Predisposing Factors and Treatment Outcome of Different Stages of Intrauterine Adhesions

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Presented at the 38th Global Congress of Minimally Invasive Gynecology, Orlando, Florida, November 15–19, 2009.

Abstract

Objective: To evaluate the predisposing factors and treatment outcomes of different stages of intrauterine adhesions.

Methods: We examined the medical records of women with Asherman syndrome seen during the period of January 2000 to December 2007 at two McGill University teaching hospitals in Montreal. Data retrieved included patient's age, menstrual pattern, fertility, factors related to intrauterine adhesions, and rates of amenorrhea and pregnancy at 12-month follow-up. The diagnosis was established by hysteroscopic examination. After confirmation of the diagnosis, the intrauterine adhesions were removed using a standard technique with a loop electrode and glycine 1.5% as distension medium. In cases with severe intrauterine adhesions, abdominal ultrasound was used to ensure that the uterine cavity was not breached. At the completion of each procedure a number 16 Foley catheter with 5 mL of normal saline in the bulb was placed in the uterine cavity and removed five days later. In addition, vaginal estradiol 17β was administered three times daily for four weeks with oral progesterone administered in the fourth week of estradiol treatment.

Results: Of 65 patients, we identified 24 with stage I intrauterine adhesions (36.9%), 30 with stage II (46.2%), and 11 with stage III (16.9%). The main reasons for referral were infertility (stage I 75%, stage II 73.3%, stage III 27.3%), and amenorrhea (stage I 25%, stage II 23.3%, stage III 72.7%). The main predisposing factor was dilatation and curettage. Of 40 patients with intrauterine adhesions related to early pregnancy curettage, 18 patients (45%) had stage I adhesions, 17 (42.5%) had stage II, and five (12.5%) had stage III. This contrasted with 10 patients who had peripartum curettage, in whom six (60%) developed stage III adhesions ($P = 0.004$). The rate of amenorrhea was 32.3% before adhesiolysis and 9.2% after. Among 43 women who wished to conceive, the pregnancy rate was 51.2% and the live birth rate 32.6%.

Conclusion: The main reasons for referral of women with intrauterine adhesions are infertility and amenorrhea. Postpartum curettage leads to severe adhesions. The rates of pregnancy and term pregnancy among this selected group of women were similar regardless of the severity of adhesions.

Key Words: Intrauterine adhesions, Asherman syndrome, risk factors, treatment outcome

Competing Interests: None declared.

Received on February 4, 2010

Accepted on March 30, 2010

Résumé

Objectif : Évaluer les facteurs prédisposants et les issues de traitement des différents stades des adhérences intra-utérines.

Méthodes : Nous avons étudié les dossiers médicaux de femmes atteintes du syndrome d'Asherman, qui se sont présentées au Centre universitaire de santé McGill de Montréal entre janvier 2000 et décembre 2007. Les renseignements recueillis portaient sur l'âge de la patiente, le profil menstruel, la fertilité, les facteurs liés aux adhérences intra-utérines et les taux d'aménorrhée et de grossesse lors du suivi effectué au bout de 12 mois. Le diagnostic a été établi par examen hystéroscopique. Après confirmation du diagnostic, on a procédé à l'ablation des adhérences intra-utérines à l'aide d'une technique électrochirurgicale standard, au moyen d'une anse et de glycine à 1,5 % comme solution de distension. En présence d'adhérences intra-utérines graves, on a eu recours à l'échographie abdominale, afin de s'assurer que la cavité utérine n'avait pas été pénétrée. À la fin de chaque intervention, une sonde de Foley de calibre 16, contenant 5 ml de solution physiologique salée, a été placée dans la cavité utérine, puis retirée cinq jours plus tard. On a également administré de l'estradiol-17β par voie vaginale, à raison de trois fois par jour pendant quatre semaines, ainsi que de la progestérone par voie orale au cours de la quatrième semaine du traitement à l'estradiol.

Résultats : Sur 65 patientes, on a diagnostiqué la présence d'adhérences intra-utérines de stade I chez 24 d'entre elles (36,9 %), d'adhérences de stade II chez 30 d'entre elles (46,2 %), et d'adhérences de stade III chez les 11 dernières (16,9 %). Les principales raisons ayant motivé l'orientation de ces patientes étaient l'infertilité (stade I : 75 %, stade II : 73,3 %, stade III : 27,3 %), et l'aménorrhée (stade I : 25 %, stade II : 23,3 %, stade III : 72,7 %). Le principal facteur prédisposant était la dilatation avec curetage. Sur 40 patientes présentant des adhérences intra-utérines attribuables à un curetage effectué aux débuts de la grossesse, 18 (45 %) présentaient des adhérences de stade I, 17 (42,5 %) présentaient des adhérences de stade II, et 5 (12,5 %) présentaient des adhérences de stade III. Par contraste, sur 10 patientes soumises à un curetage périnatal, six (60 %) présentaient des adhérences de stade III ($P = 0,004$). Le taux d'aménorrhée était de 32,3 % avant l'adhésiolyse, et de 9,2 % après celle-ci. Chez 43 femmes souhaitant concevoir, le taux de grossesse était de 51,2 %, et le taux de naissance vivante était de 32,6 %.

