

Impact of Uterine Septum Section on Primary Infertility in A Case and Review of the Literature

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Abstract

Case Report

The uterine septum is the most common genital malformation. It is responsible for repeated miscarriages (≥ 3). Its responsibility for the infertility itself is still not established. However, its role cannot be ruled out in secondary infertility, particularly when it remains unexplained in 40% of cases. The trans-abdominal surgical treatment of the uterine septum is abandoned in favor of the transcervical route which offers a direct approach to the uterine cavity, avoiding hysterotomy and its subsequent obstetric consequences, and adnexal adhesions and their consequences on fertility. This is therefore hysteroscopic septoplasty: a reference technique, simple, reproducible, with low morbidity, and whose operative consequences are few. It has reduced the rate of miscarriages to 15%, therefore providing an indication of choice in repeated miscarriages, or even after only two incidents. It is increasingly practiced in cases of unexplained infertility, and it is often practiced before any medical assistance for procreation. Finally, combined with laparoscopy, it allows at the same time the pelvis to be explored and any associated pelvic pathology to be treated; it thus represents the gold standard in the treatment of uterine septa in these infertile patients.

Keywords: Uterine Septum, Miscarriage, Hysteroscopic Septoplasty, Infertility, Laparoscopy.

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INTRODUCTION

Uterine septum is the most common uterine malformation. It is associated with a high rate of early miscarriages, premature births and breech presentations. Partitioned uteri represent the most common congenital anomalies of the uterus; cross referenced in articles, we find an incidence of 25 to 35% [1-2]. However, this is a rare phenomenon in the general population; it is estimated that among women of childbearing age, approximately 0.3 to 2.3% have a septate uterus [3]. The benefit of their surgical resection is not clearly demonstrated. The division of the uterine septum was traditionally carried out transabdominally; This is the intervention pioneered by Bret-Palmer in France, described by Strass man and Tompkins for the Anglo-Saxon authors. This conventional surgery by laparotomy currently seems obsolete for this type of uterine malformation, due to the complications generated: post-operative reduction of the uterine cavity, the formation of uterine synechiae, tubo-peritoneal adhesions. The evaluation of hysteroscopic metroplasty presents a certain number of problems given the lack of sufficient data in the literature. Hysteroscopic septoplasty, a simple reference surgical technique, is an effective method for

reducing uterine septa. Its implementation assisted by laparoscopy offers the opportunity to complete the infertility assessment and to treat any associated pelvic pathology. We report the impact of this septum on infertility in a case and review of the literature.

Patient and Clinical Observation

This is Ms. X, aged 38, non-nulligest in genital activity, with a normal menstrual cycle, with regular check ups for 1 month in our training facility for primary infertility, having benefited from a biological and radiological assessment in the context of her infertility with discovery on pelvic echo : a uterine septum confirmed on 3D pelvic (endovaginal) ultrasound; note that she benefited from a hysterosalpingography in january 2024 revealing a subtotal septate uterus with two slightly divergent uterine hemicavities with good bilateral tubal permeability; hence the decision to schedule her for hysteroscopic septoplasty. The clinical examination finds a conscious patient, hemodynamically and respiratory stable with a BMI: 24, the rest of the examinations, notably gynecological, unremarkable.

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3D pelvic ultrasound showed: an anteverted ante-flexed uterus of normal size measuring 6*4cm, homogeneous myometrium, fine endometrium with

reconstruction of the uterus in frontal section showing a subtotal uterine septum (stops above the isthmus) with a length 21mm. Unremarkable right and left ovary.



Fig. 1

Hysterosalpingography revealed a subtotal septate uterus with two slightly divergent uterine hemicavities with good bilateral tubal permeability.

Biological assessment: FSH 9.90; LH 5.53; E2 82.90; AMH 0.82 collapsed; Prolactin 23.82; TSHus 1.42; fasting blood sugar 1.05; blood group AB + ; note

that the husband's spermogram-spermocytogram-spermoculture was unremarkable.

