowledged methodology for the treatment of women having uterine septum and recurring abortions. This methodology improves the uterine perfusion (measured by doppler velocimetric index of the uterine artery). It has been evidenced that, in women with uterine septum treated with hysteroscopic metroplastic procedure, the spontaneous

abortion and premature birth incidence is noticeably decreased after metroplastic procedure, increasing the within-term birth incidence (16).

Nevertheless, there are still different perspectives which try to illustrate whether the metroplastic procedure has an appropriate indication. Some authors recommend open surgery, others do not (17,18). Randomized data are insufficient.

An author (19) has found that, after metroplastic procedure, spontaneous pregnancy reaches the rate of 41%. Another one has noticed that metroplastic procedure increases the spontaneous fertilization rate in women with simultaneous septum and infertility (20). Our study comes to the same conclusion.

However, the data provided so far do not prove the connection between septal uterus and infertility. Considering the simplicity of the procedure, the low associated morbidity and the reported results, this procedure may be applied in women with long infertility, uterine septum and unexplained infertility.

## Conclusion

Resectoscopic metroplasty is a perfect surgical procedure for removing septum uteri. This procedure is mini-invasive and can be used in day hospital. Resectoscopic metroplasty has an excellent result in unknown infertility with septum uteri.

**Conflicts of interest:** None declared.

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