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## Progress and Prospects in graded Treatment for Adenomyosis

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ABSTRACT

Adenomyosis is a common benign gynecologic disease caused by the invasion of functionally active endometrial glands as well as mesenchyme into the myometrium. The main clinical features are excessive menstrual flow, prolonged menstrual cycles, and secondary dysmenorrhea that worsens progressively and may lead to infertility. With the increasing number of intrauterine operations, mainly in the form of abortions, in the younger age groups, the incidence of the disease has shown a yearly increase, and the patients tend to be younger. There are more treatment options for adenomyosis; however, the lack of the concept of choosing treatment based on the size of the uterine lesions makes the treatment of this disease more arbitrary. Inadequate treatment, overtreatment, and hysterectomy are widespread in clinical practice. The team has long been dedicated to researching the “graded treatment” of adenomyosis. More than ten years ago, based on the characteristic of uterine volume/lesion size dependence, i.e., the “lesion threshold” phenomenon in the treatment of adenomyosis with the intrauterine placement of Mirena, the “Three schemes of Mirena” was proposed, grounded in the concept of “graded treatment”. Based on the concept of “graded treatment”, we proposed the “Three schemes of Mirena” and obtained a series of research results, identifying the “lesion threshold” of Mirena in the treatment of adenomyosis. The team has provided a comprehensive set of concepts and methods for treating adenomyosis to preserve the uterus. In recent years, due to the high incidence of adenomyosis and the trend of youthfulness, as well as the background of declining birth rate and fertility protection, the team has followed the research foundation and experience of the previous study, and used Danhuang Dispelling Blood Stasis Capsule/Tablet (hereinafter referred to as Danhuang) as the basic drug, and composed the “Danhuang three scheme” by using Danhuang alone or in combination with other drugs. The “Danhuang three scheme”, which is a targeted treatment for adenomyosis based on different degrees of severity, has achieved sound therapeutic effects and provided a complete set of concepts and methodologies for the “fertility protection” treatment of adenomyosis. Three schemes of Mirena and Danhuang three scheme are two treatment systems based on the concept of graded treatment by the team at different times, which makes it possible to “uterine preservation and fertility protection” in the treatment of adenomyosis. Although the concepts and measures of staging/management have been published in the literature in recent years, they are overly complex and have a hysterectomy outcome, which is contrary to the era of uterine preservation and fertility protection. This article reviews the two sets of solutions of the team and other literature on the staging/management of adenomyosis to clarify the concept of adenomyosis treatment with “staging” as a means to achieve the goal of “uterine preservation and fertility protection”.

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Adenomyosis (AM) is a disease in which the glands and mesenchyme of the endometrium invade and grow into the myometrium, which in turn causes a uterine pathology mainly resulting in increased uterine size, dysmenorrheal symptoms, increased menstrual flow, and secondary infertility, which seriously affects women's physical and mental health. The disease is most common in 30-50-year-old menstruating women or those with a history of uterine operation, with an incidence of 7%-23% and a prevalence of up to 70%<sup>[1]</sup>. About 15% of patients are also combined with endometriosis, and about half of patients are combined with uterine fibroids<sup>[2]</sup>.

The degree of AM lesions (lesion size/uterine volume) varies greatly. The difference in lesion size will directly lead to a massive difference in the effectiveness of various treatments/drugs, e.g., there is a "lesion threshold (LTD)" phenomenon in the treatment of AM with Mirena<sup>[3-5]</sup>, which means that it is ineffective in the treatment of large-volume uterus [6], which may lead to inappropriate or ineffective use of Mirena. Therefore, the use of different treatment methods or protocols for patients with different lesion degrees can avoid inappropriate selection of treatment methods and make the treatment rule-based; at the same time, it is also conducive to the comparison of the actual results of various treatment methods, which is conducive to the summarisation, promotion and academic exchange of experience.

The team has been working on the clinical treatment of AM for a long time and has obtained a series of research results<sup>[7-14]</sup>. The team was the first to propose the concept of "graded therapy", i.e., to grade AM patients according to the maximum thickness of the uterine wall or the maximum diameter (MD) of the adenomyoma, and then select the appropriate treatment plan according to the graded size. After a long period of clinical practice and exploration, the "Three schemes of Mirena" and "Danhuang three scheme" based on the idea of graded treatment have been summarised<sup>[15-18]</sup>. The "Three schemes of Mirena" provide a comprehensive method system for AM "uterus preservation" treatment, whereas the "Danhuang three scheme" offers a novel approach and method for the non-surgical, non-invasive treatment of AM, specifically through "fertility protection" treatment. In this paper, we present a review of the two sets of plans and other relevant literature on AM staging/grading management, to clarify the concept of AM treatment with "grading" as the means and "uterus preservation and fertility protection" as the goal, to avoid or minimize the phenomenon of over-hysterectomy and the loss of fertility caused by AM. The purpose of this review is to clarify the concept of AM treatment by means of "grading" and

"uterus preservation and fertility protection", to avoid or minimize the phenomenon of excessive hysterectomy and fertility loss caused by AM.

