

Observational study of new treatment proposal for severe intrauterine adhesion

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Abstract

To present the experience with intrauterine adhesiolysis under observational study of new treatment proposal for severe intrauterine adhesion to prevent the formation of adhesion and it is comparison with the review articles. Sixty patients for whom operative hysteroscopy were indicated referred to the hysteroscopic unit of University-affiliated Xiang ya 3rd hospital, Hunan, china. The adhesions were divided hysteroscopically by using scissors or electrode needle under direct vision. A second look hysteroscopy was performed after one month. Total five operative procedures were performed in 59 cases; one patient did not continue her treatment. One was mild adhesion, two were moderate adhesions and 56 were normal cavity after final treatment. The staging mean score of intrauterine adhesion was evaluated, patients showed a significant decrease in severity of adhesion at 1.69% (stage I mild adhesions),

and 3.38% (stage II moderate adhesions). At one month follow-up hysteroscopic adhesiolysis significantly reduce the development of intrauterine adhesions postoperatively and its use is likely to be associated with a reduction of severe adhesions.

Key words: Intrauterine adhesion (IUA), bi-channel Foley's catheter, hyaluronic acid (HA) gel, uterine shape of intrauterine device (IUD), operative hysteroscopy.

Introduction

Intrauterine adhesions are bands of scar-link tissue that form between two surfaces inside the uterine cavity. Approximately 90% of cases of IUAs are related to postpartum or post-abortion overzealous dilatation and curettage (Pabuccu *et al.*, 1997). Less frequently, IUAs are caused by postabortal (Louros *et al.*, 1968) and puerperal sepsis (Polishuk *et al.*, 1975). Furthermore, IUAs represent the major long term complication of operative hysteroscopy (Fayez, 1986). Severe intrauterine adhesive disease are related to curettage for pregnancy complications, such as missed abortion, incomplete abortion, postpartum hemorrhage, or retain placental remnants (Schenker, 1996). Intrauterine adhesion occurs after trauma to the basalis layer of the endometrial generally after endometrial curettage. Thin bands of tissue stretch between surfaces of the uterine cavity, whereas severe disease is characterized by complete obliteration of the cavity, with the anterior wall of the uterus densely adherent to the posterior wall. In 1993, an incidence of 19% of intrauterine adhesion after missed abortion was found by using hysteroscopy (Friedler *et al.*, 1993). The incidence of intrauterine adhesion to be 30% after dilatation and curettage for incomplete or missed abortion (Romer, 1994). In 1991, an incidence of up to 39% among women who underwent dilatation and curettage after induced midtrimester abortion (Lurie *et al.*, 1991). This condition we now commonly refer to as Asherman syndrome that has been called uterine Artesia, amenorrhea traumatic and endometrial sclerosis ((Pabuccu *et al.*, 1997). This condition has also been referred

to as recurrence severe intrauterine adhesions and intrauterine synechiae (IUS). The universal incidence of intrauterine adhesion is steadily increase as any factors leading to destruction of the endometrium, the main etiologic factors is trauma to a recently pregnant uterus and the incidence is high in developing countries with increased therapeutic and illegal abortion and also in areas with high incidence of genital tuberculosis. When lysis, adhesions have a tremendous propensity to reform (Diamond and Freeman, 2001). Over a time with recurrence rang from day to decades after surgery remarked that adhesion reformation occurs post-operatively in 55-100% of patients, (Diamond and Freeman, 2001). Genital tuberculosis is a cause of intrauterine adhesions, which are often severe with complete obliteration of the uterine cavity. The Symptoms associated with clinically significant intrauterine adhesions include, infertility, menstrual irregularities (hypomenorrhea, amenorrhea) and cyclic pelvic pain. The objective of the study was to demonstrate the efficacy of Foleys balloon catheter, HA gel and IUD in the prevention of post-surgical adhesions reformation after hysteroscopic surgery. At 1 month follow up of hysteroscopy adhesiolysis, a significantly reduces the development of post-surgical intrauterine adhesions was observed in comparison with 3 months follow-up of hysteroscopy adhesiolysis.

