

POSTABLATION TUBAL STERILIZATION SYNDROME

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Menorrhagia has been defined as excessive menstrual blood loss or, more specifically, blood loss of more than 80 mL per menstrual period [1]. Definite treatment for most "benign" menorrhagia is hysterectomy. But for those who have no response to hormonal therapy or traditional endometrial curettage but still want to avoid hysterectomy, endometrial ablation is a cost-effective and well-accepted surgical alternative [2]. Hysteroscopic methods (neodymium:yttrium-aluminum-garnet [Nd:YAG] laser photovaporization, rollerball electrocoagulation, and loop excision) require extensive hysteroscopic training and may produce complications (hemorrhage, uterine perforation, intravascular fluid overload from distension media) [2,3]. Most gynecologists realize this, but little is known about the potential late complications [4-6].

Cyclic pelvic pain with or without light vaginal bleeding observed in women with tubal sterilization following endometrial ablation was first reported in 1993, and the term postablation tubal sterilization syndrome (PATSS) was introduced thereafter [7]. The hypothesis is that this syndrome reflects retention or regeneration of the endometrium at the cornua. Due to the artificial endometrium synechia in the lower uterus segment caused by endometrial ablation, there is menstrual blood reflux into the blocked fallopian tubes, resulting in symptomatic hematosalpinx or even cornual hematometra. PATSS often requires hysterectomy to relieve the debilitating pelvic pain [6,8]. Here, we report a woman who presented with vaginal spotting and cyclic pelvic pain following tubal sterilization and endometrial ablation. Laparoscopic bilateral salpingectomy with preservation of the uterus successfully alleviated her discomfort.

A 47-year-old woman, gravida 4, para 3, induced abortion 1, had a long history of menorrhagia without dysmenorrhea and had a postpartum tubal ligation 15 years previously. Her medical history was remarkable for hypertension with regular medication. She underwent dilatation and curettage two times in the previous 4 years and had received medical therapy with oral medroxyprogesterone acetate and combination oral contraceptive pills for menorrhagia. Because her condition was unresponsive to therapy, she underwent hysteroscopic endometrial ablation and endomyometrial resection with an uneventful recovery.

The ablation resulted in hypomenorrhea for 5 months and amenorrhea for the next 3 months. Eight months after surgery, however, she developed abdominal cramping pain with slight brownish spotting, cycling every 4 weeks. Physical examination showed a normal-sized uterus with light tenderness. There were no obvious adnexal masses, but adnexal tenderness was present, which was greater on the right. Ultrasonography showed irregular hypoechogenic areas within the uterine cavity and bilateral fusiform anechoic adnexal masses (Figure 1). Because of the intolerable cyclic pain, diagnostic laparoscopy and possible hysterectomy were recommended.

Bilateral hematosalpinx without other pelvic pathology was demonstrated on laparoscopy (Figure 2). Laparoscopic bilateral salpingectomy and dilatation and curettage were performed. Microscopic pathologic findings revealed chronic salpingitis with hematosalpinx. Since the surgery, the patient has remained free of pain and she became menopausal a year later.

Since 1990, total hysteroscopic endometrial ablation has been used to treat menorrhagia [3]. Although it has been proven to be an effective surgical alternative to hysterectomy, the need for hysterectomy after endometrial ablation is around 10% [6]. Underlying adenomyosis is the major reason. However, newly onset cyclic abdominal pain has also been mentioned, especially in patients who had previously received tubal sterilization [6,8].

Townsend and colleagues first described PATSS [7]. In their observation study, the tubal sterilization had been



