

Heavy menstrual loss

Part 1. Is it really heavy loss?

Heavy menstrual loss (also known as menorrhagia) is one of the most common complaints for which a woman is referred to the gynaecology outpatient clinic. A thorough history is the basis to tease out the particular concerns and the impact on an individual woman's life. This, after examination and appropriate investigation, will allow discussion about the best management options for each woman.

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Part 1 of this article covers assessment of heavy menstrual loss and its impact on a woman's life – through history taking, physical examination and investigations when appropriate. In next month's issue, Part 2 will discuss options for managing heavy menstrual loss.

Is menstruation different for women today?

In early civilisations, women had a later menarche and an earlier marriage with frequent pregnancies interspaced with lactational amenorrhoea. A woman experienced very few menses during her reproductive life. In current times, the menarche is experienced at an earlier age, women in developed societies have on average one to two pregnancies, there is a shorter duration of breast feeding, and the use of cyclical oral contraception is common.

Today's woman will experience approximately 350 to 400 menses during her reproductive life, with an average blood loss of 14 L (taking the menstrual loss as 35 mL per cycle). It has been suggested that a number of conditions, such as endometriosis, may be a consequence of this frequent menstrual pattern.

What is 'normal' menstruation?

The accepted average menstrual loss per cycle is stated as 35 mL and that of heavy menstrual loss as greater than 80 mL. This 'gold standard' is based on a 1966 study in which the 'excessive' menstrual loss group was taken as those who had loss greater than 80 mL, and this was not subdivided further.¹ This upper limit has been challenged and it is suggested that in a 'well fed' population a loss of 115 mL per cycle may be a more realistic

IN SUMMARY

- Heavy menstrual loss (or menorrhagia) is defined as greater than 80 mL per cycle, although in a well fed population a loss of 115 mL per cycle may be a more realistic estimate.
- Up to half the women who report heavy menstrual loss have misinterpreted their loss as being heavy. Management involves explanation and reassurance about the pattern of bleeding and discussion of other concerns the woman might have.
- In approximately 60% of cases of heavy menstrual loss, an underlying pathological condition is found (most commonly, uterine fibroids and endometriosis); in 40%, no cause is found (this is termed dysfunctional uterine bleeding).
- A targeted history and abdominal and pelvic examination can suggest the presence of specific organic pathology or indicate specific investigations (such as transvaginal ultrasound or endometrial sampling).

continued

A chart for visually assessing menstrual blood loss

You can use the following pictograms to assess your menstrual blood loss in each sanitary napkin (left) and tampon (right). Add up the scores (corresponding to blood loss in mL) for all the napkins and tampons used during your period to give an estimated loss for the cycle.

Napkin	Type of pad	Score (in mL)	Tampon	Type of tampon	Score (in mL)
	Day time*	1		Regular	0.5
	Night time†	1		Super	1
	Day time	2		Super Plus	1
	Night time	3		Regular	1
	Day time	3		Super	1.5
	Night time	6	Super Plus	2	
	Day time	4		Regular	1.5
	Night time	10		Super	3
	Day time	5	Super Plus	6	
	Night time	15		Regular	4
		Super		8	
			Super Plus	12	

*'Daytime' or regular pads. †'Night time' or super pads. Adapted from Wyatt KM, Dimmock PW, Walker TJ, O'Brien PM. *Fertil Steril* 2001; 76: 125-131.⁹

Table 1. History indicating heavy menstrual loss

- Highly absorbent pads and tampons needed – 'super', double or incontinence
- Frequent pad changes needed – every half to two hours
- Clots or flooding – soaking the bed or clothes
- Lengthy periods – >4 days of heavy flow, >9 days total
- Frequent periods – cycle length less than 21 days
- Prolonged and irregular periods or intermenstrual bleeding (present in 25 to 50% of cases of submucous fibroids or endometrial hyperplasia)

Source: Fraser IS. *Br J Obstet Gynaecol* 1994; 101 Suppl 11: 3-7.⁸

referral to a gynaecologist to seek external validation of their subjective experience.⁴ Some women with dysfunctional uterine bleeding or perceived heavy menstrual loss may try to influence the gynaecologist into offering surgery.⁶

Women who have undergone tubal sterilisation can perceive a change in menstrual pattern, particularly after minimal menstrual loss from using the oral contraceptive pill for some years. However, they are no more likely than other women to have menstrual abnormalities.⁷ Many women may be unaware that their menses may change during their reproductive life. An explanation and normalisation of this experience may be useful for those whose perception of heavy menstrual loss is not confirmed clinically.

Is it really heavy menstrual loss?