Materials and methods

Patient's information

The study was carried out at the hysteroscopic unit of University-affiliated Xiang ya 3rd hospital, Hunan, China. From July 2008 to January 2009, the sixty patients ranged from 19 years to 40 years (mean 29.3 years) with intrauterine adhesions of stage III (According to the American fertility society classification of intrauterine adhesions, 1988). All sixty patients were diagnosing hysteroscopically. The adhesions divided or transected hysteroscopically by using scissors or electrode needle under direct vision. After effective lysis, a Bi-channel 16F Foley's balloon catheter, HA gel and IUD, has been used successfully to prevent the recurrence of adhesions. At the same time postoperative hormone treatment was started, consisting of oestrogen (estradiol) at a dose of 4 mg/day up to 3 months after surgery. Second look hysteroscopy was performed 1 month after the initial

hysteroscopy adhesiolysis. While the other operator might use electrosurgery with operative hysteroscopy and using T shape of IUCD and second look hysteroscopy was performed 3 months after the initial hysteroscopy adhesiolysis. Present method serves as a stander method of reporting to allow for comparison of treatment regimens with the review article (Acunzo *et al.*, 2003).

Pre operative preparation

Hysteroscopy performed at any favourable time in women. In all patients, misoprostol tablets, 0.4mg, were placed in the rectal mucosa 3 hours before hysteroscopy to soften the cervix (use of misoprostol was not contraindicated in any enroll patients) (Thomas *et al.*, 2002).Preoperatively, complete blood counting, blood glucose concentration, bleeding and clotting time and electrocardiography data were obtained. All patients were received intravenous prophylactic antibiotic therapy (cefoxitin 1 g in 20 ml. of saline solution) (Kongnyuy *et al.*, 2008).

Surgical procedure

The study was carried out at the hysteroscopic unit of University-affiliated Xiang ya 3rd hospital, Hunan, china. From July 2008 to January 2009, total sixty patients with intrauterine adhesion (stage III).According to American Fertility Society classification of intrauterine adhesions. Cumulative score: stage I (mild) 1–4, stage II (moderate) 5–8, stage III (severe) 9–12).

Extent of Cavity Involved	<1/3	1/3 - 2/3	>2/3
	1	2	4
Type of Adhesions	Filmy	Filmy & Dense	Dense
	1	2	4
Menstrual Pattern	Normal	Hypomenorrhea	Amenorrhea
	0	2	4

Before hysteroscopy, the entire patient underwent vaginal examination to ascertain the position and size of the uterus, and a speculum inserted in to the vagina to expose the cervix. Before scheduling operative treatment all cases were diagnoses of intrauterine adhesions by office hysteroscopy. Sharp hysteroscopic adhesiolysis under general anesthesia was performed to treat all patients using a 9 mm O.D. Olympus® hysteroscopy system (Wisap, Germany, 9-mm resecto-hysteroscope;

Olympus, Japan, 8-mm resecto-hysteroscope; Storz, Germany, 9-mm resecto-hysteroscope), with continuous monitored saline flow and blunt tipped scissors. In cases with cavitory obliteration, transabdominal B-mode ultrasound was used to help guide the procedure. The occurrence of any complications was recorded. After application of the speculum and disinfection of the cervix, the hysteroscope was introduced intracervically. The distending media of 5% mannitol solution was delivered into the uterine cavity. 5%mannitol insufflations used at a pressure of 120mmHg at a flow rate of 300 ml/min. The IUAs closely observed and diagnosis of severe intrauterine adhesion stage III. classified (According to the American fertility society classification of intrauterine adhesions, 1988).Hysteroscopic adhesiolysis-using Scissors has the advantage that it permits dissection and avoids complications related to energy sources, and it possibly minimizes the destruction of endometrium. On the other hand, if it is not possible to perform by a scissors satisfactorily because of thick and dense tissue then used electrode needle. The cutting and coagulating power was set 25 w and 30 w respectively. To prevent the reoccurrence of adhesions after effective lysis, a Bi-channel 16F Foley's balloon catheter inserted into the uterus and left in place for 5-7 days after surgery, one channel to inflated balloon with 5ml of normal saline and its stem cut above the cervix, and another channel for gel barrier using 2ml of hyaluronic acid (HA), then tight knot was made by catheter stem itself for 48 hours, these were separate the opposing of uterine walls. Foley's balloon catheter used successfully to prevent the recurrence of adhesions. Then immediately Insertion of intrauterine device in the uterine cavity Fig.1. (uterine shape of IUD).At the same time post operative oral conjugated estrogens therapy (oestradiol 4mg daily), was given to all patients up to 3 months after surgery to stimulate rapid endometrial regeneration. Each patient underwent a follow-up diagnostic hysteroscopy 1 month after the surgical procedure, and the adhesion score (American fertility society, 1988), were assessed. Same operator were performed both the initial diagnostic hysteroscopy and the 1-month follow-up a diagnostic hysteroscopy. The operator evaluated the adhesion score for each patient and was blind for patients observationally allocation. The IUD was removed during the second look of hysteroscopy and then presence or absent of adhesion was observed. We noted a gradual progression of recurrent adhesions overtime. Initial attempts to cut the newly forming adhesions with the scissors performed successfully during second look of procedure, inserted the second IUD in to the