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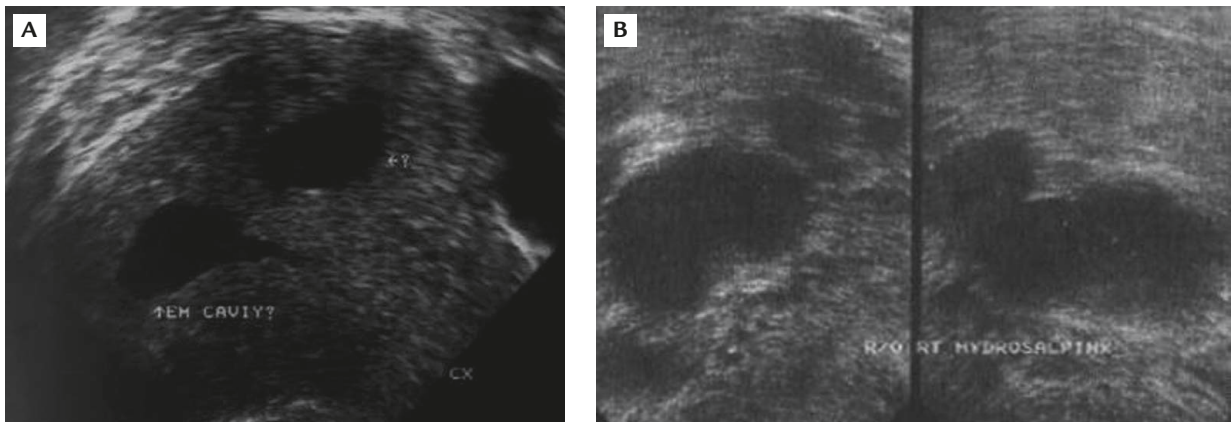


Figure 1. Transvaginal ultrasound shows: (A) irregular hypoechoogenic areas within the uterine cavity; (B) right fusiform anechoic adnexal mass. EM = endometrial.

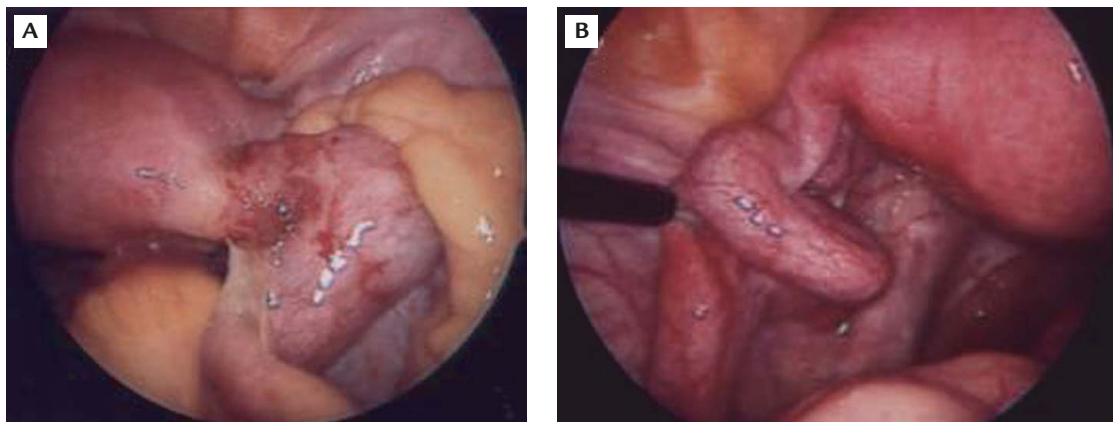


Figure 2. Laparoscopic view shows bilateral hematosalpinx. (A) Right fallopian tube. (B) Left fallopian tube.

performed 1–5 years before the endometrial ablation, and symptoms were noted between 6–10 months following the ablation. The symptoms included cyclic abdominal pain with vaginal bleeding. The hypothesis for the syndrome was supported by magnetic resonance imaging finding, when Turnbull and colleagues noted that the residual endometrium at the cornual area may result in the cornual hematometra and lead to symptoms [9].

Diagnosis of PATSS may be made when a patient has a history of tubal sterilization and newly onset attacks of cyclic abdominal pain after endometrial ablation. Transvaginal ultrasonography can detect deformities of the uterus and fallopian tubes. A diagnostic laparoscopy may be needed if the symptoms cannot be relieved by administration of analgesics. When PATSS is detected and symptoms become intolerable, there are two ways to solve the problem, i.e. hysterectomy or salpingectomy. Bilateral salpingectomy is recommended, as recurrence might occur on the other side.

Since the mechanism is blockage of the menstrual flux, suggestions have been proposed to avoid PATSS.

First, performing a partial endometrial ablation can achieve postoperative hypomenorrhea instead of amenorrhea [8]. The key points are to avoid injuring the endometrium in the cornual area and to perform only anterior or posterior wall ablation. The intent is to avoid scarring of the cornual area and injury to the tubal ostia, which may result in endosalpingoblastosis. In addition, only half of the endometrium is destroyed, so that the injured and uninjured walls will not grow together, intrauterine synechia can be avoided, and the patency of the uterine canal can be maintained.

