Reproductive capacity and outcome of pregnancy after metroplasty following the technique of Bret-Palmer partially modified in the pathological symmetric malformations of Mullerian ducts.

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Summary: During the period 1977-90, metroplasty for infertility and unexplained sterility was performed respectively in 19 and 6 cases of symmetric uterine malformations.

The Bret-Palmer technique was used in 6 cases for partial septate uterus, while the same modified technique was performed in 11 cases of complete bicornuate uterus and in 8 cases of partial bicornuate uterus. No operative and postoperative complications were noted. With the modified Bret-Palmer operation there was the reconstruction of a single, large and regular uterine cavity. Of the 17 cases with adequate follow-up pregnancy occurred in 14 cases within 24 months of the operation; in 4 patients the outcome of pregnancy is not known. Of the remaining cases the pregnancy ended in spontaneous abortion in 2 patients, in 6 cases with live term infants and in 2 cases with live preterm infants. Caesarean section was performed electively in 3 cases and acutely in 3 cases. A vaginal delivery occurred in 2 cases. Benefits of the Bret-Palmer modified technique are discussed.

INTRODUCTION

Uterine malformations, frequently responsible for reproductive failure, are present in 10-15% of women suffering from repeated abortion ([1, 2]), and in 1.03% of women suffering from infertility ([3, 4]). Infertility of a mechanic nature typical of these pathological examples manifests itself with habitual abortions and premature births ([5, 6, 7]); for the women concerned there are frequently complications during labour, such as anomalies in fetal presentations and in the afterbirth ([8, 9]). The physiopathological mechanisms responsible for the interruption of pregnancy by abortion is connected on one hand by the size of the mechanical obstacle limiting the development of the foetus, and on the other by the anomalous implantation of the egg and by the presence of vascular alterations and endometrial receptivity. Premature birth is often attributed to the relative cervical incontinence which is frequently present in pregnancies continuing after the second trimester, together with an increase of intrauterine pressure in a small and irregular cavity. Over the past years the

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incidence of uterine malformations has progressively increased, probably due to the use of more perfected diagnostic techniques in the study of infertile patients. According to many Authors the incidence is estimated between 0.1 and 1.5% ([10, 11, 12, 13, 14, 15]).

Sterility, rare in cases of uterine malformations, is presumably correlated to the gravity and type of anomaly, which can be associated with an alteration in the ovarian functions with consequent endometrial morphofunctional alterations.

The diagnostic methods used, together with an accurate obstetric anamnesis, are ultrasonography, hysterosalpingography laparoscopy and hysteroscopy, for a correct evaluation of the uterine malformation and consequently in the choice of corrective surgery.

The classification of the Mullerian malformations actually followed is that of Buttram and Gibbons ([16]) in which various principles are taken into consideration, among them the embriological, functional and clinical. The most frequent uterine malformations are the septate uterus (complete or partial) and the bicornuate uterus (complete, partial, arcuate), for which corrective surgery may be performed following various techniques.

The reason for this study has been to evaluate the efficacy of surgical treatment in uterine malformations in terms of pregnancies obtained and of the living births, and to compare the results obtained with the technique used in our institute with those of an international scale.

MATERIAL AND METHODS

25 patients were taken into examination, aged between 30 and 37 years. These patients underwent the surgical intervention of metroplasty (in the period 1 November 1977 - 30 September 1990) for complete bicornuate uterus in 11 cases, for partial bicornuate uterus in 8 cases and for partial septate uterus in 6 cases. Of the 25 patients, 19 had had previous pregnancies resulting in repeated abortions. The diagnosis was formed following hysterosalpingographic and laparoscopic examinations, carried out in 19 cases for infertility, and in 6 cases for unexplained sterility, in the last few years also a hysteroscopic technique. The definitive diagnosis was determined during the actual operation. For patients with septate uterus the surgical method of Bret-Palmer was used, while in the cases of bicornuate uterus the same method was used though slightly modified by Fioretti, whose operating procedure was the following (Fig. 4): sagittal incision in the fundal part of the uterus corresponding to the wall between the two horns, towards the cervix, and entering into the uterine cavity. This was followed by a transverse fundal incision of the medial wall of the two horns, which thus resulted in two parts, anterior and posterior, which were then sutured with those corresponding to the other side, beginning from the nearest cervix site. The symmetric interrupted sutures were placed in two layers, the deeper one using the myometrium of the two horns, excluding the endometrium, the more external one with seroso-myometrial interrupted sutures.