uterine cavity, and hormone treatment was started again. Sixty patients had second look hysteroscopy performed 1 month after the initial hysteroscopic adhesiolysis in our unit, among them 1 patient didn't continue her treatment after 2nd look hysteroscopy and other patients had third, fourth or fifth look hysteroscopy after further adhesiolysis. At the end of the procedure, inserted a uterine shape of intrauterine device (IUD) in to the uterine cavity and combined hormone treatment was followed by 11 days of oral conjugated oestrogen (4mg), and 10 days of combined conjugated estrogen/progesterone (4/10mg) therapy cyclically for 3 months. No procedures exceeded 10 minutes, and all well tolerated. No pre, intra, or post procedural complications were encountered.

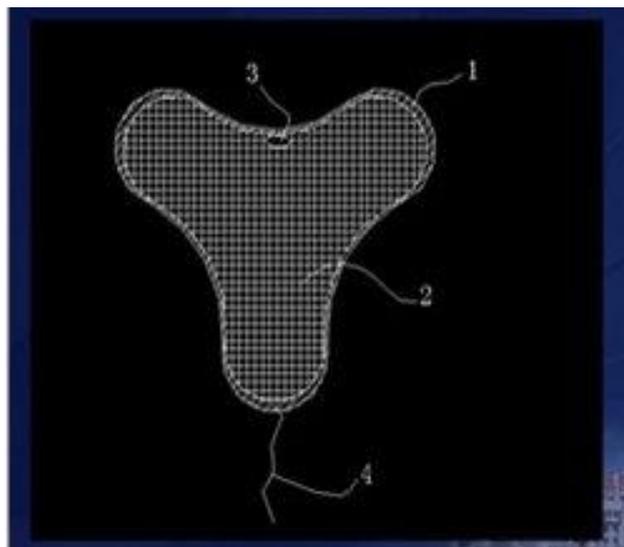


Fig. 1. Uterine IUD.

Statistical analysis

Data was analyzed by using the statistical software SPSS 16.0. One way ANOVA and then post hoc comparison was done. Values in figure and table have been shown as mean \pm SD. $P\leq 0.05$ and $P\leq 0.001$ were regarded as statistically significant.

Results

The IA values of patients before and after treatment have been represented in Fig. 1. All the patients of the study (n=60) had extremely higher IA value (mean 10.5), but

after treatment in every stage of observation, it was found significantly lower ($P \leq 0.001$).

