

Contribution of Cervical Plasty in the Management of Cervico-Isthmic Incompetency at the General Hospital of Lamentin in Martinique

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Abstract

Objectives: To evaluate the influence of pre-conception cervical plastic surgery on the prognosis of pregnancy in women with a history of abortive disease through cervical incompetence.

Method: Retrospective study over a period of 20 years, from January 1990 to June 2010. We carried out an exhaustive census of the patients with a cervico isthmic gap, who benefited of a pre-pregnancy cervical plasty associated with a systematic cervical cerclage carried out in the first trimester of pregnancy.

Results: We identified 10 files that met the inclusion and non-inclusion criteria. The mean age of the patients was 33.8 years. They were multigravida (extremes 2 and 10) and pauciparous (mean parity was low of 1.29). The history of recurrent spontaneous miscarriage was found in all women. The diagnosis of cervico isthmic gap was evoked on the basis of clinical and paraclinical arguments. Seven women got pregnant for a total of nine pregnancies. All pregnancies have reached the age of viability which was 24SA. The prematurity rate was 4/9 pregnancies and the average gestational age for preterm delivery was 31 SA. Five pregnancies evolved to term and the average term for childbirth was 38 SA+6 days.

Conclusion: Pre-pregnancy cervical plasty associated with cervical cerclage in the first trimester of pregnancy has yielded interesting results in the prevention of preterm delivery in patients with cervico-isthmic gap. A study on a larger sample is necessary to draw conclusions.

Keywords: Cervical incompetence; Plasty; Isthmic cervical strapping; Prognosis

objective of this study was to evaluate the influence of pre-conception cervical plasties on the prognosis of subsequent pregnancy.

Introduction

Prematurity is the leading cause of neonatal morbidity and mortality. One of its main causes is the cervico isthmic gap. It is an anomaly of the cervico-isthmic zone characterized by the inability of the internal orifice of the cervix to act as a sphincter during pregnancy, by the traumatic destruction of its muscular fibers or by their constitutional or congenital ineffectiveness. According to McDonald [1], cervico-isthmic incompetence is responsible for one-fifth of repeat abortions in the second trimester of pregnancy. His diagnosis is referred to a history of recurrent delayed miscarriage, premature delivery, confirmed by the Hegar candle test and hystero-graphy. For several years the management of the cervico isthmic gap rests on the cervical cerclage practiced during the pregnancy for prophylactic or in emergency. However, in certain cases, the strapping is not efficient and it is possible to improve the prognosis of these pregnancies by the realisation of cervical plasties in pre-conception, most often by laparotomy. At the General Hospital of Lamentin in Martinique, we performed cervical plasty by vaginal route in patients with obstetric history of abortive disease and premature delivery, in order to improve the functional prognosis of the cervical isthmic apparatus. The

Patients and Methods

This was a descriptive and analytical study with retrospective data collection over a period of 20 years in the Department of Obstetric Gynecology of the Lamentin Hospital Center in Martinique. We included the records of patients with confirmed cervical incompetence. They had undergone cervical plasty by vaginal route before the conception in accordance with a procedure developed in Lamentin Hospital. This cervical plasty was completed by strapping between the 10th and 14th week of pregnancy according to MacDonald's method. The diagnosis of cervico isthmic gap was based on the anamnestic and paraclinical arguments in particular an evaluation of the useful length of the neck less than 25 mm, the test with the candle Number 8 and the hystero-graphy. Included patients had a history of at least two late spontaneous miscarriages or premature births of fewer than 34 weeks of amenorrhea, at least one of which occurred despite preventive or curative strapping. Patients who received strapping during pregnancy not preceded by abdominal cervical plasty were not included in the study. The complete preoperative assessment was performed before surgery. The cervical surgery was carried out by the senior doctors according to an original service technique. Thus, under loco-regional

