

When Menses are Heavy

Diagnosis and treatment of heavy menstrual bleeding (menorrhagia)

by Dr Ng Ying Woo

Women generally begin their monthly menses at the age of 12. Most tend to have their menses once every 28 days. In a normal menstrual cycle, a woman will lose on average about 35ml to 45ml (two to three teaspoon) of blood over a period of three to seven days. However, some women may suffer from excessive amount of menstrual blood loss (>80ml). The medical term for this condition is menorrhagia or regular heavy menses. Our bodies tend to compensate and adapt pretty well for gradual drop in hemoglobin, therefore, most do not realise the condition until the anaemia is severe.

Some causes of menorrhagia include anovulation, uterine pathologies (e.g. fibroids, adenomyosis, polyps) and bleeding disorders (anti-coagulation therapy, Von Willebrand disease, thrombocytopenia). With this in mind, let's look at how we manage heavy menstrual bleeding and hopefully we can help those who may be suffering in silence.

What are the symptoms of menorrhagia?

Heavy or prolonged menses can be uncomfortable and inconvenient. For some women, it can be disabling, affecting her physical, emotional and social well-being, and quality of life.

Women who suffer from menorrhagia may experience one or a combination of these symptoms:

- ✓ Blood clots, especially if the size is large
- ✓ Changing pads every couple of hours.
- ✓ Need to get up at night to change pads due to overflow
- ✓ Have to double up on products (e.g. wear a tampon and a pad at the same time), yet occasionally still have overflow
- ✓ Fatigue, easily tired, breathless, chest pain from anaemia due to excess blood loss

If you soak through two pads or tampons with overflow in an hour for several hours, you should seek help. Such heavy bleeding may be serious or life-threatening.

How do we usually diagnose menorrhagia?

Physical examination by the gynaecologist is essential. The size of the uterus is assessed via pelvic examination. Other tests which may be



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recommended based on the history and physical examination include:

- Ultrasound of the pelvis – to detect fibroids, adenomyosis and endometrial polyps.
- Blood tests (full blood count, coagulation profile, thyroid function test) – to evaluate for severity of anaemia, bleeding disorders or thyroid derangement.
- Occasionally, we may need to perform an endometrial biopsy or hysteroscopy to assess the inner cavity of the uterus.

Some Common Causes of Menorrhagia

Hormonal Imbalance (Anovulation)

Ovulation is the result of a maturation process that occurs in the hypothalamic-pituitary-ovarian (HPO) axis, with interplay between various hormones. To understand anovulation, one must first understand what occurs during a normal ovulatory cycle.

In normal physiology, ovulation is dependent on the presence of a functioning hypothalamic-pituitary-ovarian (HPO) axis. When stimulated, the arcuate nucleus within the hypothalamus releases GnRH into the portal vessels of the pituitary stalk in a pulsatile fashion. GnRH (gonadotropin-releasing hormone) stimulates receptors in the anterior pituitary gland to produce and secrete both LH (luteinising hormone) and FSH (follicle-stimulating hormone). In women, FSH induces maturation of ovarian follicles and eventual production of oestrogen, while LH modulates the secretion of androgens from the ovarian theca cells. Oestrogen, in turn, produces negative feedback on the pituitary gland.

As the follicle grows, the cohort of granulosa cells acquires the necessary receptors to respond to LH. During the mid-cycle, the oestrogen levels in the circulation reach a concentration that causes a positive feedback action on LH secretion, resulting in the LH surge. Approximately 16 to 24 hours after the LH peak, ovulation occurs with the extrusion of a mature oocyte from the graafian follicle and the formation of the corpus luteum. After ovulation, LH causes the corpus luteum to develop from the ruptured follicle. The corpus luteum produces progesterone. Together, oestrogen and progesterone stimulate the endometrium to prepare a thick blanket of blood vessels that will support a fertilised egg should pregnancy occur. When pregnancy does not occur, the corpus luteum deteriorates, resulting in decline of progesterone and oestrogen levels. With that, the endometrial lining is shed during menstruation.