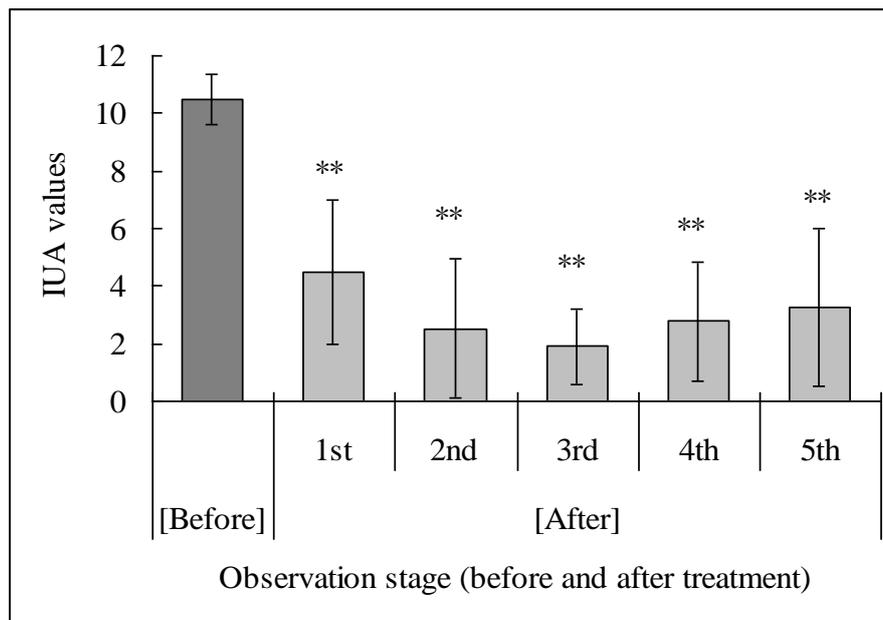


Fig. 2. IUA values of patients before the treatment and every observation after the treatment. Values are mean \pm SD. ** $P \leq 0.001$. (n=60 before treatment; n= 60 at 1st observation; n=54 at 2nd observation; n=34 at 3rd observation; n=12 at 4th observation; n=4 at 5th observation; in every observation the patients who had normal IUA in past observation, were excluded).

Sixty patients have completed hysteroscopic adhesiolysis followed by serial hysteroscopy between July 2008 and January 2009 for the treatment of severe intrauterine adhesion. Fifty-nine patients consented to participate in the study and supplied primary follow-up outcome data. One patient did not continue her follow-up hysteroscopy. One was mild adhesion, two were moderate adhesions (Fig. 3), and fifty-six patients were normal cavity after final treatment. The staging mean score of intrauterine adhesion (American fertility society 1988) was evaluated, patients showed a significant decrease in severity of adhesion at 1.69% (stage I mild adhesions), and 3.38% (stage II moderate adhesions). No adverse effects detected in present methods.

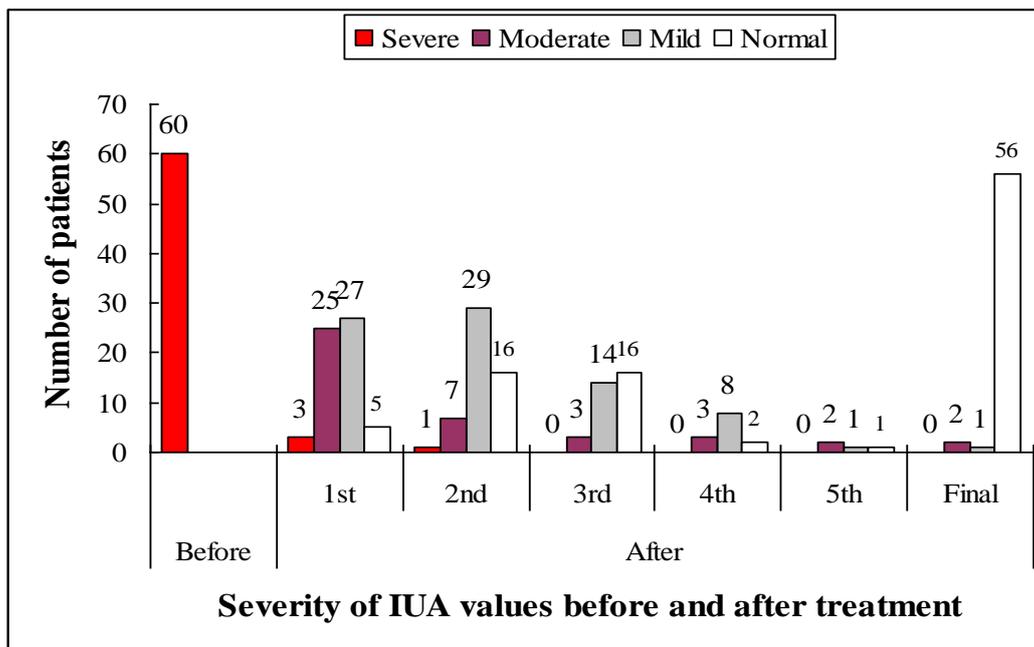


Fig. 3. Severity pattern change of IUA values of patients before treatment and the different observation after treatment.