## 1 Methods of staging, typing, grading, and classifying adenomyosis of the uterus

### 1.1 Methods of staging adenomyosis

AM staging is mainly seen in TCM treatment of AM, which is based on the menstrual cycle and does not depend on the size of the AM lesion/uterine volume. Based on the fact that AM is affected by the level of sex hormones and that the pathogenesis of blood stasis is not constant at different times, Ge Hongyu et al<sup>[19]</sup> suggested that the treatment should be divided into three phases, i.e., the premenstrual phase is about 1 week before the onset of menstruation, the menstrual phase is the period that lasts for about 1 week at the time of the onset of menstruation, and the postmenstrual phase is the period that lasts for about 2 weeks after the onset of menstruation. In terms of treatment, the approach should be based on the specific disease to address the root cause, the menstrual period to alleviate symptoms, and the postmenstrual period to address both symptoms and the root cause. The study of Li Peixin et al<sup>[20]</sup>, which was based on Professor Wang Ping's experience in treating AM, concluded that the etiology of AM is due to the deficiency of kidney yang, the lack of positive qi, and the stagnation of stagnant and turbid masses, which results in the formation of blood impediments, and stagnation is the key. During the period when there was no requirement for pregnancy, emphasis is placed on warming the menstruation and relieving pain during menstruation, and on eliminating stasis and eliminating symptoms during normal times; during the period when pregnancy is required, according to the characteristics of the different stages of the menstrual cycle, tonifying the kidneys and adjusting the weekly cycle, the fetus and pregnancy may be accomplished. Lv Shuang et al<sup>[21]</sup>, whose staged therapy of warming the kidney and removing blood stasis, consider the pathogenesis of this disease to be a deficiency of kidney yang, internal obstruction of blood stasis, which accumulates and becomes the symptoms of the disease, and divide it into the perimenstrual period and the intermenstrual period for treatment.

The staging of AM in TCM is based on the menstrual cycle and the dialectic of the treatment. Although this method offers the advantages of non-invasive, non-hormonal treatment with minimal impact on bone quality and a low incidence of adverse effects, the dialectic of TCM is complex. Different physicians may arrive at

inconsistent results in different menstrual cycles of the same patient, or even the same patient with the same menstrual cycle, so there is a large degree of subjectivity in judging the therapeutic efficacy. The slow onset of the effect on patients with severe diseases, and the patients can hardly tolerate the pain until the medication has taken effect, so it is difficult to popularise the method in the clinic. It is challenging to popularise it in the clinic.

## 1.2 Methods of typing adenomyosis

There are multiple methods of AM typing, and no single, universally accepted method exists. The main ones are histopathology and imageological examination. Histopathologic examination is the gold standard for diagnosis, which is challenging to adopt in the clinic because it requires uterine resection or trans-uterine laparoscopic sampling and delivery, which is invasive and intrusive. With the rapid development of iconography, iconography has become a commonly used clinical method to diagnose AM and its degree of pathology (uterine accretion/lesion size). Commonly used methods include magnetic resonance imaging (MRI) and transvaginal ultrasound (TVU). MRI is expensive, limiting its application. TVU is economical, noninvasive, reproducible, and universally applicable. Compared with transabdominal ultrasound, TVU has higher clinical value and higher accuracy for the diagnosis of AM<sup>[22]</sup>.

Lan Guiluan<sup>[23]</sup> classified the sonographic features of AM into five types based on pathological findings: type I is diffuse, type II is adenomyomatous, type III is adenomyomatous intracystic, type IV is adenomyomatous polyp, and type V is adenomyomatous leiomyomatous. Kishi et al<sup>[24]</sup> classified the foci into four subtypes based on MRI of the foci. Type I is endogenous: the AM foci are directly connected to the thickened binding zone, and the adenomyosis foci have normal musculature on the outer side. Type II is exogenous: AM lesions are in a myometrial position outside the uterus, their binding bands remain intact, and normal musculature exists between the lesion and the binding bands. Type III is intramural, and this type of AM lesion is free-standing, neither connected to the binding bands nor the plasma membrane. Type IV: Except for the above three types categorised in this category. Lazzeri et al.<sup>[25]</sup> and Exacoustos et al.<sup>[26]</sup> classified AM as diffuse, focal, and adenomyoma based on ultrasound sonographic characteristics.

