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REVIEW ARTICLE

Reproductive Performance in Hysteroscopic Metroplasty

Priti Nivendkar

Specialist, Department of Obstetrics and Gynecology, Al Badra Samma Hospital, Oman

Abstract

Background: This study was to ascertain reproductive better outcome in hysteroscopic metroplasty, the literature to support that removal of septum improves pregnancy rates in women with bad obstetric history. However, its role in patients with otherwise unexplained infertility is still not clear due to paucity of enough evidence.

Objective: To assess reproductive performance in women with septate uterus and otherwise unexplained infertility after hysteroscopic metroplasty.

Materials and methods: Eight women with septate uterus and otherwise unexplained primary infertility were included in the study. All these women underwent hysteroscopic septal resection. Reproductive performance of these women within one year of surgery was studied and analyzed.

Result: Forty women (45.83%) conceived within one year of surgery. Only six women (12%) had spontaneous abortions and only five (15%) had preterm delivery.

Conclusion: Hysteroscopic metroplasty in women with septate uterus significantly improves the reproductive performance. Septate uterus is not a primary factor of infertility. Hysteroscopic metroplasty restores normal uterine cavity with a good uterine vascularization to have better reproductive outcome.

Keywords: Hysteroscopy, Metroplasty, Open metroplasty, Septate uterus, Bicornuate uterus.

INTRODUCTION

Congenital anomalies of the reproductive tract are common, which alters the outcome and are seen in approximately 3 to 5% of the general population and approximately 3% of infertile women.[1] These are usually asymptomatic,[2] but are sometimes associated with recurrent pregnancy loss or infertility.[3,4] Among these anomalies, septate uterus (class V, American Fertility classification, based on the study by Buttram and Gibbons)[5,6] is the most common anomaly to be associated with obstetric complications and infertility. Müllerian anomalies account for 15 to 25% of spontaneous abortions.[7] Resection of the septum helps to improve pregnancy outcome in these women. A recent study performed by Paces et al demonstrated an improvement in uterine perfusion following hysteroscopic metroplasty based on uterine artery velocimetry indices.

In the era before the advent of hysteroscopy the correction of such defects required laparotomy, which involved long tedious surgeries. However, now with the development of new techniques, hysteroscopic resection of the septum has become the primary modality of treatment with advantages of shorter operative time, short hospital stay, and decreased incidence of complications. There is enough evidence in the literature to support the fact that removal of septum improves pregnancy rates in women with bad obstetric history.[8,9] However, its role in patients with otherwise unexplained infertility is still not clear due to the paucity of enough evidence. A few retrospective small studies have reported increased pregnancy rates in women after septal resection. Hysteroscopic metroplasty may be performed using versapoint bipolar needle device; a resectoscopic knife electrode with cutting current as well as Nd:Yag laser. Yang et al (2006) revealed use of laser in hysteroscopic septal resection with main advantage of a less cervical dilation, reducing chances of uterine perforation. Reduced risk of bleeding so increases effectivity of procedure.

This prospective observational study was designed to assess the reproductive performance after hysteroscopic metroplasty in patients with septate uterus and primary infertility.[10-12]

EMBRYOLOGY

Uterus is formed from two müllerian ducts.The caudal two thirds of these ducts form the uterus whereas upper third gives rise to fallopian tubes. Failure or arrest of development during any of the three stages will lead to uterine malformation.

AT 14-18 WEEKS

Normally, resorption of medial septum initially separates the caudal parts of the müllerian ducts to form uterovaginal channel.

Failure of resorption of the midline septum leads to septate uterus. Normally septate uterus is never combined with other anomaly of genitourinary tract.

Septate uterus can be complete septate, partial septate, or simple fundic spurs.