Before proceeding to suture the two cavities of the two horns an intrauterine drain was inserted (Petzer's drainage tube), fixing it in the cavity with stitching in catgut 2-0, and bringing it out from the cervical canal in to the vagina. The drain was removed on the eighth day. The

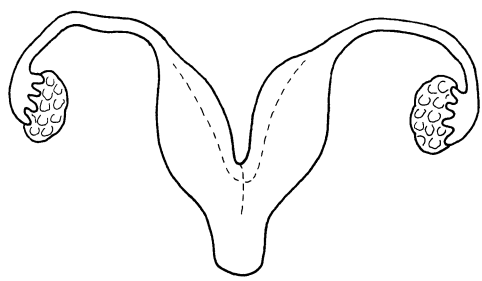

Fig. 1. — Outlining incisions.

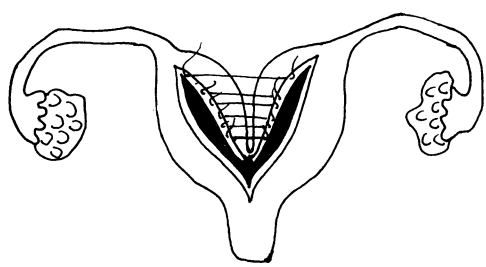

Fig. 2. — Suture of the anterior parts of the medial wall of the two horns.

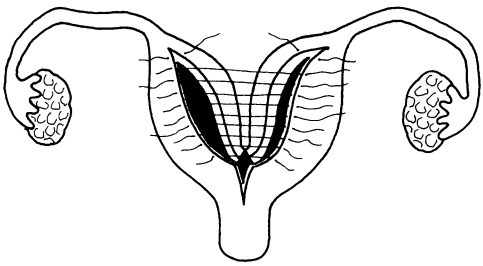

Fig. 3. — Suture of the posterior parts of the medial wall of the two horns.

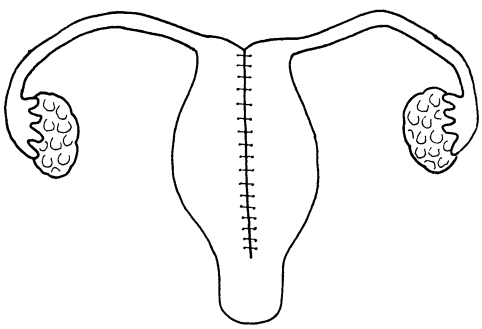

Fig. 4. — Partial modified Bret-Palmer metroplasty final sutures.

myometrial tissue was not removed, reducing the bleeding to the minimum, with the consequent reconstruction of a single uterine cavity, sufficiently large and regular.

RESULTS

In the 25 patients who underwent the metroplasty intervention there were no post-operative complications. The hysterosalpingographic control, performed on an average 8-10 weeks after the operation, showed in all cases a quite morphologically normal uterine cavity (Fig. 5). At the follow-up, 5 patients were lost, and 3 have been operated on during the last 10 months, so that for 8 patients it is not possible to evaluate the results in terms of pregnancy and its outcome. Of the 17 cases followed up, in 3 of them pregnancy was not achieved due to other factors associated with sterility; in 14 cases (82.3%), pregnancy occurred within 2 years of the operations; in 4 patients the outcome of pregnancy is not known.