Studies on AM staging have provided information on the extent of lesion invasion and the extent of different staging types of the disease, to guide clinical treatment. However, most of the current studies on staging mainly focus on the discrepancy between the staging results

of different examinations and the pathological findings and the correlation with the severity of AM<sup>[27-32]</sup>, and no relevant studies have been seen on the correspondence between the staging results and the choice of treatment regimens, i.e., the treatment regimens corresponding to different staging. Therefore, the above typing methods have no substantial guiding effect on clinical treatment and have not been adopted by the clinic.

## 1.3 Methods of grading adenomyosis

In recent years, the incidence of AM has been on the rise and is accompanied by a lower age<sup>[33-34]</sup>. Therefore, Qi et al.<sup>[35]</sup> suggested a three-tiered prevention of AM: primary prevention, i.e., blocking or delaying the occurrence of AM by reducing or eliminating high-risk factors; secondary prevention, i.e., avoiding or delaying the progression of AM through early detection, diagnosis, and treatment; and tertiary prevention, i.e., the long-term management of AM to prevent recurrence. It is similar to the three-level management of AM studied by Wang Shixuan et al<sup>[36]</sup>.

### 1.3.1 Primary management of adenomyosis

Since the etiology of AM is unknown, prevention based on the possible causes of AM covers initiatives such as strengthening doctor-patient education efforts, carrying out genetic testing and genetic counselling activities, minimising or avoiding uterine cavity manipulation, changing behavioural patterns, and stopping or reducing retrograde menstrual blood flow in order to reduce the incidence of AM<sup>[37-39]</sup>.

### 1.3.2 Secondary management of adenomyosis

At the stage of diagnosing AM, symptoms have appeared. However, surgical treatment is not yet needed; this stage mainly focuses on symptoms such as dysmenorrhea, excessive menstrual flow and infertility, using drugs, Mirena(levonorgestrel intrauterine slow-release system, LNG-IUS), uterine artery embolisation (UAE) and high-intensity focused ultrasound (HIFU), radiofrequency or microwave.LNG-IUS,Uterine artery embolisation (UAE), and non-surgical therapies such as high intensity focused ultrasound (HIFU), radiofrequency, or microwave ablation to relieve or reduce symptoms, promote fertility, and slow down the process. Among the drugs are nonsteroidal anti-inflammatory drugs (ibuprofen, naproxen sodium, mefenamic acid, celecoxib), compound oral contraceptives, oral progestational hormone analogs (dienogest), gonadotropin-releasing hormone agonist (GnRHa), hemostatic drugs (tranexamic acid), and

Chinese herbal medicine<sup>[36, 40-44]</sup>.

### 1.3.3 Tertiary management of adenomyosis

For patients who require surgical treatment after non-surgical treatment is ineffective, the indications for surgery should be strictly controlled. The choice of surgical modality depends on factors such as the patient's fertility requirements, the severity of clinical symptoms, and the patient's age. Surgical treatments for AM include secondary/total hysterectomy and uterus-preserving surgeries, and uterus-preserving surgeries include hysterectomy of uterine foci (adenomyoma excision and foci reduction) and uterine endometrial removal. Endometrial removal. AM patients require long-term management after surgery, and individualised treatment can be implemented according to the patient's age, clinical symptoms, the presence of fertility requirements, the type of lesion, and drug characteristics<sup>[36, 45-46]</sup>.

Tertiary management of AM is a model of segmented management based on the different stages of the disease, with the emphasis on management, treatment and assessment of efficacy, not based on changes in lesion size. The advantage is that it proposes prevention based on the possible causes of AM, thereby reducing or minimising morbidity. However, for AM that has already been diagnosed, treatment is still generalised, with treatment plans varying from person to person. There is still considerable variability. The size range of the lesions requiring treatment was not provided, and the corresponding treatment methods for different lesion sizes were not specified. There is also an absence of a reference standard for evaluating treatment effectiveness. Consequently, under- or over-treatment, or even non-essential hysterectomies, persist.

## 1.4 Methods of grading adenomyosis

### 1.4.1 Staging of adenomyosis with the "Three schemes of Mirena"

All of the above Staging, typing and grading methods have the disadvantage of not relating the size of the lesion to the treatment method/protocol, and there is the possibility of eventual hysterectomy. The uterus is an important female sex organ with complex functions. Removal of the uterus may be associated with premature ovarian decline, pelvic organ prolapse, urinary incontinence, and other pelvic floor dysfunctional disorders<sup>[47-49]</sup>, and therefore, the uterus should not be removed thoughtlessly. Based on this concept, the team proposed grading patients according to the maximum thickness of the uterine myometrial wall or the maximum