Research into menstrual loss can utilise a method of assessing blood loss that involves the weighing of sanitary products. This is obviously not practical in the everyday clinic. Instead, a careful detailed

estimate of heavy menstrual loss.² The limit should reflect the 'upper tolerance level' of bleeding; indicating the absence of anaemia and iron depletion. Obviously in societies, or groups within societies, that have depleted iron stores, the upper tolerance level that constitutes heavy menstrual loss would need to be adjusted to reflect this.

How do women interpret their loss?

Many studies show poor correlation between the amount of reported menstrual loss compared with the actual loss.³ Only 40 to 56% of women complaining

of heavy menstrual loss have been shown to be experiencing it (defined as >80 mL), and 26% of women complaining of heavy loss have a loss of less than 60 mL.

Why do these women perceive their loss as heavy? It appears that women are concerned about a change in the pattern of the menses, irregularity of the cycle, prolonged loss, or the colour and appearance of the blood lost.⁴ Women are also concerned about the interference with their social activities, their work and their sex life, in addition to the financial costs. Last, but not least, is the perception that the changes indicate that 'something is wrong'.⁵ These women may request

history has been shown to reliably indicate the presence of heavy menstrual loss (Table 1).⁸

For women reporting heavy menstrual loss but in whom the history does not appear to confirm this and the examination and blood tests are normal, a visual chart or diary may be useful for a clearer understanding of the concerns. A pictorial blood loss assessment chart can be used for one cycle (see the patient handout on page 52). This has been shown to have good sensitivity and specificity for blood loss.⁹ A diary may be invaluable for a woman with irregular, unpredictable and/or prolonged bleeding and can assess the relationship to other lifestyle factors such as work, exercise or stress. A targeted history and examination can suggest the presence of specific organic pathology or indicate specific

investigations (see Table 2 and the box on page 54).

Causes of heavy menstrual loss

In approximately 60% of cases, heavy menstrual loss can be associated with a number of underlying pathological conditions (Table 3). Those most commonly cited are fibroids and endometriosis (Figures 1 and 2).

Thyroid disease appears in many texts as a cause of menstrual problems. However, the chance of this being a cause is unlikely unless there are other indications of thyroid disease on the history and examination.

Acquired and congenital bleeding disorders are usually considered among the causes of heavy menstrual loss in adolescent girls.¹⁰ Severe anaemia frequently results from these causes. A

study on women in reproductive years has suggested that a bleeding disorder should also be considered in this age group.¹¹ The study found a 13% incidence of von Willebrand's disease (prevalence in the general population is 3%); 20% of these women did not have a history of a bleeding problem on haemostatic challenge (e.g. tooth extraction). Identifying a clotting deficiency is important for management of heavy menstrual loss and genetic and lifestyle advice. Such a deficiency might be amenable to treatment with desmopressin (Minirin, Octostim).¹²

In 40% of women with heavy menstrual loss, no specific underlying pathology or pregnancy-related cause can be determined. This diagnosis by exclusion is termed dysfunctional uterine bleeding.

How often is the cause of heavy menstrual loss a cancer?

A study from New Zealand looked at the investigation of women referred to a

Table 2. History for underlying causes of heavy menstrual loss

Bleeding tendencies

- Bleeding with challenges (pregnancy, tooth extraction), easy bruising
- Family history of bleeding tendencies

Excess oestrogen

- Exogenous: medication with unopposed oestrogen or tamoxifen
- Endogenous: obesity, polycystic ovary syndrome

Indications of underlying pathology

- Pelvic pain (endometriosis, pelvic inflammatory disease)
- Pressure or mass (uterine fibroids)
- Infertility (endometriosis, pelvic inflammatory disease)
- Intermenstrual bleeding, postcoital bleeding (polyps, sexually transmissible infections, malignancy)

Consequences of heavy menstrual loss

- Anaemia
- Tiredness

Symptoms associated with thyroid disease

Table 3. Causes of confirmed heavy menstrual loss

Organic causes*

Pelvic pathology

- Uterine fibroids
- Adenomyosis
- Endometriosis
- Endometrial polyps[†]
- Pelvic inflammatory disease[†]
- Endometrial hyperplasia[†]
- Endometrial cancer[†]
- Cervical cancer[†]

Systemic disease

- Coagulation disorder
- Systemic lupus erythematosus
- Hypothyroidism

No cause found*

- Most cases – ovulatory and chronic
- Some cases – anovulatory (in women <20 or >40 years or with irregular cycles)

* In 60% of cases, an organic cause is found; in 40%, no cause is found (this is termed dysfunctional uterine bleeding).

[†] Rare causes of heavy menstrual loss but common causes of intermenstrual bleeding.



Figure 1. Fibroid at hysterectomy.