Any alteration in the HPO axis results in a failure to release a mature ovum, leading to anovulatory cycles. The resultant hormonal imbalance leads to excessive proliferation in the endometrium and eventually sheds

by way of heavy menstrual bleeding. Such hormonal imbalance often encounters during adolescence or menopause periods. During adolescence after girls have their first periods, and for several years before the onset of menopause when menstruation ceases, hormone levels are fluctuating which often leads to excessive uterine bleeding.

Fibroids (Leiomyoma)

Uterine fibroids or leiomyoma are non-cancerous tumour arising from the smooth muscle layer of the uterus. It is the most common benign tumour in females and typically found during middle or late reproductive years. Depending on the size and the location, fibroids may lead to menorrhagia. Typically, submucous fibroids or fibroids located in the muscle underneath the endometrium, distorting the cavity, tend to lead to menorrhagia. Even small lesion may result in excessive menstrual flow. Large size fibroids or pedunculated fibroids (intra-cavitary fibroid) may involve abnormalities of local venous drainage, enlargement of the uterine cavity and abnormalities in prostaglandin production, therefore, resulting in menorrhagia.

Adenomyosis

Adenomyosis is histologically defined as the presence of ectopic endometrial tissue within the myometrium of the uterus. Benign invasion by the endometrium results in adjacent smooth muscle hyperplasia. Perhaps, this dysfunctional hypertrophied muscular tissue that surrounds the ectopic endometrial glands prevents uterine contraction that tamponade the bleeding myometrial arterioles, hence the resulting menorrhagia.



If your condition is mild or you are not yet anaemic, taking iron supplement regularly serves as a good treatment option. The downsides are constipation and epigastric abdominal discomforts.

The most common symptoms of adenomyosis include heavy or prolonged menstrual bleeding, menstrual cramps that last through your period, and having menstrual cramps that worsen with age. With time, the uterus may increase to double or triple in size, leading to worsening of the symptoms.

Endometrial Polyps

An endometrial polyp is a mass in the inner lining of the endometrium. No definitive cause of polyps is known, but they appear to be affected by circulating oestrogen. Bleeding from the blood vessels within the polyps contributes to the excessive menstrual flow and perhaps "spotting" beyond the menstrual periods.

Other Less Common Causes

Bleeding disorders such as Von Willebrand disease in which there is an important clotting factor deficiency can cause abnormal menstrual bleeding. Medical conditions (e.g. thyroid dysfunction, liver or kidney diseases) may be associated with menorrhagia.

What's the best way to treat menorrhagia?

A customised individual treatment plan is often the best approach.

The plan depends on:

- The cause of the menorrhagia, severity of your anaemia
- Your opinion or personal preferences
- Pregnancy intent
- Your overall health and medical condition

We often recommend one or more medicines first. Medications are helpful to tamponade the bleeding and improve the anaemia. If medical therapy does not reduce the bleeding enough, a surgical option might be an option.

Iron Supplement (e.g. Iberet Folic)

If your condition is mild or you are not yet anaemic, taking iron supplement regularly serves as a good treatment option. The downsides are constipation and epigastric abdominal discomforts.

Antifibrinolytics (e.g. tranexamic acid) and Non-steroidal Anti-inflammatory Drugs (NSAIDs, e.g. mefenamic acid or Ponstan, naproxen sodium or Synflex)

Antifibrinolytic medicines can help to slow menstrual bleeding quickly, without severely affecting other components of the haemostatic system. These medicines interfere with the mechanism of fibrinolysis and stop plasmin formation.

The advantages of antifibrinolytic medicines:

- Rapid onset and stop bleeding quickly (within two to three hours)
- Only need to take the medicine a few days during the menstrual period
- Does not affect fertility or chance of pregnancy

Often, NSAIDs can be taken together with the antifibrinolytics during the menstrual period to reduce the bleeding and the cramp. This synergistic effect helps to relieve the menstrual symptoms and to improve the anaemia, with minimal side effect profile.