diameter of adenomyoma (Maximum diameter, MD) over ten years ago, and then selecting treatment options based on the grading. Based on Mirena, a system of "Three schemes of Mirena" was proposed for the graded treatment of AM, and a series of research results were obtained<sup>[7-8]</sup>. On this basis, the academic view that there is a lesion size/uterine volume dependence, i.e., the "lesion threshold (LTD)" phenomenon, in the treatment of AM with Mirena was discovered and proposed<sup>[3]</sup>. Subsequently, the team discovered that levonorgestrel (a component of Mirena) exhibits a distance-dependent "concentration gradient" and a time-dependent "concentration stabilisation" phenomenon in the silica gel uterine membrane, as demonstrated by the Silicone imitation uterine body membrane experiment<sup>[5,12]</sup>. This verified Mirena LTD from an experimental perspective. This experimentally verifies the scientific hypothesis of the LTD phenomenon of Mirena. The academic view that LTD exists in the treatment of AM with Mirena is 2 years earlier than that of foreign scholars<sup>[3,6]</sup>. Based on the results of LTD and series of studies, the team classified AM into three degrees according to MD, i.e., MD<30 mm is mild, MD between 30-40 mm is moderate, and MD>40 mm is severe; the corresponding treatment protocols were as follows: Mirena protocol, Mirena + HIFU/GnRHa protocol, Mirena + major uterine wall resection and reconstruction of the uterus(MURU) program.

Three schemes of Mirena and MURU provide a complete methodology system for AM "uterus preservation" treatment. In the process of clinical implementation, the measurement of MD by TVU/MRI is a simple, objective and accurate method. The selection of the corresponding treatment program according to MD can make the clinical treatment follow the rules, avoiding over-treatment, under-treatment and bias in the selection of methods. The most important aspect is that MURU can avoid hysterectomy from a methodological perspective.

### 1.4.2 "Danhuang three scheme" graded treatment of adenomyosis

Although the "Three schemes of Mirena" provides a complete set of methods for AM "uterus preservation" treatment, there are also related problems. Firstly, levonorgestrel is the drug component of Mirena. Therefore, those who are prohibited from using progesterone are not suitable for the Three schemes of Mirena, such as: progesterone allergy, history of thrombophilia, obstructive jaundice, porphyria, etc.; secondly, there are corresponding problems with the placement of Mirena in the uterus, such as: there are Mirena downward displacement or detachment, abnormal

uterine bleeding, or unwillingness or inability to use the IUD, and patients with obesity, blemishes, acne, etc. should not be used; Mirena belongs to the IUD category, and the standard MURU procedure has a sterilizing effect. This is contrary to the current era of negative growth in China's birth population, the state's encouragement of childbirth, and academia's strong advocacy for fertility preservation. Therefore, it is imperative to explore the treatment modality of AM fertility protection (conservation). Based on this understanding, the team combined the rich experience gained from the treatment of ICR mice with traditional Chinese medicine and the graded treatment of AM with the "Three schemes of Mirena" in the previous period. It proposed the graded treatment of AM with the "Danhuang three scheme" for fertility preservation, through a systematic, prospective approach. After continuous exploration and summarisation, we proposed the "Danhuang three scheme" method for the graded treatment of AM with the purpose of conservation, and achieved satisfactory therapeutic effects after systematic and prospective clinical studies<sup>[17-18]</sup>.

The "Danhuang three scheme" is based on Danhuang expectorant capsules/tablets (abbreviated as: Danhuang), used alone and in combination with mifepristone and leuprolide/triptorelin, forming the Danhuang, Danmu, and Danrui protocols for the treatment of mild, moderate, and severe AM, respectively. Studies have shown that<sup>[17]</sup>, among the "Danhuang three scheme", the "Danrui protocol" has the most significant efficacy, but GnRHa analogs have chemical oophorectomy effects, and the prolonged use of GnRHa analogs may cause hypoestrogenic manifestations such as hot flashes, and they are expensive. Therefore, "Danrui protocol" is recommended for patients with severe AM or those who need to reduce the size of the uterine lesions rapidly; "Danmid protocol" has a longer course of treatment and slower effect than Danrui protocol in the treatment of severe AM, but its effect in the treatment of intermediate AM is significant and stable, and mifepristone is inexpensive, so it is recommended to be used in intermediate AM; "Danhuang protocol" can effectively control mild AM, and it is recommended to be used in intermediate AM. Danhuang three scheme can effectively control the symptoms of dysmenorrhea in patients with mild AM, and can also prevent the recurrence of the disease. Under the premise of guaranteeing therapeutic effect, based on the principle of pharmacoeconomics, the treatment mode of "grading" and "down-regulation" of Danhuang three programs not only reduces the cost of treatment, but also reduces the potential toxicity and side effects of the drug, which maximizes the three principles

of cost-effectiveness, effectiveness and utility, and is also a reflection of the principle of cost-effectiveness, effectiveness, and utility. This embodies the maximization of the three principles of cost-effectiveness, effectiveness, and utility, which is also the reason and charm of "graded treatment". The "Danhuang three scheme" offers a comprehensive and non-invasive approach to treating AM, building on the team's previous innovation and breakthrough with the "Three schemes of Mirena" through graded treatment.

