

Prevalence of uterine anatomical anomalies in Mexican women with recurrent pregnancy loss (RPL)

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Abstract

Introduction: In Mexico, the information available about the prevalence of uterine anatomical anomalies as the direct and indirect cause of recurrent pregnancy loss (RPL) is limited. **Objective:** To know the prevalence and types of uterine anatomical anomalies in Mexican women with RPL. **Methods:** In a cross-sectional study, we included women attending a clinic for RPL from 2008 to 2013, with a history of three or more consecutive gestational losses, with the same couple and complete study protocol by factors. Altered anatomical factor was defined by any of the following diagnoses: Müllerian malformations, submucosal myomas, uterine synechiae, endometrial polyp, and cervical weakness, confirmed by laparoscopy and hysteroscopy. **Results:** We analyzed 188 women. The prevalence of anatomical anomalies was 41.5% (n = 78); the type of anatomical anomaly was: cervical weakness 15.9% (n = 30), septate uterus 11.7% (n = 22), and uterine synechiae 9.6% (n = 18), endometrial polyps 1.6% (n = 3), bicornuate uterus 1.1% (n = 2), arcuate uterus 0.5% (n = 1), didelphic uterus 0.5% (n=1), and submucosal myoma 0.5% (n = 1). We identified the anatomic factor as the unique cause of RPL in 35.6% (n = 67) of cases. **Conclusions:** The prevalence of altered anatomical factor in Mexican women with RPL is 41.5%; more frequent anomalies were: cervical weakness, septate uterus, and uterine synechiae. (Gac Med Mex. 2016;152:143-6)
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Introduction

Recurrent pregnancy loss (RPL) is defined as the occurrence of three or more consecutive pregnancy losses with the same partner. So far, an approximate prevalence of 1% has been estimated in couples trying to conceive^{1,2}.

Establishing the prevalence of uterine anatomic anomalies with regard to RPL is a difficult task, given the following considerations: the use of different diagnostic

methods (all with different sensitivity and specificity), the use of varying diagnostic criteria between observers (which many times are subjective) and interpretation inconsistency for classification of some congenital uterine anomalies. Having said that, according to the medical literature, the prevalence of anatomic anomalies in patients with RPL is highly variable and has been reported to range from 1.8 to 37.6%²⁻⁴. In a systematic review conducted in 2011 that included 94 studies (59 were prospective, 26 retrospective and 9 did not

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Table 1. Baseline characteristics of Mexican women with RPL

Characteristics	n = 188
Number of gestations:	
Gravida 3	62 (33%)
Gravida 4	76 (40.4%)
Gravida 5	38 (20.2%)
Gravida 6 or more	12 (6.4%)
Body mass index	
Normal (18.5-24.9 kg/m ²)	55 (29.3%)
Overweight (25-29.99 kg/m ²)	83 (44.1%)
Obesity (≥ 30 kg/m ²)	50 (26.6%)
Women who reported at least one child alive	73 (38.8%)
History of at least one delivery:	
Full term delivery	21 (11.2%)
Preterm delivery	25 (13.3%)
Stillbirth	2 (1%)
Immature delivery	25 (13.3%)
No previous history of delivery	115 (61.2%)
History of at least one cesarean section:	
Full term c-section	49 (26.1%)
Preterm c-section	14 (7.5%)
Classical c-section	2 (1%)
No previous history of c-section	123 (65.4%)

define their design), the prevalence of uterine anatomic anomalies in a non-selected population was found to be 5.5% (95% confidence interval [CI]: 3.5-8.5), with no significant increase observed with regard to women showing infertility (8.0%; 95% CI: 5.3-12.0; $p = 0.239$). However, in patients with a history of abortion (13.3%; 95% CI: 8.9-20; $p = 0.011$) and infertility-associated abortion (24.5%; 95% CI: 18.3-32.8; $p < 0.001$) a statistically significant increase was observed in the prevalence rate⁵. Uterine anatomic anomalies that contribute to RPL are classified, according to their origin, into congenital anomalies (Müllerian malformations and cervical insufficiency) and acquired anomalies (submucosal myomas and uterine synechiae)⁶⁻⁸.

In Mexico there is no national or institutional-wide information that reveals the prevalence of uterine anatomic anomalies as a direct or indirect cause of RPL. We consider that the performance of this work will be a milestone for the conduction of future prospective trials that will entail broadening the information on the topic in the country.

The purpose of the present work is to know the prevalence and types of uterine anatomic anomalies in Mexican women with RPL at the *Instituto Nacional de Perinatología*.

Material and methods

Retrolective, cross-sectional study conducted at the *Instituto Nacional de Perinatología* with women attending the RPL clinic between 2008 and 2013. Women with a history of 3 or more consecutive pregnancy losses with the same partner and complete study protocol for factors (genetic, immune, endocrine, infectious and anatomic) were included⁹.