Discussion

Severe intrauterine adhesions are difficult to treat. These can be managed safely and effectively hysteroscopically for restoring fertility and normal menstrual patterns. However, intrauterine adhesions can reform even following surgical treatment (Diamond, 2000). In our experience, high frequencies of post-operative adhesions were observed, especially after hysteroscopic adhesiolysis. In the present study, we have reported on the outcome of a consecutive series of sixty cases of hysteroscopic adhesiolysis for severe intrauterine adhesion score. We have classified the severity of the adhesions, According to the American fertility society classification of intrauterine adhesions in 1998. We have examined that the women who presented only with severe intrauterine adhesions with hypo menorrhoea or amenorrhoea, because it is likely especially in severe cases (20%–62.5%) of intrauterine adhesions (Valle and Sciarra, 1988; Capella-Allouc, 1999; Preutthipan, 2000; Schenker, 1982). Various method have been used to prevent the reformation of intrauterine adhesions such as IUD (Massouras, 1973; Jewelewicz, 1976; Polishuk, 1997; Klein, 1973), Foley’s balloon catheter (Comninos, 1969; Acunzo, 2003), Hyaluronic acid (Farhi *et al.*,1993).In the present study the hysteroscopic scissors has the advantage that to

permits dissection and it possibly minimizes the destruction of endometrium . On the other hand, if it is not possible to perform by a scissors satisfactorily because of thick and dense tissue then used electrode needle. The cutting and coagulating power was set 25 w and 30 w respectively. While other operator frequently used electrode needle (Preutthipan and Linasmita, 2000; Duffy *et al.*,1992), or laser vaporization system could provide effective and cutting as well as good homeostasis, but there is a theoretical possibility of further endometrial damage (Knopman and Copperman, 2007). Our studies have reported on the use of a Bi-channel 16F Foley's catheter introduced into the uterine cavity with an inflated balloon for 5 to 7 days, one channel to inflated balloon with 5 ml of normal saline and another channel for application of gel barrier using 2ml of hyaluronic acid (HA). Both were prevented adhesions and maintain the freshly separated uterine cavity by separating the opposing uterine walls. Foley's balloon catheter was a safe and more effective method for preventing reformation of intrauterine adhesions. Some studies have reported on the use of a pediatric catheter (Doyle, 1991; Orhue, 2003; Siddiqui, 2003).Some time it replaces for long time and chances of urinary infection (Roge *et al.*,1997) .We routinely used uterine shape of IUD(new deigned made in china) to resume the normal shape of uterine cavity (Fig. 1). This new barrier agent could represent a safe and effective strategy to improve women's health reducing the need for re-intervention after hysteroscopic surgery. While other operator might used copper IUD but its effect to the inflammatory reaction stimulated by copper IUDs in the endometrium as a consequence of the release of various types of prostaglandins and enzymes. In a literature review, March (Massouras, 1973) T shape IUD (copper T) may have too small surface to prevent adhesions, and may induce an excessive inflammatory reaction (Guida *et al.*, 2004).The introduction of a T shape IUD also may carry a small risk of perforation of the uterus (Dan Yu *et al.*, 2008). The Present method performed second look diagnostic hysteroscopy to check the uterine cavity1 month after initial hysteroscopic surgery. Adhesions in general, filmy and it can easily permit dissection, avoids complications, and no more further surgery. While other operator prefers second look hysteroscopy 3 months after initial hysteroscopy (Nappi *et al.*, 2007; Jehn *et al.*, 2008) and there is a more chance of dense adhesion, difficult to identify for division of these adhesions, also increased risk of uterine perforation, and need more further surgery to prevent the adhesions. Proportion of firmly adhesions was higher when hysteroscopy was performed up to three months after curettage, as

compared with hysteroscopy performed one month after the procedure (Roge *et al.*, 1996).A significant reduction in the development of post surgical intrauterine adhesions at 1-month follow-up in comparison with the 3 months follow-up. In the Present study, a patient has fourth or fifth looks hysteroscopy after initial hysteroscopic surgery. The principle aim of the study should be resumption of normal menses, and fertility.

Conclusion

An intrauterine adhesion is a worldwide disease. The management of severe intrauterine adhesion still poses a challenge, and the prognosis of severe intrauterine adhesion remains poor. Repeat surgery may be necessary in some cases but may not always produce the desired outcome. In the present study clearly indicates that there is a less chance of adhesions make in firm and dense after one-month follow-up of hysteroscopic adhesiolysis comparison of three-month follow-up hysteroscopic adhesiolysis. Hysteroscopy is a safe and effective method of choice for restoring menstrual function and fertility.

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