## 2 Special application scenarios of "Three schemes of Mirena" and "Danhuang three scheme"

The "Three schemes of Mirena" and the "Danhuang three scheme" are two original "graded" systems of treatment for AM that were developed by the team at different times in history. Three schemes of Mirena is aimed at preserving the uterus (uterine preservation). Danhuang three scheme is aimed at preserving fertility (conservation). In clinical application, in addition to treatment according to the MD classification, the patient's comorbidities, age, and willingness to be treated need to be taken into account in order to determine whether the two systems should be used individually or in combination, with the dual purpose of treating the disease and satisfying the patient's wishes for treatment.

### 2.1 Comorbidities

2.1.1 Comorbid uterine fibroids: About half of AM patients have comorbid uterine fibroids<sup>[2]</sup>. Danhuang has little or no therapeutic effect on uterine fibroids. Therefore, when there is a combination of fibroids, the following treatments are recommended: for those with large/number of fibroids and no fertility requirements, the Mirena + MURU regimen is recommended for optimal cost-effectiveness; for those with fertility requirements, only myomectomy (open or laparoscopic) is recommended, and the AM is treated with the Danhuang three scheme after myomectomy to minimize the trauma to the uterine myometrial wall. For those with small fibroids/number of fibroids/unwilling to undergo surgery or those who still have the desire to have children, it is recommended to treat AM with Danhuang three scheme as appropriate, in addition to the use of proprietary Chinese medicines for uterine fibroids, such as Gui Zhi Fu Ling Capsules and Uterine Tumor Elimination Capsules, etc., to synergize the treatment of uterine fibroids.

2.1.2 Combined chocolate cysts: For AM combined with ovarian chocolate cysts, use the Danhuang three

scheme with caution, as the blood-activating effect of Danhuang has the potential to cause intracapsular hemorrhage and enlargement of the cysts. If the cyst is large and there is a desire to have children, the coeliac cyst can be treated as a single surgical factor, and laparoscopic or open excision can be performed. Postoperatively, AM is then treated with the Danhuang three scheme to avoid uterine trauma. For those with large cysts without fertility intention, MURU can be performed at the discretion of the MD and the patient's wish. In contrast, the cyst is removed (concurrent MURU treatment is recommended for severe patients). For those with small cysts without surgical indications, they can be treated with dienogest/mifepristone/GnRH analogs first. Then, after sexual axis suppression and coelomic ectopic endothelial atrophy, danhuang can be added to treat AM, starting from a small dose at discretion. The frequency of ultrasonography can be increased simultaneously.

**2.2 Age factor:** AM is a hormone-dependent disease, so the patient's age is an important reference factor for treating the disease and preventing recurrence. Generally speaking, the age of women and ovarian function are in a parallel state, with young women having relatively good ovarian function and a higher risk of disease recurrence. Older women have weaker ovarian function and are less likely to have recurrence of the disease. If the patient's age is <45 years old, or the ovarian function is good, it is easy to relapse. Therefore, for severe patients without fertility intention and contraindication to progesterone, it is recommended to treat with Mirena+MRUR regimen. If the patient is  $\geq 45$  years old or has weak ovarian function and is not prone to recurrence, unless the lesion is particularly severe or voluntary MURU treatment is performed, treatment with the Danhuang three scheme is recommended. It should be noted that AM patients are often associated with late menopause, and the age factor needs to be judged in conjunction with ovarian function.

**2.3 Extreme cases:** the degree of uterine pathology is particularly severe, which needs to be considered in conjunction with the patient's treatment wishes. For example, MD  $\geq 60$ mm, uterine volume  $\geq 4$  months of pregnancy, and no desire to have children (common), it is recommended that the Mirena + MURU regimen be used, which can quickly obtain therapeutic effects to achieve the goal of uterine preservation treatment. In order to minimise the difficulty of surgery and to favour uterine reconstruction, it is recommended to treat with the Danrui protocol for about three courses of treatment before performing MURU. Those who have the desire to have children or refuse surgery (rare) are treated with the Danrui protocol. It should be noted that due to the

excessive size of the uterus, a longer course of treatment is required, which needs to be fully communicated to the patient in order to improve treatment compliance; when the MD is reduced to mild or regular, and the CA125 turns negative, IVF-ET is recommended.

### 3 Summary and Outlook

AM is a highly prevalent disease in gynecology, and hysterectomy is still the primary treatment modality for critically ill patients and those who fail conservative treatment worldwide. Although the uterus is not a pathogenic organ, it plays a crucial role in women's lives and quality of life<sup>[18, 50]</sup>. It should not be easily removed, which is the purpose of the "uterus preservation" treatment for AM. On the other hand, although AM is not absolutely infertile, the prevalence of AM among infertile women under 40 years of age ranges from 7.5% to 22%, and among infertile women aged 40 years and above ranges from 24.4% to 29.7%<sup>[51]</sup>. In the context of China's declining birthrate and high incidence of AM, the treatment of AM and protection of patients' fertility are particularly important, making a realistic need for AM "fertility protection" treatment.