Birth Control Pills or Combined Oral Contraceptive Pills (COCPs)

Three COCPs are popular first-line drug for those women desiring contraception. The menstrual blood flow is effectively reduced secondary to the endometrial atrophy. Many studies have found that COCPs are highly effective when compared with placebo in the treatment of women with heavy menstrual bleeding.

The pills contain the hormones, oestrogen and progestogen. One pill is taken every day for 21 days, before stopping for seven days. During this seven-day break, withdrawal bleeding will occur. This cycle is then repeated. Additional benefits of the pills besides reducing menstrual flow are regulation of the menstrual cycle and reduction of menstrual pain (dysmenorrhea).

Progestin Therapy (e.g. Norethisterone, Provera, Depot-provera)

Progestin works as an anti-oestrogen by minimising the effects of oestrogen on target cells, thereby maintaining the endometrium in a state of down-regulation. Progestins work quickly but may have unpleasant side effects including weight gain, headaches, oedema and depression.

Gonadotropin-releasing Hormone Agonists (e.g. Lucrin)

Most gynaecologists used GnRHs on a short-term basis due to the high costs and severe adverse effects. Nevertheless, GnRHs are effective in reducing menstrual blood flow. They inhibit pituitary release of FSH and LH, resulting in hypogonadism.

Prolonged use of GnRHs can lead to bone demineralisation and reduction of HDL cholesterol. Short-term use of GnRHs prior to surgical hysterectomy is particularly useful as it reduces the size of the uterus and facilitates minimally invasive approach in the surgery.

Surgical Options

Surgical management is a good consideration for menorrhagia due to organic causes (e.g. fibroids, adenomyosis and polyps), especially in those with no further pregnancy intent. When medical therapy fails to alleviate the symptoms or the anaemia is severe, surgery can be extremely satisfactory in this situation.

Surgery has evolved in the last decade with the introduction of minimally invasive surgery or laparoscopy. This paradigm shift in the surgical approach was supported by numerous studies concluding the benefits of laparoscopy such as lesser pain, reduced hospital stay and quicker recovery. Recently, single incision laparoscopic surgery (SILS) and minilaparoscopy have taken laparoscopy to the next frontier by improving cosmetic outcome and the surgical experience for the patients.

Hysteroscopic Resection of Polyps, Dilatation & Curettage (D&C)

An endometrial polyp can be removed easily by hysteroscopic resection using electrosurgery. The surgery is performed as a day surgical case, without the need for hospital stay. D&C is often performed in conjunction with the hysteroscopy to evaluate the endometrial cavity

for pathology. It is contra-indicated in patients with existing pelvic infection. Risks include uterine perforation, electrolyte derangement and pelvic infection.

Myomectomy vs Hysterectomy

Myomectomy (surgical removal of fibroid) can be useful in women who wish to retain their uterus and/or fertility. However, the procedure is associated with a risk of major blood loss and recurrence.

Hysterectomy (surgical removal of uterus and cervix) is a permanent procedure that causes sterility and cessation of menstrual bleeding. It provides a definitive "cure" to the problem of menorrhagia. This procedure has higher morbidities, and requires hospital stays. Risks (including those associated with major surgery) are injuries to the urinary (bladder and ureteric injuries) and gastrointestinal systems. Additional removal of ovaries and tubes during hysterectomy will result in menopause.

Conclusion

Treatment of menorrhagia should be individualised to cater to each patient's specific symptoms and concerns. Always remember that cost of therapy and compliance to the treatment can play major roles. Women should be actively involved in the selection of a suitable mode of therapy.

With the wide range of effective medicines and surgical options available, gynaecologists are in a good position to treat menorrhagia successfully. Hopefully, we can help many who may be trying to cope with the menorrhagia and suffering in silence. **MG**