The patient underwent hysteroscopic septoplasty with total resection of the septum, an unremarkable postoperative course and was checked with 3D ultrasound six weeks later; which objectified: a length of 05mm.



Fig. 2

DISCUSSION

There are several classifications of uterine septa based on their size [4], (figure 2): that of Musset (1964), that of the AFS (American Fertility Society) (1988) [5],

that of ESHRE/ESGE (The European Society of Human Reproduction and Embryology/European Society for Gynaecological Endoscopy) (2013) [6], and more recently that of the ASMR (American Society for Reproductive Medicine) (2021) from the AFS. The main

objective of each classification is always to be as exhaustive and precise as possible, in order to improve the diagnosis of uterine anomalies and thus optimize

their management [7]. The different classifications are shown in Figure 2.

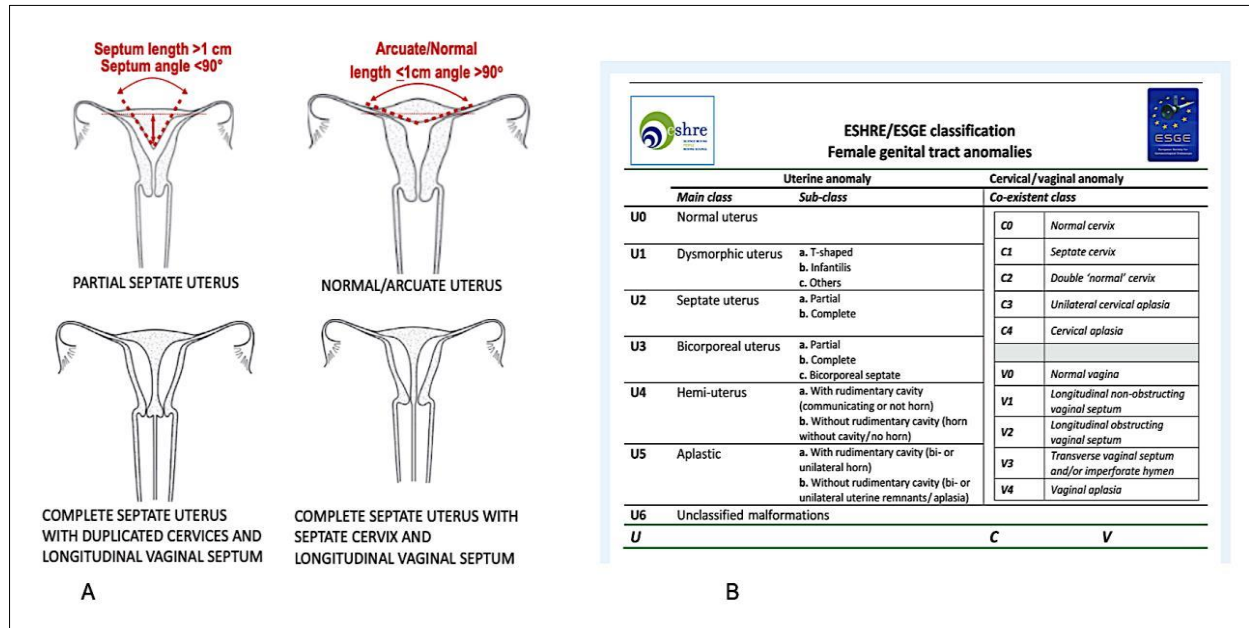


Fig. 3

Diagnostic

The diagnosis of this malformation is made by imaging, most often by 3D ultrasound or MRI. These two techniques make it possible to understand the external contour of the uterus and thus eliminate differential diagnoses [7]. Diagnostic hysteroscopy and hysterosonography previously used in the 1980s and 90s, allowing only the internal part of the uterus to be visualized, have given way to ultrasound and MRI over the past twenty years [8]. In case of septation, the external structure of the uterus is unchanged, the uterine fundus is smooth, this is the main criterion for differentiating between the septate uterus and the

bicornuate uterus [9]. The clinical examination allows it to determine the presence of a vaginal septum but also to observe whether the patient has one or two cervical orifices [10].