Among the methods of conservative treatment of AM, almost all of them are lesion-level dependent<sup>[3, 9, 52]</sup>. For example, Mirena, HIFU, and dienogest are much less effective in treating large volumes of the uterus than small volumes of the uterus. This dependence dictates that when treating with a particular method or methods, the choice must be differentiated according to the extent of the lesion, i.e., different therapeutic agents/protocols must be selected according to the extent of the lesion in order to meet the dual objectives of therapeutic efficacy and principles of health economics. Therefore, "graded therapy" according to the extent of the lesion is not only a requirement for the treatment of the disease, but also a prerequisite for the "standardisation" and "differentiation" of AM treatment.

There are many treatment methods for the preservation of the uterus and the fertility protection of AM. Based on the idea of "graded therapy", the team's "Three schemes of Mirena" provides a complete method system for AM "uterus preservation" treatment. At the same time, the "Danhuang three scheme" is the team's non-invasive treatment following the idea of "graded therapy". The "Danhuang three scheme" is another system of non-invasive fertility preservation (conservation) treatment for AM, following the idea of "graded treatment" after the "Three schemes of Mirena". In clinical work, the two programs can be used individually or in combination, as appropriate, to achieve the goal of fertility preservation or conservation treatment.

Just like the “staged treatment” of gynecological cancer, the concept of “graded treatment” should become the basic principle of AM treatment. The concept of graded treatment will attract the attention of the academic community and change the confusing situation of AM treatment and the status quo of hysterectomy as the ultimate treatment, to protect the uterus and fertility of AM patients.

## References

1. Vercellini P, Viganò P, Somigliana E, et al. Adenomyosis: epidemiological factors[J]. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 2006, 20(4): 465-477.
2. Kong Beihua, Martin, Duan Tao. *Obstetrics and Gynecology* [M]. 10th ed. Beijing: People's Health Publishing House, 2024.6.
3. Fang Derong, Zhao Jing, Li Qinghan, et al. A preliminary study on threshold screening of adenomyosis foci in the treatment of adenomyosis with Man Yue Le[J]. *Journal of Zunyi Medical College*, 2014, 37(4): 418-421.
4. Tu Jiao, Fang Derong, Xiao Yanbing. Clinical study on threshold screening of adenomyosis foci in the treatment of uterine adenomyosis with Man Yue Le[J]. *China Pharmaceutical Industry*, 2015, 24(19): 19-20.
5. MENG Yinyu, JIANG Chengsu, YOU Mengyuan, et al. Experimental study on the chromogenic labelling of levonorgestrel and dispersion pattern in transparent silica colloidal mould [J]. *Journal of Zunyi Medical College*, 2019, 42(04): 416-421.
6. Hwan K L, Kew J K, A M L, et al. Relationship between uterine volume and discontinuation of treatment with levonorgestrel-releasing intrauterine devices in patients with adenomyosis.[J]. *Archives of gynecology and obstetrics*, 2016, 294 (3): 561-6.
7. Xiao Yanbing, Zhao Jing, Li Qinghan, et al. "Exploration of the surgical style and safety of myomectomy-uterine reconstruction for the treatment of moderate and severe adenomyosis[J]. *Journal of Zunyi Medical College*, 2012, 35(04): 302-305.
8. ZHAO Jing, LI Qinghan, FANG Derong, et al. The efficacy of myomectomy-uterine reconstruction combined with Mannelle in the treatment of moderate and severe adenomyosis[J]. *China Maternal and Child Health*, 2013, 28(15): 2464-2466.
9. Li Qinghan. Clinical study on the treatment of moderate and severe adenomyosis with HIFU [D]. Guizhou: Zunyi Medical College, 2014.
10. Zhang Ya, Xiao Yanbing. Short-term efficacy observation of GnRH-a combined with LNG-IUS and LNG-IUS in the treatment of adenomyosis[J]. *China Modern Doctor*, 2016, 54(19): 63-66.
11. REN Xiaoyan, SUN Cui, GU Hengfang, et al. Experimental study on the treatment of adenomyosis in ICR mice with compound traditional Chinese medicine[J]. *Journal of Zunyi Medical College*, 2016, 39(06): 597-601.
12. Sun Cui, Ren Xiaoyan, Fan Wenyan, et al. Establishment of silicone imitation uterus body model and experimental study of LNG dispersion law[J]. *Journal of Zunyi Medical College*, 2017, 40 (02): 177-179+184.
13. Meng Yinyu, Xiao Yanbing. Clinical study of levonorgestrel intrauterine extended-release system for the treatment of adenomyosis[J]. *Electronic Journal of Clinical Medicine Literature*, 2018, 5(77): 22.
14. Cui S, Xiao-Yan R, Yi G, et al. Clinical Efficacy and Safety of Major Uterine Wall Resection and Reconstruction of the Uterus Combined with LNG-IUS for the Treatment of Severe Adenomyosis. [J]. *Geburtshilfe und Frauenheilkunde*, 2020, 80 (3): 300-306.
15. Tu Jiao, Mou Meng, Gu Hengfang, et al. Observation on the efficacy of different application methods of levonorgestrel intrauterine extended release system in the treatment of adenomyosis[J]. *Journal of Xinxiang Medical College*, 2019, 36(01): 33-37.
16. YANG Li, XIAO Yanbing, HAN Lei. Progress of research on the treatment of adenomyosis with the goal of uterine preservation[J]. *Journal of Localised Surgery*, 2020, 29(12): 1019-1023.
17. Su Yuanhua, Liang Zhigang, Ren Xiaoyan, et al. "Clinical study on the graded treatment of mild, moderate and severe adenomyosis with Danhuang three programs[J]—*Journal of Zunyi Medical University*, 2024, 47 (12): 1178-1183+1194.
18. Xiao Yanbing. Theory and practice of graded treatment of adenomyosis[J]. *Journal of Zunyi Medical University*, 2025, 48(03): 213-218.
19. Ge Hongyu, Wang Zhongmin. Clinical staging of adenomyosis in the treatment of adenomyosis [J]. *Clinical Journal of Chinese Medicine*, 2023, 35(09): 1655-1660.
20. LI Peixin, WU Li, WANG Ping, et al. Wang Ping's experience in treating adenomyosis based on "two-stage staging"[J]. *Journal of Traditional Chinese Medicine*, 2025, 31(05): 221-224+228.
21. Lv Shuang, Chen Jianhong. Clinical study on the treatment of uterine adenomyosis with staged therapy by warming the kidney and removing blood stasis [J]. *New Chinese Medicine*, 2025, 57(18): 65-69. 65-69.