Patient Selection

Study patients were recruited from the population of infertile women aged between 18 and 35 years, who attended our infertility clinic. Women over 35 years of age were excluded from the study to eliminate any age related factors impairing conception. All women underwent a detailed work-up to exclude any known cause of infertility. In addition to a detailed history and thorough clinical examination ,work-up for sexually transmitted diseases (STD), hormonal profile, assessment of ovulation, and semen analysis was performed. Any woman with any abnormality in these tests was excluded from the study. The preliminary diagnosis of septate uterus was made on a hysterosalpingogram (HSG), after which hysterolaparoscopy was planned for these women. All women were counseled thoroughly and a written informed consent was taken before surgery. The surgery was performed under general anesthesia. The women with pelvic lesions seen on laparoscopy were excluded from the study. This was followed by the hysteroscopic resection of the septum. Figure 1 shows the original findings at hysteroscopy.

Surgery

In the initial years of the study, metroplasty was performed with 26 French resectoscope fitted with a cutting knife electrode with 0 degree endoscope. Subsequently, with the introduction of Versapoint, metroplasty was performed using bipolar Versapoint with saline as the distension media. Cutting current was 60-90W. Uterine cavity was distended with fluid and a record of inflow and outflow fluid was kept. Figure 2 shows the septum being cut using Versapoint. The septum was divided in an upward direction till both tubal ostia were visualized. Figure 3 shows the uterine cavity after septal resection. Hemostasis was ensured at the end of the procedure and any bleeding points were electrodessicated.

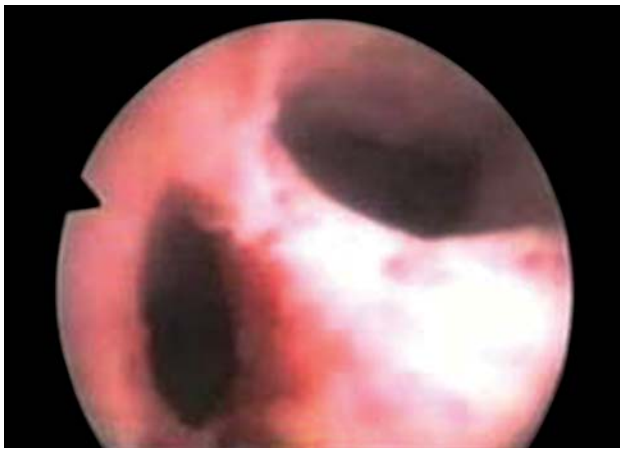

Fig. 1: Original hysteroscopy

SEPTATE UTERUS

Postoperative Follow-up

The patients were put on cyclic hormonal therapy (estradiol valerate and medroxyprogesterone acetate). A second-look hysteroscopy was scheduled after two months to assess the surgical outcome.

RESULTS

One hundred and eighteen women were detected to have septate uterus on HSG. These 118 women were initially enrolled for the study. Of these, 38 women were diagnosed with pelvic pathology at laparoscopy and were excluded from the study. The remaining 80 with septate uterus (Fig. 1) and other unexplained infertility were included in the study. On hysteroscopy, 28 women were diagnosed with complete septa (type Va) and the remaining 44 had incomplete septa (type Vb).

All 80 women underwent second-look hysteroscopy after two to three months of primary surgery (Fig. 2). A hysteroscopic examination revealed an entirely normal cavity in 15 (21%) women (Fig. 3). Another 40 women (55%) had a small fundal notch (less than one centimeter). A repeat procedure was carried out in 17 (24%) women wherein the hysteroscopy revealed a septal remnant more than one centimeter.

These women were then subsequently followed up for a period of 12 months and counseled to have unprotected sexual intercourse for this period. Eight women were lost to follow-up. Of the remaining 64 women, 33 women conceived naturally within 12 months of metroplasty. There was only one twin pregnancy, the rest were all singletons.

Four women had spontaneous first trimester abortions. Ultrasonographic examination between 14 and18 weeks of gestation revealed cervical shortening and funneling in seven women. McDonald's cervical encirclage was performed for