Differential Diagnostic between a septate uterus and a bicornuate uterus

- labelled: A. Normal/arched uterus Depth < 1 cm Separation angle > 90°
 B. Septate uterus Depth > 1 cm Angle of separation < 90°
 C. Bicornuate uterus Indentation angle > 1 cm

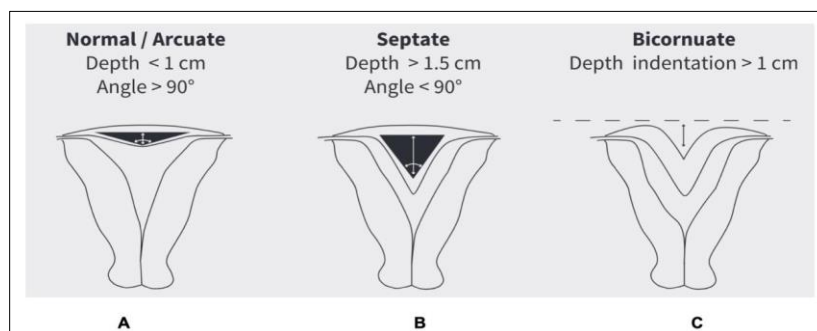


Fig. 4

Source : Pfeifer S, Butts S, Dumesic D, Gracia C, Vernon M, Fossum G, *et al.*, Uterine septum: a guideline. Fertil Steril. sept 2016;106(3):530—40.

Treatment

The treatment of this malformation brings up a lot of questions. The indication for resection is not completely established; it is assessed for each patient and each clinical situation. There is no evidence that

prophylactic resection as soon as a septum is diagnosed is necessary [11]. In the case of resection, it is a surgical procedure carried out under general anesthesia. The intervention is carried out endovaginally, the uterine septum is cut using a hysteroscope, most often with

bipolar energy [13], from which our patient benefited. Generally a spur of less than 1 cm is left in the fundus of the uterus, this reduces the risk of uterine weakening and intraoperative perforation [15]. This surgical technique has remained similar for several years. The main goal of septum resection is to improve the implantation rate and decrease the risk of miscarriages [4-16]. Post-operatively, a control hysteroscopy is often suggested to ensure the absence of post-operative synechiae and to

confirm the effectiveness of the intervention [18], our patient underwent an outpatient hysteroscopy 8 weeks after surgery. Note that this intervention is low risk, however some complications are described in the literature: uterine perforation, synechiae, or cervical gaps have been reported [13].

Hysteroscopic Intraoperative Image of Uterine Septum Section

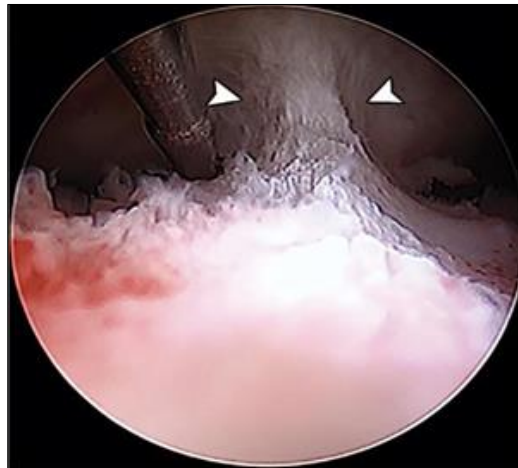


Fig. 5

Complication

It is described that women with septate uteri have a lower pregnancy rate than those with a normal uterine cavity [19]. It appears that this uterine malformation is also associated with a high risk of early and late miscarriages [15]. The discovery of a septum is often made at the time of a miscarriage [16]. A number of studies agree that septum transection by hysteroscopy significantly reduces miscarriage rates and increases the rate of ongoing pregnancies for patients suffering from primary infertility [12].