22. Han Bing, Song Haibo. Clinical value of transvaginal colour Doppler ultrasound in the diagnosis of uterine fibroids, adenomyosis, and adenomyoma [J]. *Imaging Research and Medical Applications*, 2022, 6(04): 40-42.
23. Lan Guiluan. Progress of ultrasound diagnosis of adenomyosis [J]. *Clinical Medical Research and Practice*, 2024, 9(10): 195-198.
24. Kishi Y, Suginami H, Kuramori R, et al. Four subtypes of adenomyosis assessed by magnetic resonance imaging and their specification [J]. *American Journal of Obstetrics and Gynecology*, 2012, 207(2): 114.e1-114.e7.
25. Lazzeri L, Morosetti G, Centini G, et al. A sonographic classification of adenomyosis: interobserver reproducibility in the evaluation of type and degree of the myometrial involvement. *Fertil Steril*. 2018 Nov;110(6):1154-1161.e3.
26. Exacoustos C, Morosetti G, Conway F, et al. New Sonographic Classification of Adenomyosis: Do Type and Degree of Adenomyosis Correlate to Severity of Symptoms? *J Minim Invasive Gynecol*. 2020 Sep-Oct;27(6):1308-1315.
27. Wang H, Yuan B, Wang WL. Correlation between magnetic resonance imaging typing of adenomyosis and its clinicopathologic features [J]. *Chinese Clinical Journal of Obstetrics and Gynecology*, 2023, 24(04): 371-374.
28. Wang Meixian, Shao Xiaoguang. Diagnostic imaging and clinical application of adenomyosis [J]. *Modern Progress in Obstetrics and Gynecology*, 2024, 33(12): 934-937.
29. Han Yutian. Research on adenomyosis staging based on ultrasound characteristics and its clinical application value [D]. Hangzhou Normal University, 2024.
30. ZHONG Yuqing, LIU Yang, HU Yan, et al. MRI characteristics of four subtypes of adenomyosis and the differences in parameters related to HIFU treatment [J]. *Magnetic Resonance Imaging*, 2022, 13(09): 95-99.
31. Han Xiaotong, Guo Hongyan. Research Progress on Classification and Heterogeneity of Adenomyosis [J]. *Journal of Practical Obstetrics and Gynecology*, 2021, 37(12): 910-913.
32. Ren Junfang, Lü Jun, Li Jin, et al. Diagnostic Value of MRI in Assessing the Severity of Adenomyosis [J]. *Henan Medical Research*, 2025, 34(15): 2714-2719.
33. Vercellini P, Viganò P, Bandini V, et al. Association of endometriosis and adenomyosis with pregnancy and infertility [J]. *Fertil Steril*, 2023, 119(5): 727-740.
34. Etrusco A, Barra F, Chiantera V, et al. Current Medical Therapy for Adenomyosis: From Bench to Bedside [J]. *Drugs*, 2023, 83(17): 1595-1611.
35. Qi Qi, Zhang Xiaoping, Ma Xiaoxin. Graded Prevention Strategy for Adenomyosis [J]. *Chinese Journal of Obstetrics and Gynecology*, 2023, 58 (3): 231-235.
36. Wang Shixuan, Cui Pengfei, Zhang Jinjin. Expert Consensus on Tertiary Management of Uterine Adenomyosis [J]. *Journal of Practical Obstetrics and Gynecology*, 2024, 40(02): 106-111.
37. Satoshi I, Yasushi H, Toshihide U, et al. Uterine adenomyosis is an oligoclonal disorder associated with KRAS mutations. *Nature Communications*, 2019, 10(1): 5785.
38. Bulun SE, Yildiz S, Adli M, Wei JJ. Adenomyosis pathogenesis: insights from next-generation sequencing. *Hum Reprod Update*. 2021 Oct 18;27(6):1086-1097.
39. Li Juanqing, Huang Xiufeng, Shi Yifu. Iatrogenic adenomyosis [J]. *Chinese Journal of Practical Gynecology and Obstetrics*, 2021, 37(10): 1074-1076.
40. Peng Chao, Zhou Yingfang. Application and selection of drug therapy in the long-term management of endometriosis [J]. *Chinese Journal of Practical Gynecology and Obstetrics*, 2021, 37(3):303-308.
41. Zhang Yi, Zhang Rui, Zhang Junke, et al. Meta-Analysis of Efficacy and Safety of Dinogest in Treating Adenomyosis [J]. *Advances in Obstetrics and Gynecology*, 2024, 33(5):345-351.
42. Wang Lijuan, Tang Chunhui. Effects of GnRH- $\alpha$  Combined with Levonorgestrel Intrauterine Release System on Pain Symptoms, Serum MMPs, and Recurrence in Patients with Adenomyosis [J]. *Chinese Journal of Family Planning*, 2021, 29(2):266-270, 274.
43. Zou Xiaohui, Liu Xinxin, Lin Xialian, et al. Effectiveness and Safety Observation of Traditional Chinese Medicine Treatment Based on Disease Stages Combined with Dinogest for Adenomyosis [J]. *Chinese Journal of Medical Sciences*, 2025, 15(15): 127-131.
44. Xu Wencui, Sun Tao, Lü Weifu. Analysis of Factors Affecting Post-Embolisation Syndrome in Uterine Artery Embolisation for Adenomyosis [J]. *Journal of Medical Imaging*, 2023, 33(6): 1057-1061.
45. Yang Chao, Zhang Yudi, Chu Chunfang, et al. Clinical Efficacy of Endometrial Resection Combined with Levonorgestrel-Releasing Intrauterine Device in Treating Adenomyosis [J]. *Chinese Journal of Clinical Physician*, 2023, 51(05): 592-595.
46. Jia Qiucheng, Li Yang, Chen Jiming, et al. Laparo-

