

## Heavy periods (menorrhagia) and its management

By the end of this you should:

Understand what can cause heavy periods and what the treatment options are

### HEAVY PERIODS

- Menorrhagia

### MEDICAL OPTIONS

- The combined oral contraceptive pill - the Pill: using the Pill to replace the normal menstrual cycle with a lighter Pill withdrawal bleed
- Anti-fibrinolytics - Tranexamic Acid and Ethamsylate: helping blood to clot
- Anti-inflammatory drugs
- Oral progestogens
- Depot progestogens
- Intra-Uterine Progestogens - such as the Mirena<sup>®</sup> IUS
- Danazol: a brief mention here, but more extensive discussion in the section on endometriosis
- Luteinising Hormone Releasing Hormone (LHRH) Analogues

### SURGICAL OPTIONS

- Endometrial ablation techniques
- Hysterectomy: a brief comment
- The order of treatment

### SUMMARY

### A note on Irregular Heavy Periods

## Heavy Periods

**Menorrhagia** is the medical term for heavy regular periods; not all heavy periods are regular and therefore not all heavy periods are menorrhagia. This is important, because the treatments are different for each of these situations, although there is considerable overlap. Overall, more than 1 in 20 women will consult their GP about heavy vaginal bleeding and it is a common problem to be referred to your gynaecologist about (perhaps 1 in 5 of our referrals). Not that long ago, most women with this problem (more than 50%) ended up with a hysterectomy - removing the womb (uterus). Nowadays, you should expect to keep your uterus and to avoid major surgery, unless there is a specific cause and reason for this intervention.

The scientific definition of menorrhagia includes that the loss is greater than 80ml per cycle. Someone once (and not only one person) collected bags full of soiled and bloody sanitary wear, put them in a fancy washing machine to extract the blood and measured the loss: a Mooncup<sup>®</sup> would have been easier! In practice, less than half of women with 'heavy periods' in our clinics do have this kind of loss. However, the fact that they are in our clinic at all means that it is a problem *to them*. The aim must be to reduce loss from the current to an acceptable amount. From this statement, you can deduce that the management of any individual, therefore, has to be on an individual basis, but following some broad and well set out guidelines. A treatment that is known to work on someone with a loss of 90ml per cycle and anaemia may appear to work better than when used on woman with a 30ml loss who is otherwise well. Thus it is important to explore individual aims and expectations. There have been several attempts to be more objective about the loss, by giving patients charts to draw the kind of blood loss on a pad. These work quite well when the doctors (or nurses) and patients are well motivated or have a particular (usually research) interest, but I return to the comment above - the problem



is very much as perceived by the woman. The treatment depends on how far they are prepared to go and what potential side effects or consequences they are prepared to run the risk of.

There may or may not be 'physical' causes of both patterns of bleeding e.g. fibroids (the uterus is made out of muscle and a fibroid is a benign lump of muscle & fibrous tissue found in relation to some portion of the uterus. Fibroids are a subject in themselves).

If periods are heavy and regular, this implies that ovulation is taking place (see 'menstrual cycle'). This is important - if ovulation takes place, then progesterone is being produced in the second part of the cycle. Thus, just using progesterone-like drugs in the second half of the cycle would not be expected to work (and they don't reliably).

For women with regular heavy periods, one must either stop the lining (endometrium) forming or being so thick in the first place or help the blood to clot at the surface it is being shed from - menstrual blood is deficient in certain clotting factors compared to the blood circulating around the rest of you - women are designed to turn over this lining efficiently.

The easiest way of stopping the lining forming is to oppose the effects of the hormone of the first (proliferative) part of the menstrual cycle - oestrogen. Progesterone does this and this is the basis of several tactics to reduce menstrual flow:

## **MEDICAL OPTIONS:**

The combined oral contraceptive pill - the Pill.



This is a tablet that many younger women are familiar with (not that the older generation wasn't around at its invention, but after a certain age - particularly in women who smoke - the risks become much too high for it to have a practical use). Each pill contains a synthetic oestrogen and a balancing progesterone-like hormone (the generic name for these is a progestogen). The dose of oestrogen 'feeds back' to the brain, which then feels it doesn't have to drive the ovaries that cycle (because it senses oestrogen already). Thus, the Pill most often prevents ovulation as its primary mode of contraceptive action. The progestogen usually balances out the oestrogen (antagonises the effect) so that the endometrium does not develop very much at all. You bleed (in principle) only when you stop the Pill and all hormone is withdrawn - the lining is no longer supported and you have a Pill withdrawal bleed, which is usually much lighter than a period. There are always variations and exceptions and I may write about these another time.