Figure 2. Endometriosis.

continued

gynaecology clinic with heavy menstrual loss. A woman younger than 40 years of age with heavy menstrual loss had a 1.4% chance of having endometrial pathology, and a woman over 40 a 10% chance. The number needed to investigate (NNI) to find a case of endometrial hyperplasia was 23; to uncover a case of endometrial cancer, this number was 206. If women with heavy menstrual loss are selected on risk factors for endometrial cancer (weight >90 kg, infertility, age >45 years, a family history of colonic cancer), the NNI is 8 to 13 for a case of hyperplasia.¹³

Other risk factors for endometrial hyperplasia or cancer that should be sought from the history would include diabetes and an increased exposure to oestrogen – endogenous (e.g. obesity,

polycystic ovary syndrome) or exogenous (e.g. unopposed oestrogen treatments, tamoxifen).

The presence of risk factors for endometrial cancer should suggest further initial investigation (such as transvaginal ultrasound or dilatation and curettage with hysteroscopy).

Is an examination worthwhile?

Apart from a check for anaemia and systemic disease, an abdominal and pelvic examination will reveal most of the likely pathologies causing heavy menstrual loss (see the box on this page). An examination also provides the opportunity to take a Pap smear, an endometrial sample and, if relevant from the history, culture swabs for *Chlamydia trachomatis* and other infections. Normal findings do not exclude the possibility of an inflammatory disease, endometrial pre-cancer or cancer.

Which investigations are useful? Haemoglobin and ferritin

A haemoglobin estimation is best accompanied by a serum ferritin level, to reflect the iron stores. Not surprisingly, there is a trend towards a decreasing haemoglobin level and iron deficiency the longer the woman has heavy menstrual loss. A haemoglobin level <120 g/L has a 74% predictive value confirming heavy menstrual loss, and a level >120 g/L has an 80% predictive value for the absence of heavy menstrual loss.³ Anaemia is more common in fibroid-associated heavy menstrual loss than in women with heavy loss from other conditions.¹⁴

Haemostatic evaluation

Adolescents without thrombocytopenia who present with heavy menstrual loss should receive a comprehensive haemostatic evaluation, including testing for von Willebrand's disease and platelet function defects. As suggested above, a clotting disorder should be considered in all women with heavy menstrual loss, and tests may

best be taken on day 5 to 7 of the cycle.¹⁵

Ultrasound examination

Transvaginal ultrasound may be particularly useful in specific situations. It can:

- assess the thickness and regularity of the endometrium for the possibility of hyperplasia or malignancy (Figures 3a to c)
- measure the myometrial thickness (suggesting adenomyosis)
- confirm the size, number and position of uterine fibroids
- measure and check ovaries (cysts, cancer, results of inflammatory disease)
- check the nature of a pelvic mass.¹⁶

However, ultrasound examination is less satisfactory at identifying areas of endometriosis or inflammation, unless accompanied by anatomical distortion from complications.

The indications for transvaginal ultrasound are:

- intermenstrual bleeding, postcoital bleeding
- risk factors for endometrial pathology (age >45, weight >90 kg, polycystic ovary syndrome, diabetes mellitus, infertility, family history of colonic or endometrial cancer, sudden change in blood loss, increased exposure to oestrogen)
- abnormal examination (masses, tenderness)
- abnormal histology
- severe anaemia
- failed medical treatment in reproductive years.

The expertise of the ultrasonographer is crucial. It has been suggested that in expert hands most of the underlying pathological causes of heavy menstrual loss can be identified. Saline contrast sonohysterography (SCSH) can provide additional information to that obtained by a transvaginal ultrasound, with the sensitivity to detect an abnormal uterine cavity of 99% (SCSH) and 92% transvaginal ultrasound.¹⁷ It has been estimated that

Examination in a woman with heavy menstrual loss

General examination

- Look at mucous membranes, hands, thyroid gland and skin

Abdominal examination

- Observe any protrusions or varicosities
- Palpate for tenderness, mass and ascites

Speculum examination

- Observe any discharge or bleeding from the cervix, uterus or vagina (cancer, pre-cancer, infection)
- Collect a Pap smear, endometrial sample and culture swabs from the cervical canal

Bimanual examination

- Is the uterus: enlarged and smooth (adenomyosis, small intramural, fibroids); enlarged and irregular (fibroids); tender and/or retroverted and fixed (endometriosis, pelvic inflammatory disease)?
- Are the adnexae tender, enlarged (ovarian endometrioma, hydrosalpinges, pyosalpinx)?



Figures 3a to c. Transvaginal ultrasound. a (left). Atrophic endometrium with a little intracavity fluid, common in the postmenopausal age group. b (centre). Thickened homogeneous echogenic endometrium in a postmenopausal patient with no other discriminatory features. Histology was consistent with hyperplasia. c (right). Focal irregular proliferative change in the endometrium with abnormal vascularity in a postmenopausal patient. Histology was consistent with early adenocarcinoma. (Note that sonography cannot differentiate between hyperplasia and malignancy.) FIGURES 3a TO 3c COURTESY OF DR PAULA SIVYER, DIAGNOSTIC IMAGING FOR WOMEN, SPRING HILL, QLD.