- scopic Radical Adenomyosis Ligation with Uterine Preservation [J]. *Journal of Surgery (Electronic Edition)*, 2023, 10(06): 7-10.
47. Ibrahim A, Afrooz M, Veronika G, et al. Total or Subtotal Hysterectomy for the Treatment of Endometriosis: A Review. [J]. *Journal of Clinical Medicine*, 2023, 12(11):
  48. Rozycki S, Orlando M, White A, et al. Associations between hysterectomy and pelvic floor disorders: a systematic review and meta-analysis. *Am J Obstet Gynecol*. 2025 Sep;233(3):141-151.e6.
  49. Christoffersen NM, Klarskov N, Gradel KO, et al. Increased risk of stress urinary incontinence surgery after hysterectomy for benign indication: a population-based cohort study. *Am J Obstet Gynecol*. 2023;229(2):149.e1-149.e9.
  50. Turan A, Karabayır HB, Kaya İG. Examining the changes in women's lives after the hysterectomy operation: experiences of women from Turkey [J]. *Arch Womens Ment Health*, 2024, 27(6): 899-911.
  51. Abu Hashim H, Elaraby S, Fouda AA, et al. The prevalence of adenomyosis in an infertile population: a cross-sectional study. *Reprod Biomed Online*. 2020 Jun;40(6):842-850.
  52. Wang Qiming, Fu Xuewen, Zhu Jue. Efficacy Analysis and Safety Evaluation of Goserelin Treatment for Adenomyosis [J]. *Chinese Journal of Practical Gynecology and Obstetrics*, 2022, 38(01): 105–107.