Rikken *et al.*, [1], believe, however, that the level of proof of studies published on this subject is not sufficient and that it is necessary to carry out a randomized controlled trial to prove the benefit of the intervention. Indeed, in other cohort studies, the fertility and miscarriage rates between the surgical intervention group and the expectant group do not show significance in favor of resection [19]. Thus the American (ASRM) and French (CNGOF) learned societies recommend septum section in the event of repeated miscarriages while the English (RCOG) and European (ESHRE) learned societies do not recommend them in the absence of a level of pregnancy. sufficient proof [11]. Everyone agrees that arched bottoms do not require any treatment. For all uterine malformations we find obstetric complications more frequent than for a healthy uterus: threat of premature delivery, premature rupture of membranes, intrauterine growth retardation, obstructed presentation and premature delivery [19]. The septate uterus appears to be at greater risk of podalic or transverse presentation, premature delivery and cesarean

section than the bicornuate uterus [6-19]. The intervention seems to improve obstetric outcomes, there is a reduction in podalic or transverse presentations and delivery by cesarean section [15].

Many studies describe the septate uterus as a risk factor for premature delivery, the contribution of resection for this factor is not clearly established [14]. This incidence could be explained by the reduction in the size of the uterine cavity and possibly by the associated cervical incompetence [15]. The type of partition between partial and total does not seem to influence prematurity [19].

It is described in the literature that patients with septate uteri have a greater risk of giving birth to a low-weight child than patients with a healthy uterus [18].

The function of the female reproductive tract is vital for fertility, providing the site for fertilization, embryo implantation, and fetal development [20]. In the event of a malformation of the uterus, all of these functions are impacted. To date, the literature does not allow us to confirm the benefit of sectioning the uterine septa. It therefore seemed interesting to us to look at the impact of the section of the septa, in particular on the progress of pregnancies and their obstetric and neonatal outcomes.

CONCLUSION

Sectioning of the septum appears to be beneficial for a targeted population of women with a

history of spontaneous miscarriages. However, the operation is not without risks; complications inherent to the resection require vigilance in an all-comers population. Like our case of perforation complicated by uterine rupture and intra uterine foetal death or our cases of uterine synechiae. It seems necessary to consider the indication to resect the septum for all women with a septum. Despite the certain benefit of the operation in women with miscarriages or infertility, risks exist. Professionals must therefore assess the weight of benefits and risks for each patient.