#### Anti-fibrinolytics - Tranexamic Acid and Ethamsylate.

Most mortals find the science behind the control of blood clotting overwhelmingly complicated, but it can be simplified greatly for our purposes here as: when there is an injury and blood leaks, there are factors in the blood that make it clot and factors that dissolve the clot afterwards in the longer term as healing takes place. To make a clot, you need little cells floating in the blood called platelets (you will have heard, no doubt of red cells that carry oxygen and white cells that fight infection - platelets are even smaller and are the third cell type in blood). These clump together as clotting takes place, using various factors that switch on and multiply in sequence - the clotting or coagulation cascade. In order to regulate this, the factors are removed as well, allowing the process not only to act very rapidly, but to fine tune control that it doesn't make things clot that shouldn't. The last two bits of the cascade are prothrombin going to



thrombin and fibrinogen leading to fibrin. The fibrin is removed slowly and the platelet plug formed is reabsorbed after healing has taken place - fibrinolysis. Anti-fibrinolytics slow or inhibit this process, so the clotting is maintained for longer and the amount of blood lost is reduced. Logical really.

These drugs therefore work relatively quickly when bleeding is heavy. They are good, because you only need them on specific occasions for a short time - you don't want to make everything in you clot or you would get a thrombosis - a clot (usually) in the leg. As far as I can tell, the biggest side effect of Tranexamic Acid seems to be non-specific abdominal pain, which means some women can't tolerate it. The tablet comes as 500mg and the dose that is most effective is 1g 4x / day.

### Anti-inflammatory drugs.

You've probably cottoned on that a period is a pretty inflammatory process, given all this lining sloughing off each month. Anti-inflammatory drugs such as ibuprofen or mefenamic acid reduce this inflammation. Less inflammation means less dilated blood vessels, resulting in less blood lost. Some people, particularly those with asthma and a history of stomach problems, can't take these drugs. They are effective for some women - especially those with dysmenorrhoea (painful periods).

### Oral progestogens.

There are a few drugs, based on the hormone progesterone, which can be used to decrease the effect of oestrogen on the development of the lining of the womb. Since a woman with heavy REGULAR periods usually ovulates and therefore does produce progesterone, oral progestogens have to be given in the first part of the menstrual cycle as well to be effective - to



reduce (antagonise) the proliferative effect of oestrogen on the endometrium. If the first day of a period is 'Day 1' then the treatment is usually from Day 5-26 of each cycle.

Medroxyprogesterone acetate (Provera) and Duphaston are common examples of progestogens, based on progesterone itself. An interesting variant is the drug Norethisterone, because it is based on the male hormone, testosterone (all the sex steroid hormones are very similar and exhibit some cross reaction to each other). It is the most potent progestogen we use - so if you are going to get control of the bleeding from hormones, it should happen with this. However, you can predict some of the side effects - acne, greasy skin and weight gain in some women. In addition, it is important to use effective contraception as you do not want to affect a potential female baby with this male-based hormone.

Norethisterone is a very interesting drug. At 5mg 4 x day it will regulate the menstrual cycle and, when taken continually, it will delay a bleed, so it is good for holidays etc to delay periods. Because, when used in this way, it is not a 'treatment' as such, you may find that you have to pay for a private prescription from your GP.

Progestogens are used when the lining is TOO thick (hyperplastic), in order to make sure it is turned over and then not formed again for a few cycles. This is sometimes found when a biopsy of the lining is done, using an endometrial biopsy device or at hysteroscopy, where a telescope is inserted through the cervix (sometimes as an outpatient and sometimes in an operating theatre) to look inside the womb. If this hyperplasia is not 'simple' then other treatments might be necessary, but this is unusual.

### Depot progestogens.

A few people have a contraceptive need that suits the use of progestogens either as a 3-monthly injection (depot-provera) or as a progestogen rod inserted just below the skin of the arm (Implanon<sup>®</sup>). Many women stop their periods when they have such treatments, but for some their periods may get worse. There is some concern about the long term use of Depot Provera (more than 5 years) leading to thinning of the bones - osteoporosis - because it acts against the beneficial effects of oestrogen on bone.

### Intra-Uterine Progestogens.

I think it is fair to say that the Levonorgestrel Intra-Uterine System (IUS) has revolutionised the management of menorrhagia. It was designed originally as an Intra-Uterine contraceptive, but it cuts down on blood loss by 90% - as a side effect! It is ideal if there is a contraceptive need and no reason why an IUS should not be placed e.g. active pelvic infection. Although the [Mirena<sup>®</sup>](#) has a lower risk of infection and unwanted pregnancy (lower than sterilisation, it is claimed) there is still a risk of an ectopic pregnancy (a pregnancy outside the womb) should it fail. For this reason (and that it is a bit wider than a copper-based IUCD) it is not usually put in women who have not had children and who want children in the future. Of course, a hysterectomy ruins your chance of being pregnant, so the consideration is relative! Some GPs and Family Planning people are very slick at putting these in - sometimes we do them needing local or general anaesthetic.

The Mirena<sup>®</sup> works by releasing a standard and regular dose of the progestogen, Levonorgestrel, into the local vicinity of the uterus. The blood



level of progestogen is a lot lower than other routes - it has mainly a local effect in the uterus and pelvis.