Second, ablation should be limited to the endometrial cavity, not including the endocervical canal. Injury to the endocervical canal may cause adhesion formation and cervical synechia and, therefore, will lead ultimately to obstructed menstrual flow. In recent years, when a tubal sterilization is done concurrently with endometrial ablation, the tubal sterilization should be performed as close to the uterine cornu as possible, and the cornual area should be sufficiently ablated [7]. However, one must guard against the possibilities

of uterine perforation and endosalpingoblastosis with uteroperitoneal fistula.

Hysteroscopic endometrial ablation is usually carried out by resection of the entire endometrium and 1 to 2 mm of the underlying myometrium. Endometrial ablation of the fundus and cornual areas is completed by rollerball on account of the limitation of the instruments. A thick endometrium will influence the thermal effect, and reversible thermal damage of endometrial basal layer may result. Therefore, to achieve maximal therapeutic effect, the optimal operative time is the early proliferative phase of menstruation.

There is an alternative to hysteroscopic endometrial ablation to control refractory menorrhagia. The levonorgestrel intrauterine system (LNG-IUS) consists of a T-shaped intrauterine device sheathed with a reservoir of levonorgestrel that is released at the rate of 20 µg daily over its 5-year lifespan. Its effects are predominantly localized to the endometrium, which becomes atrophic and inactive [10]. This effect enables the LNG-IUS to be used as an intrauterine contraceptive device and in the management of menorrhagia [11]. However, the high cost (NT\$8,000 per patient) of LNG-IUS makes its use limited in Taiwan.

In conclusion, complications associated with endometrial ablation will be encountered more frequently as more women undergo this procedure. If a worsening cyclic pain with or without light vaginal spotting occurs in the months after the initial ablation, suspicion of this syndrome should be kept in mind. Ultrasound may show echolucencies in the uterine fundus and proximal end of fallopian tubes. Although hysterectomy can provide the definite treatment, a more conservative approach with laparoscopic removal of the bilateral tubes can be taken. In addition, partial endometrial ablation, while avoiding endocervical canal injury during the procedure, might prevent this late complication.

References

1. Hallberg L, Hogdahl AM, Nilsson L, Rybo G. Menstrual blood loss: a population study. Variation at different ages and attempts to define normality. *Acta Obstet Gynecol Scand* 1966;45:320–51.
2. Lethaby A, Shepperd S, Cooke I, Farquhar C. Endometrial resection and ablation versus hysterectomy for heavy menstrual bleeding. *Cochrane Database Syst Rev* 2000;(2): CD000329.
3. Dutton C, Ackerson L, Phelps-Sandall B. Outcomes after rollerball endometrial ablation for menorrhagia. *Obstet Gynecol* 2001;98:35–9.
4. Sorensen SS, Andersen LF, Lose G. Endometriosis by implantation: a complication of endometrial ablation. *Lancet* 1994;343:1226.
5. Loffer FD. Complications of hysteroscopy: their cause, prevention, and correction. *J Am Assoc Gynecol Laparosc* 1995;3: 11–26.
6. Mall A, Shirk G, Van Voorhis BJ. Previous tubal ligation is a risk factor for hysterectomy after rollerball endometrial ablation. *Obstet Gynecol* 2002;100:659–64.
7. Townsend DE, McCausland V, McCausland A, Fields G, Kauffman K. Post-ablation-tubal sterilization syndrome. *Obstet Gynecol* 1993;82:422–4.
8. McCausland AM, McCausland VM. Partial rollerball endometrial ablation: a modification of total ablation to treat menorrhagia without causing complications from intrauterine adhesions. *Am J Obstet Gynecol* 1999;180: 1512–21.
9. Turnbull LW, Jumaa A, Bowsley SJ, Dhawan S, Horsman A, Killick SR. Magnetic resonance imaging of the uterus after endometrial resection. *Br J Obstet Gynaecol* 1997;104: 934–8.
10. Nilsson CG, Lahteenmaki T, Robertson DN, Luukkainen T. Plasma concentrations of levonorgestrel as a function of the release rate of levonorgestrel from medicated intrauterine devices. *Acta Endocrinol (Copenh)* 1980;93:380–4.
11. Barrington JW, Bowen-Simpkins P. The levonorgestrel intrauterine system in the management of menorrhagia. *Br J Obstet Gynaecol* 1997;104:614–6.