anesthesia, in the gynecological position, a 5 mm transverse anterior colpotomy was performed below the vesico-cervical junction, about 5 mm below the vesico cervical groove. They then carried out a vesico-uterine dissection to the isthmus and proceeded to a superior-base triangle resection starting from the internal orifice of the neck with incision at 11th and 13th and whose apex ends on the cervical orifice external ; Which makes it possible to obtain, after refection, a narrowing of the cervical canal, particularly at the level of the internal orifice. The reconstruction was done by suturing in two planes from top to bottom by separate points with Vicryl 0 or 1 with slow resorption on a candle of Hegar number 6. A urinary catheter number 10 was placed in the uterus as a guardian and removed three or four days later. The anterior detachment was drained with a Delbet blade when the anterior sac was open. Additional strapping using the MacDonal technique was performed between the 10th and 14th week of amenorrhea. The records of the patients meeting the criteria were exhaustive and the data were collected by tabulation. The variables studied were sample characteristics, medical and gynecological and obstetric history, time between plastic surgery and conception, the course of pregnancy, the outcome of pregnancy and the mode of delivery.

Results

Characteristics of patients

We found 10 cases of patients who had cervical plasty during pregnancy and prophylactic strapping. The average age of patients was 33.8 years with extremes of 28 and 40 years.

Medical past history (Table 1)

Past History	Number
Medical past history	
Diabetes	1
HBP	1
Heart disease	1
Obstetrical past story	
Curettage	6

Evolution of pregnancies	Before Plasty		After Plasty	
	Number	Percentage	Number	Percentage
LM+Del<24 WA	35	90	0	0
Del 24-31 WA+6 days	1	2	2	22
Del 32-36 WA+6 days	1	2	2	22
Del>32-36 WA+6 days	2	6	5	56
Total pregnancies>15 WA	39	100	9	100

LM: Late miscarriage, Del : Delivery, WA: Week of Amenorrhea

Table 2: Comparison of the evolution of pregnancies before and after cervical plasty.

Late miscarriage	
2 to 5	6
>5	6
At least one cerclage according to McDonald procedure	10

Table 1: Distribution according to medical and gynecological-obstetric history.

The medical history of diabetes and arterial hypertension was noted in the same proportions. Six out of ten women had a prior history of curettage during a voluntary termination of pregnancy or early miscarriage. All women had a history of at least two late miscarriages and in 4 cases, the number was more than 5. All women had at least one history of strapping by the MacDonal method, performed between 10 and 16 weeks of amenorrhea. The mean gestity was 5.5 with extremes of 2 to 10 for a low average parity of 1.29. Late miscarriages occurred before the 24th SA.

Methods of treatment

All cervical plastic surgeries were performed by senior surgeons. The average hospital stay was five days and the cervical guardian was removed after three to four days.

Delay between cervival plasty and conception

The mean time between cervical plasty and conception was 10.4 months, the extremes being 5 and 18 months. During the study period seven out of ten women conceived of which two conceived twice bringing the total number of pregnancies to nine. Three out of ten women did not conceive.

Evolution of pregnancies before and after plasty (Table 2)

Out of a total of 39 pregnancies greater than 15SA recorded before plasty, 35 (89%) did not reach the viability term set at 24 weeks of amenorrhea in our study. Two pregnancies (05%) have evolved to term. After pregnancy, all pregnancies have evolved beyond the term of viability and 05 pregnancies (55%) have evolved to term.

Procedure and outcome of pregnancies after plasty associated with strapping (Table 3)

Three out of ten pregnant women were diagnosed with a threat of preterm delivery at an average gestational age of 30 weeks. They received hospitalization and parenteral tocolytic treatment. The average length of hospital stay was one week.

	Number	Percentage
Hospitalisation for TPD	5	56
Delivery before 32 WA	2	22
Delivery between 32 and 36+6 days	2	22
Delivery after 37 WA	5	55
Vaginal Delivery	4	44
Cessarian Section	5	56

TPD: Threat of Premature Delivery

Table 3: Distribution according to the course and the outcome of the pregnancies after the cervical plasty.