Of the remaining 11 pregnancies, resulting in 9 cases from metroplasty for bicornuate uterus and in 1 case for metroplasty of septate uterus, 6 were brought regularly to term, and 2 ended in premature births, and 3 in spontaneous abortion in the 8th, 10th and 11th week respectively (Tab. 1). Cervical cerclage was not performed on any patient. In the 6 full-term pregnancies birth was performed by caesarean section because of acute foetal suffering in 2 cases, for breech presentation in 2 cases, and for suspected threat of rupture of the uterine wall in another case; 1 patient gave birth spontaneonsly in the 40th week vaginally without any complications. With the exception of the patients with the foetus in a breech presentation, the other 4 cases presented no anomalies in the presentation. All the new-

Table 1. – *Reproductive performance after Bret-Palmer modified metroplasty.*

	No.	%
No. Metroplasty operations	25	
No. Lost to follow-up	5	20.0
No. Recent operations	3	12.0
No. With adequate follow-up	17	68.0
No. Pregnant	14	82.3
No. Pregnant lost to follow-up	4	28.4
No. Not pregnant	3	17.7
No. Pregnant with adequate follow-up	10	71.6
Pregnancy success after surgical correction in the 10 cases with adequate follow-up.		
Live term infants	6	60.0
Live preterm infants	2	20.0
Total no. live infants	8	80.0
1st-trimester abortions	3 *	20.0
2nd-trimester abortions	0	0
Totale no. abortions	3	20.0

(*) 2 (at 8th and 10th week) in the same woman.

5

6

Figg. 5-6. — A typical hysterogram of a woman with complete bicornuate uterus before and after metroplasty.

borns were alive and healthy. The 2 preterm births occurred respectively in the 31st and in the 36th week with the survival of both newborns: in the first case there was premature labour in the 28th week which necessitated a therapy with betamimetic drugs, followed by spontaneous birth; in the second case there was the premature rupture of membranes and the birth carried out by elective caesarean section. Of the 3 cases of spontaneous abortion, 2 (in the 8th and 10th week) occurred in a patient with a previous diagnosis of primary sterility, and 1 (in the 11th week) in the patient operated for septate uterus and with a former history of repeated abortion. Consequently from the results obtained we had a success rate of 80% in terms of live births.

DISCUSSION

In the case of repeated abortion it is to be hoped that the patient undergoes a complete diagnostic screening including also hysterosalpingography, laparoscopy and hysteroscopy. A disregarded uterine malformation, even though not serious, is often the cause of infertility; in most cases metroplasty operations help to eliminate the mechanical cause of spontaneous abortion.

With the technique proposed by Bret and Palmer, partially modified by us as in the case of the bicornuate uterus, the myometrial tissue is conserved as much as possible and the plastic reconstruction gives an excellent result in obtaining a more ample, regular and symmetric uterine cavity, important factors for a normal reproductive capacity. The postoperative hysterosalpingographic control shows no evidence as to the presence of intrauterine adhesions in any patient with either bicornuate uterus or septate uterus. Because the uterine scar after metroplasty remains sufficiently solid, we do not consider caesarean section an elective choice in these cases. In fact, in our experience only in one case did there occur the symptoms of threat of rupture of the uterine wall; in another 5 cases caesarean section was adopted for other reasons, and in two cases both labour and birth had a physiological evolution. From the critical analysis of our results it is possible to affirm that the metroplasty operation had a positive influence on the reproductive performance of the infertile woman, allowing pregnancy to be obtained and followed by the birth of a live and healthy child. In agreement with Rasmussen *et al.* [9] we consider, therefore, metroplasty an operation to perform in all cases of uterine malformation, inasmuch it improves fertility and carries no particular risks in the evolution of a future pregnancy. It is difficult to compare these results of metroplasty operations with others noted in medical literature, given the different techniques adopted and the heterogeneity of the groups of patients in question, both for the kind of uterine malformation and for the previous obstetric history. The percentage of success in terms of live births (fullterm and preterm) which we have obtained agrees with that of many other Authors [17, 18, 19, 20, 21, 22, 23, 24] who quote values between 55.9 and 99.1.

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