29 to 47% of women could avoid diagnostic hysteroscopy as a consequence of a negative result of both transvaginal ultrasound and SCSH. The feasibility of a 'one stop' ultrasound-based clinic for the diagnosis and management of abnormal uterine bleeding has been suggested.¹⁸

Endometrial sampling

Sampling the endometrium in the surgery can be a useful procedure if a positive result is obtained. Using a device such as a Pipelle is safe, and perforation or haemorrhage are rare.

Compared with a dilatation and curettage, endometrial sampling has a 95% sensitivity for detecting endometrial pathology if tissue is obtained.¹⁹ However, it may sample only a limited area and if it is negative (due to failure to enter the endometrial cavity or an inadequate tissue sample) then direct sampling with a hysteroscope is indicated – which remains the gold standard to check for endometrial pathology.²⁰ Hysteroscopy is more sensitive than curettage in detecting endometrial polyps and submucous fibroids but less sensitive in detecting endometrial hyperplasia and endometrial carcinoma. Hysteroscopy should be carried out in conjunction with curettage for evaluating women with heavy menstrual loss who:

- from the history:
 - are over 40 years of age
 - are under 40 years with persistent intermenstrual bleeding or with failed medical treatment
 - have risk factors for endometrial cancer or precancer
- from the examination:
 - have abdominal tenderness or a mass
- from the investigations:
 - have an abnormality suggested on transvaginal ultrasound
 - have an abnormal endometrial sample
 - have severe anaemia.

A dilatation and curettage is a diagnostic test not a therapeutic test.

Models of heavy menstrual loss

Any woman presenting with heavy menstrual loss could be found to: have definite underlying pathology; have dysfunctional uterine bleeding; or not have the complaint confirmed. Selecting the appropriate model (see box on page 59) for the individual woman is not to 'label' her but to assist her and her health practitioner in following the appropriate decision-making pathway and avoiding unnecessary intervention.²¹ To this end, it is important to determine her particular needs for management, such as:

- stopping or decreasing bleeding, pain and other menstrual-related symptoms
- answering individual needs (e.g. fertility)
- assessing treatment options – avoiding short and long term problems and minimising side effects
- addressing other psychosocial issues
- improving quality of life.

Referral for heavy menstrual loss

Menstrual complaints often form a complex clinical picture and often present with a combination of menstrual problems, pain and mood changes around the periods.

The importance of clarifying the whole picture is illustrated by a Scottish study that looked at the referrals for menstrual problems in 665 women.²² Seventy-six per cent of the general practitioners cited heavy menstrual loss as the reason for the referral; 60% of the women gave heavy menstrual loss as a reason for attending, although only 38% described their loss as a severe problem. In the clinic there was a tendency for menstrual complaints to be reframed as excessive bleeding. In this study, the referral for menstrual problems was associated with an increased chance of undergoing a hysterectomy (relative risk 4.9, confidence interval 1.6–15.6, $p < 0.001$).

As referral for heavy menstrual loss is associated with a 60% probability of hysterectomy in the following five years, it is essential that women with menstrual-related complaints are carefully assessed before the woman is referred to a hospital clinic.

Women reporting heavy menstrual loss can be fully assessed by the general practitioner, and the appropriate model determined for many of them. Those who have established pathology or are at risk for underlying pathology will need to be referred for further investigation.

Conclusion

Menstrual complaints are often complex. A thorough history is the basis to tease out the particular concerns and the impact on an individual woman's life. Many women will be able to re-evaluate their problems and will not require medical or surgical intervention. For other women – those with pelvic pathology or

heavy menstrual loss interfering with the quality of their life – the next step will be to discuss the wide variety of options available for the management of heavy menstrual loss. These will be discussed in part 2 in the next issue. **MT**

A list of reference is available on request to the Editorial office.

Models of menstrual loss

Disease model

- History suggests heavy menstrual loss or there are medical effects (e.g. anaemia)
- Investigation shows anaemia, iron deficiency
- Underlying pathology is confirmed
- Specific medical solution is indicated (e.g. hysterectomy for large fibroids)

Illness model²¹ (dysfunctional uterine bleeding)

- No underlying pathology is found
- History suggests heavy menstrual loss
- Investigations support heavy menstrual loss
- The woman perceives it as heavy menstrual loss
- Medical and surgical options are available

Experience model

- No underlying pathology is found
- History does not support heavy menstrual loss
- Investigations are normal
- The woman perceives it as heavy menstrual loss
- Management is through explanation, education, finding acceptance and solutions

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