Discussion

One of the main causes of prematurity is the cervico-isthmic gap which weakens the cervix and makes it incapable of acting as a lock during pregnancy. Its treatment is surgical and uses either a transabdominal or vaginal approach during or outside pregnancy. The vaginal route during pregnancy is the technique most often used whether it is Shirodkar or McDonald's technique. The effectiveness of cerclage remains controversial. Indeed several studies carried out in the same women on the outcome of their pregnancy before and after strapping are discordant [2,3]. A randomized study of a so-called middle-risk population (268 rimmed pregnancies versus 238 unrimmed) concluded that premature deliveries were more frequent in the strapping group (6.7% vs. 5.5%) but no statistically significant difference [4]. Another multicentre study carried out in 1988 on women at high risk of cervical incompetence concluded that strapping was beneficial only to a minority of women (1/25) at high risk in terms of significant prolongation of the duration of the pregnancy when it was realized before 33SA.

In women with a severe obstetric history of late miscarriage/preterm delivery at repeat intervals, especially after classical strapping failure, it is possible to use the techniques of cervico isthmic strapping by abdominal Besson technique [5], laparoscopic or vaginal technique (Fernandez) during or outside pregnancy. In the literature the results of these techniques in terms of fetal survival are satisfactory and vary between 70 and 100% with an average of 90% vs. 21% without strapping [4]. However, the abdominal route requires a double laparotomy for the laying of the band and for the Caesarean section; Hence the current tendency to use the laparoscopic route which is not available everywhere especially in developing countries. The approach used at the General Hospital of Lamentin in Martinique which combines a technique of simplified cervical strapping (cervical plasty) and a standard strapping between the 10th and the 14th SA seems to us to be a good alternative because of the results obtained despite the small sample size, 10 cases. The mean age of the patients was 33.8 years (range 28 and 40 years) comparable to those found in the Nicolet et al.

[3] 33.5 years, and Fernandez et al. [6] 32.1 years. This relatively high age is explained by the fact that the plasty was considered only after a large number of miscarriages leading to wandering and then demotivation in women. In our study, the percentage of fetuses having reached the age of viability (24SA) increased from 0% with the strapping alone to 100% after the combination of cervical plasty and strapping. It was 21% to 87% in the series of Kdous [7], 95% according to Fernandez [6] and 89% in the Novy study [8]. As a result, the preterm delivery rate increased from 95% pretreatment to 44% after treatment in our study, from 31% to 23.1% in the Kdous series. In the Fernandez series, premature delivery was 19%. Katz and Abraham [9] in a study of cervico isthmic strapping using a wire obtained a 32% premature delivery rate. However, it should be noted that the techniques used differ from one author to another.

Low birth was possible in 4 cases/9 contrary to the results of other series [3,5,6] or caesarean section was indicated in all cases. This possibility of delivery by the low route offered by our technique deserves to be emphasized especially for developing countries where working conditions are quite unfavorable, with the affluence, the operating rooms not always available and also the reluctance of some Women with regard to the caesarean operation. The average term at delivery was 38.6SA for an average fetal weight of 2457.78g in our series of 10 cases and no complication was recorded contrary to the Besson technique which exposes the woman to the risk of a double laparotomy and that of Fernandez [6], vascular wounds and infection on a strip. Our technique is also inexpensive because only requiring vicryl thread.

Conclusion

Cervical vaginal plasty performed before conception and supplemented by a standard strapping in the first trimester has given satisfactory results in women with an abortive disease by cervico isthmic gap in terms of improvement in the prognosis of pregnancies. However, it is not possible to draw conclusions about the sample size and the type of study. Nevertheless it opens up new perspectives and could enrich the therapeutic arsenal available to the obstetrician gynecologist to take care of women who have proven cerebral incompetence.

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