RÉFÉRENCES

- Grimbizis, G. F. (2001). Clinical implications of uterine malformations and hysteroscopic treatment results. *Hum Reprod Update*, 1 mars, 7(2), 161 -74.
- Lourdel, E., Cabry-Goubet, R., Merviel, P., Grenier, N., Oliéric, M. F., & Gondry, J. (2007). Utérus loisonné: place de la septoplastie hystéroscopique. *Gynécologie Obstétrique Fertil*, 35(9), 811 -8.
- Rikken, J. F., Kowalik, C. R., Emanuel, M. H., Mol, B. W. J., Van der Veen, F., van Wely, M., & Goddijn, M. (2017). Septum resection for women of reproductive age with a septate uterus. *Cochrane Database of Systematic Reviews*, (1).
- Chan, Y. Y., Jayaprakasan, K., Tan, A., Thornton, J. G., Coomarasamy, A., & Raine-Fenning, N. J. (2011). Reproductive outcomes in women with congenital uterine anomalies: a systematic review. *Ultrasound in Obstetrics & Gynecology*, 38(4), 371-382.
- Valle, R. F., & Ekpo, G. E. (2013). Hysteroscopic metroplasty for the septate uterus: review and meta-analysis. *Journal of minimally invasive gynecology*, 20(1), 22-42.
- Acien, P. (1997). Incidence of Müllerian defects in fertile and infertile women. *Human reproduction (Oxford, England)*, 12(7), 1372-1376.
- Grimbizis, G. F., Gordts, S., Di Spiezio Sardo, A., Brucker, S., De Angelis, C., Gergolet, M., ... & Campo, R. (2013). The ESHRE/ESGE consensus on the classification of female genital tract congenital anomalies. *Human reproduction*, 28(8), 2032-2044.
- Pfeifer, S. M., Attaran, M., Goldstein, J., Lindheim, S. R., Petrozza, J. C., Rackow, B. W., ... & Ramaiah, S. D. (2021). ASRM müllerian anomalies classification 2021. *Fertility and sterility*, 116(5), 1238-1252.
- Vaudoyer, F., Golfier, F., & Raudrant, D. (2002). L'imagerie dans le diagnostic des malformations utérines: Place de l'échographie tridimensionnelle. *La Lettre du gynécologue*, (274), 31-38.
- Mordefroid, M., & Levailant, J. M. (2008). Malformations utérines: utérus bicorne ou cloisonné?: Critères de différenciation en IRM et échographie 3D. *Imagerie de la Femme*, 18(2), 89-100.
- Chanelles, O., Koskas, M., & Madelenat, P. (2009). Indications et techniques du traitement chirurgical des cloisons vaginales et utérines. Collège National des Gynécologues et Obstétriciens Français. *J Gynécologie Obstétrique Biol Reprod*, 34(5), 513.
- Homer, H. A., Li, T. C., & Cooke, I. D. (2000). The septate uterus: a review of management and reproductive outcome. *Fertility and sterility*, 73(1), 1-14.
- Garbin, O. (2010). Les cloisons utérines doivent-elles être toutes sectionnées?. *Gynécologie obstétrique & fertilité*, 38(9), 553-556.
- Corroenne, R., Legendre, G., May-Panloup, P., El Hachem, H., Dreux, C., Jeanneteau, P., ... & Bouet, P. E. (2018). Surgical treatment of septate uterus in cases of primary infertility and before assisted reproductive technologies. *Journal of gynecology obstetrics and human reproduction*, 47(9), 413-418.
- Carbonnel, M., Pirtea, P., de Ziegler, D., & Ayoubi, J. M. (2021). Uterine factors in recurrent pregnancy losses. *Fertility and Sterility*, 115(3), 538-545.
- Rikken, J. F. W., Verhorstert, K. W. J., Emanuel, M. H., Bongers, M. Y., Spinder, T., Kuchenbecker, W., ... & Goddijn, M. (2020). Septum resection in women with a septate uterus: a cohort study. *Human Reproduction*, 35(7), 1578-1588.
- Zabak, K., Bénifla, J. L., & Uzan, S. (2001). Cloisons utérines et troubles de la reproduction: résultats actuels de la septoplastie hystéroscopique. *Gynécologie obstétrique & fertilité*, 29(11), 829-840.
- Carrera, M., Pérez Millan, F., Alcázar, J. L., Alonso, L., Caballero, M., & Carugno, J. (2021). Effect of Hysteroscopic Metroplasty on Reproductive Outcomes in Women with Septate Uterus: Systematic Review and Meta-Analysis. *J Minim Invasive Gynecol*, S1553-4650(21)01210-3.
- Baiyu, Z. H. A. N. G., Susu, W. U., Xingping, Z. H. A. O., Lin, T. A. N., & Dabao, X. U. (2022). Treatment of septate uterus. *Journal of Central South University Medical Sciences*, 47(11), 1487.
- Ludwin, A., Ludwin, I., Kudla, M., Pitynski, K., Banas, T., Jach, R., & Knafel, A. (2014). Diagnostic accuracy of three-dimensional sonohysterography compared with office hysteroscopy and its interrater/intrarater agreement in uterine cavity assessment after hysteroscopic metroplasty. *Fertility and Sterility*, 101(5), 1392-1399.
- Kim, M. A., Kim, H. S., & Kim, Y. H. (2021). Reproductive, obstetric and neonatal outcomes in women with congenital uterine anomalies: a systematic review and meta-analysis. *Journal of clinical medicine*, 10(21), 4797.