Conclusion : Les principales raisons motivant l'orientation des femmes présentant des adhérences intra-utérines sont l'infertilité et l'aménorrhée. Le curetage postpartum entraîne l'apparition d'adhérences graves. Les taux de grossesse et de grossesse à terme chez ce groupe particulier de femmes étaient semblables, peu importe la gravité des adhérences.

J Obstet Gynaecol Can 2010;32(8):767-770

INTRODUCTION

Intrauterine adhesions, also known as Asherman syndrome, occur after trauma to the basal layer of the endometrium. This is usually due to pregnancy-related curettage.[1] However, injury to a nongravid uterus, including dilatation and curettage for diagnostic purposes, myomectomy, and hysteroscopic surgery, can also lead to intrauterine adhesions.[2]

The presenting symptoms in women with intrauterine adhesions vary from no symptoms to infertility, hypomenorrhea, amenorrhea, and recurrent pregnancy loss.

The purpose of this study was to identify predisposing factors for intrauterine adhesions and assess treatment outcomes for different stages of intrauterine adhesions.

MATERIALS AND METHODS

We examined the medical records of women seen during the period January 2000 to December 2007 at the McGill University Health Centre, the Royal Victoria Hospital, and the Sir Mortimer B. Davis Jewish General Hospital, Montreal, Quebec. Information was retrieved from the hospital's medical files and crosschecked with the clinic charts. We classified the adhesions using the American Society of Reproductive Medicine classification as stage I (mild), II (moderate), or III (severe). This classification is based on the extent of cavity involved, type of adhesion, and menstrual pattern.[3]

The diagnosis was established by hysteroscopic examination. After confirmation of the diagnosis, the intrauterine adhesions were removed using a standard technique with a loop electrode and glycine 1.5% as distension medium. In cases with severe intrauterine adhesions, abdominal ultrasound was used to confirm that the uterine cavity was not breached. At the completion of the procedure and in order to maintain the integrity of the cavity, a number 16 Foley catheter was placed into the uterine cavity. The Foley balloon was inflated with 5 mL of physiologic saline, and the catheter was removed five days later. In addition, vaginal micronized estradiol 17β (Estrace, Shire Canada Inc., Ville St. Laurent, QC) was administered in a dose of 2 mg three times daily for four weeks and oral micronized progesterone (Prometrium, Schering-Plough Canada Inc., Kirkland, QC) 100 mg daily was given in the fourth week of estradiol treatment.

Data retrieved included patient's age, menstrual pattern, fertility, factors related to development of intrauterine adhesions, and rates of amenorrhea and pregnancy at follow-up after 12 months.

The normality of data distribution was tested using Shapiro-Wilks test. We used Student *t* tests to compare continuous variables and chi-square tests or Fisher exact tests for proportions when appropriate. The differences were considered statistically significant at $P < 0.05$.

RESULTS

Of a total of 65 patients, we identified 24 patients with stage I intrauterine adhesions (36.9%), 30 with stage II (46.2%), and 11 with stage III (16.9%). The mean age of the patients in stage I was 37.1 ± 4.1 years, in stage II was 35.8 ± 6.2 years, and in stage III was 35.7 ± 2.4 years. The main reasons for referral were infertility (stage I 75%, stage II 73.3%, stage III 27.3%) and amenorrhea. The incidence of amenorrhea was significantly higher in stage III (72.7%) than in stage I (25%) and stage II (23.3%) ($P < 0.001$) (Table 1).

The main predisposing factor for intrauterine adhesions was dilatation and curettage (Table 2). Of 40 patients with intrauterine adhesions related to early pregnancy curettage, 18 had stage I adhesions (45%), 17 had stage II (42.5%), and 5 patients had stage III (12.5%). This finding contrasted with the outcome in 10 women who had peripartum curettage; 60% of these women developed stage III adhesions ($P = 0.004$).

The incidence of amenorrhea before adhesiolysis was 32.3%, and after adhesiolysis it was 9.2% ($P = 0.002$) (Table 3). In addition, adhesiolysis significantly reduced the rate of amenorrhea in those with stage III adhesions.

Among 43 women who wished to conceive, the rates of pregnancy and live birth were 51.2% and 32.6%, respectively. These rates were similar among all stages of adhesions. Placenta previa developed in one patient with stage I adhesions.

DISCUSSION

In agreement with previous reports, we found that amenorrhea and infertility were the most common presenting symptoms of intrauterine adhesions.[1,4] Of those with amenorrhea, more women had stage III adhesions than stage I or II adhesions.

The major predisposing factor for development of intrauterine adhesions is pregnancy-related curettage. In fact, the predisposing factor among all women in our series with stage III adhesions was curettage. Of women with stage III adhesions, 12.5% had had early pregnancy curettage, but 60% had had peripartum curettage. Perhaps a combination of large uterine surface and vigorous curettage to control bleeding leads to excessive injury to the endometrium. In addition, the basal endometrium in the postabortal or postpartum period is susceptible to injury.