Study variables

Altered anatomic factor was defined as the existence of any of the following diagnoses: Müllerian malformations, submucosal myomas, uterine synechiae, endometrial polyp and cervical insufficiency. Patients were classified into 2 groups: group 1 (uterine factor) and group 2 (cervical factor). The diagnosis in group 1 patients was established with 2D ultrasound, hysterosalpingography and sonohysterography; all cases were confirmed by diagnostic hysteroscopy and laparoscopy. In group 2, the diagnosis was made for patients with a history of painless uterine cervix dilatation and resulting pregnancy loss during the second or early third trimester, prior to fetal viability or without a positive dilator test result.

Women with any suspected uterine abnormality by 2D ultrasound, hysterosalpingography or sonohysterography with no confirmation by diagnostic hysteroscopy and laparoscopy were excluded during the study.

The sample size was estimated based on an expected prevalence of 35%, with a 95% confidence level and an accuracy of 7%; in total, 178 women were required¹⁰.

The information was retrieved from the medical record. The obtained data were captured and codified in an Excel worksheet; the SPSS program (version 15) was used for data processing, statistics and presentation of results.

Results

Data were reviewed of 200 women, out of whom 12 failed to meet the inclusion criteria; therefore, 188 women were finally analyzed.

Average age of the study population was 29.5 ± 4.7 years, with a 17 to 38-year range. Average number of pregnancies was 4 ± 0.9 gestations per woman, with a range of 3-8 previous gestations. Baseline population characteristics are shown in table 1.

Table 2. Frequency and percentage of factors identified as RLP causes in 188 Mexican women

Factor	n (%)
Anatomic	67 (35.6)
Anatomic + endocrine	9 (4.8)
Anatomic + genetic	2 (1.1)
Other factors	25 (13.3)
Not identified	85 (45.2)

Previous history of abortions deserves to be specially mentioned: 8% had a history of one abortion; 20.2%, two abortions, and 71.3%, three or more abortions. Only one participant had no previous history of abortions, only immature deliveries.

With regard to the trimester when previous abortions occurred, 81.9% (n = 154) of the women had their abortions during the first and 17.5% (n = 33) during the second trimester.

Some uterine anatomic abnormality was diagnosed in 78 women (41.5%). Table 2 shows the detection frequency and percentage of the anatomic factor as the sole cause of RPL, of the anatomic factor associated with other factor, of other studied factors (endocrine, immune and genetic) and of losses with unidentified cause.

Table 3 shows anomalies identified as anatomic factors in women with RPL; the main anatomic abnormalities in order of frequency were: cervical insufficiency, septate uterus, uterine synechiae and endometrial polyp.

Discussion

Our study revealed a prevalence of altered anatomic factor in Mexican women with RPL of 41.5%, which is slightly higher than the figures reported in the world literature. The data obtained represent the first report on the prevalence of anatomic factors in patients with RPL carried out in the Mexican population. It is important pointing out that all included women had a complete study protocol for factors (genetic, immune, endocrine and anatomic); all those cases with initial suspicion of uterine anatomic anomaly were confirmed by diagnostic hysteroscopy and laparoscopy (the gold standard).

According to reports in medical literature, the prevalence of anatomic factors in patients with RPL is highly

Table 3. Anomalies identified as anatomic factors in women with RPL

Factor	n (%)
Cervical insufficiency	30 (16%)
Septate uterus	22 (11.7%)
Uterine synechiae	18 (9.6%)
Endometrial polyp	3 (1.6%)
Bicornuate uterus	2 (1.1%)
Arcuate uterus	1 (0.5%)
Didelphic uterus	1 (0.5%)
Submucosal myomata	1 (0.5%)
Total	78 (41.5%)

variable: 1.8-37.6% range². In the year 2006, Guimarães et al. reported a prevalence of 38.3% in a study conducted in 60 women with RPL diagnosed with uterine anatomic anomalies by hysteroscopy, but they failed to include cervical insufficiency as an anatomic abnormality, which might explain the lower prevalence with regard to our results; they also failed to report whether the anatomic factor was the sole cause or if it was associated with other RPL causes⁶.

The results obtained confirmed that septate uterus was the most common uterine anomaly, with a prevalence of 11.7%, Chan et al., in a systematic review, observed a prevalence of this malformation of 5.3% (95% CI: 1.7-16.8) in women with RPL, compared with a prevalence of 2.3% (95% CI: 1.8-2.9) in unselected general population⁵. We decided to include in the study other Müllerian malformations (bicornuate uterus and didelphic uterus), as their prevalence is significantly higher in patients with RPL than in unselected population (2.1%; 95% CI: 1.4-3; p = 0.001)⁵; the prevalence of these anomalies was low.

The presence of uterine synechia was reported in 9.6% of our population. Raziel A. et al., in 1994, reported, in women with RPL, a prevalence of 23.6% for Asherman syndrome diagnosed by hysterosalpingography and confirmed by diagnostic hysteroscopy¹¹.

Saravelos et al. reported the presence of submucosal uterine myomata in 2.6% of women with RPL; in our case, we only confirmed this diagnosis in 0.5% of the population¹².

We considered cervical insufficiency to be a cervical anatomic factor, which was the leading cause of

miscarriages during the second trimester and prior to fetal viability, with a prevalence of 16%; in most cases, the diagnosis is clinical and poorly objective; therefore, its world-wide prevalence is unknown.

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