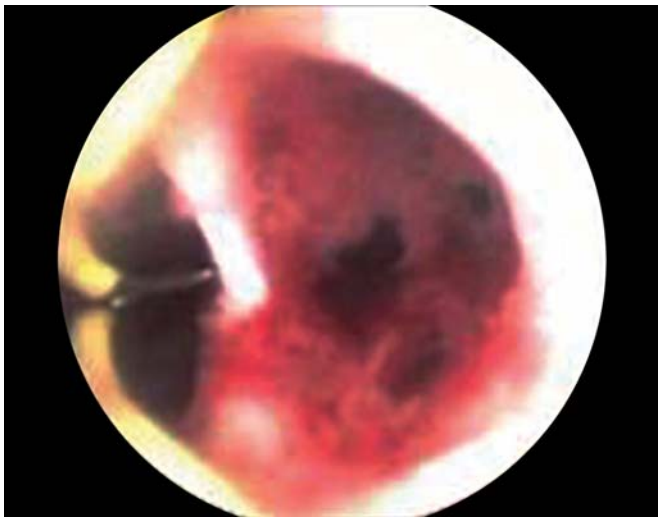

Fig. 2: Metroplasty with versa

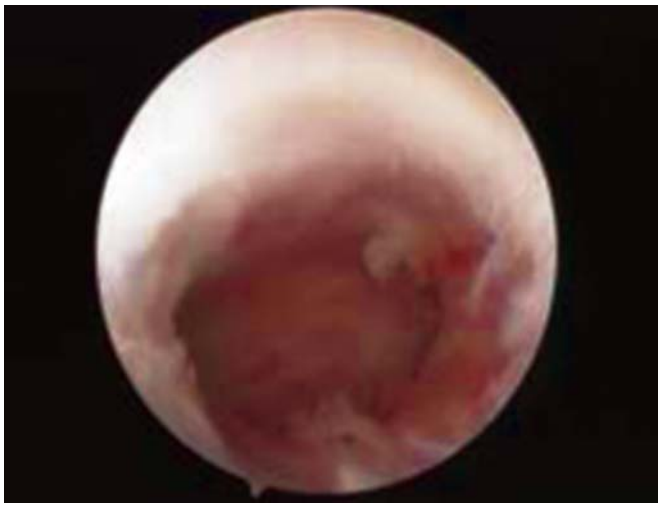

Fig. 3: UT cavity after metroplasty

these women with cervical incompetence. Five women delivered preterm. Of these, two women had undergone cervical encirclage and the other three were without encirclage. The reproductive performance after metroplasty in these women is summarized.

DISCUSSION

Septate uterus is the most common uterine anomaly to be associated with poor reproductive performance. The exact mechanism by which this anomaly causes recurrent abortions or infertility is not clearly established. Also controversial is the matter whether a septate uterus actually causes infertility or not.

Diminished size of the uterine cavity and cervical incompetence, associated with septate uterus, may be the factors involved in causing a poor reproductive outcome.[13,14] Ultrastructural alterations in the septal wall compared to the lateral uterine wall could be the cause of infertility in women with septate uterus. Fedele et al reported that the septal wall consists of fibroelastic tissue with alterations in the endometrial-myometrial blood vessels, which cause a negative impact on placental development.[15]

Metroplasty is an accepted method of treatment in women with recurrent abortions and septate uterus, and it significantly improves the subsequent reproductive outcome. Homer et al in a review on septate uterus, combined data from several published series and reported that the incidence of spontaneous abortion and preterm delivery rate decreases significantly after metroplasty whereas the incidence of term delivery rate increases.[16]

However, as far as infertility is concerned, there is still a huge difference of outlook as to whether infertility is an appropriate indication for metroplasty or not. Some investigators recommend surgery while some others do not.[17,18] There is scarcity of randomized data. In a study conducted by Pabuccu et al[12] 41% spontaneous pregnancy rates were found after metroplasty in women with primary unexplained infertility except septate uterus.[19] Of late, in a prospective controlled trial by Mollo et al[11] it was observed that hysteroscopic resection of the septum improved fecundity rates in women with septate uterus and otherwise unexplained infertility.[20] These findings were observed once more in the current study. Thirty-three out of 64 (51.5%) women conceived naturally within a year of surgery and the incidence of spontaneous abortions were very low (12%).

Although the current data does not give any definite proof of a causal relationship between septate uterus and infertility, considering the simplicity of the procedure with low associated morbidity and the reported outcomes, the procedure should be undertaken in women with longstanding infertility with septate uterus and otherwise unexplained infertility.

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