When you look at the list of side effects of progestogens, it is really quite extensive. However, the advantage of the Mirena is that very little is absorbed, and people tend to get no side effects or one or two only. These can be inconvenient and still lead to dis-satisfaction enough to ask to have the IUS removed. Patience is a virtue here - the IUS is releasing the same amount of progestogen each day and your hormones are oscillating wildly around it. It takes time, therefore, for a balance to be achieved and women often find that they have constant bleeding for several weeks or months. Although it should be lighter than before, it can sometimes be heavy. Any return to a previous bleeding pattern should make one suspicious that the IUS has been rejected and fallen out; after all, the uterus is built to contract and to expel its contents.

Complications from any medical procedure are usually classified as 'immediate', 'early' or 'late'. Immediate complications are as a consequence of difficult insertion - for example it is possible to make a hole in the womb by accident (uterine perforation). In these (rare) circumstances a laparoscopy is performed under general anaesthesia - a telescope is inserted through the belly button (umbilicus) to look to see where the IUS is, retrieve it and to check for bleeding. It is possible to feel faint as some women experience a slow heart rate (vagal bradycardia) when something is introduced through the cervical canal - this is easy to treat (with a drug called atropine, or similar) but it does mean that the procedure should only be carried out where facilities exist to manage such problems.

Early complications relate to the variety of bleeding patterns that ensue, early rejection of the IUS, persistent pain or infection. This latter is a problem because it is difficult to get better with the IUS still present and it is sometimes removed while antibiotics are given. Every woman having an



IUS (or any coil) should either have a swab taken from the vagina and cervix - looking for Chlamydia and Gonorrhoea - and the result known before the procedure or be given a prophylactic (preventative) antibiotic, such as Azithromycin.

Many women get pain when the IUS is inserted. This can be as the cervix is opened or when the top of the womb is touched from inside as the IUS is settling into position. Usually, this is mild and settles promptly either with paracetamol or anti-inflammatory drugs. Sometimes, the pain is severe (suspect perforation if immediate or infection if after some time). Sometimes the pain persists and the IUS just needs to be removed.

The IUS has threads that can be felt easily - you should get used to knowing what they feel like as their presence is reassuring if you are trying not to get pregnant as well. Some men complain that they can feel the threads during intercourse and the ends are then trimmed even more. Feeling the thread end on is more prickly (no pun intended) than feeling a smooth side, so trimming the threads does not always have the desired benefit. The shorter the threads are, the greater the chance that they cannot be seen when it comes to removal, although I have seen some very long threads become inverted and coiled up in the cavity of the uterus. When the threads cannot be seen, it is referred to as a 'lost coil' and a great deal of panic ensues. The first thing to do is to assume it has fallen out (pregnancy is very expensive) and to use an alternative method of contraception if appropriate. The next thing is to have an ultrasound scan - the IUS shows up - and if there is any doubt still, an X-ray is arranged that must include the whole abdominal and pelvic cavities (looking for an IUS that has migrated through the uterine wall).

Two thirds of women will get lighter bleeding, although it may not always be at a regular time or it may persist as inconvenient daily 'spotting'. If these are the only side effects, it is worth considering other options in



trying to get things to settle down. The first is a little used drug - Danazol and the second involves switching the ovaries off. Both may be worth trying if the alternative is major surgery.

### Danazol.

Danazol has been around for years. It turns off the hormones produced by the brain that drive the ovaries (FSH and LH). It has androgenic properties - i.e. it is a male based hormone, that also acts opposite (antagonises) the effects of oestrogen and progesterone. It is discussed in more detail in the section on endometriosis.

With a Mirena, most of the work, if you like, has been done already and a low dose of Danazol may be all that is required to get the effects to settle down - say 3 months treatment. This is a small price to pay if the treatment avoids hysterectomy and lasts 5 years otherwise. One must not get pregnant on Danazol (see the notes on Norethisterone above) as it is bad for female babies inside the womb.

### Luteinising Hormone Releasing Hormone (LHRH) Analogues.

These are discussed in some detail in relation to the [treatment of endometriosis](#).

In the context of menorrhagia, LHRH analogues are often used if the Mirena IUS is taking time to settle (although if a Mirena is inserted AFTER down-regulation with LHRH analogues, the time of no periods is generally more rapid and more predictably prolonged).

## SURGICAL OPTIONS

### Endometrial ablation techniques.

It has long been desirable to find a permanent way of stopping the womb lining (endometrium) from forming in the first place as an easy minor procedure - preferably as an outpatient - and without major surgery.

Initially, this involved stripping the lining, like shelling out a man's prostate gland - and it used the same equipment in theatres as the urologists used in men. There was enthusiasm, but a few complications - some really serious. The two main developments practised in the UK appear to be either some form of hot balloon technique or a probe producing microwaves. Each new technique must be assessed by NICE.

I would be wary of anyone who tells you that the satisfaction rate is higher than 80%, with about 50% of women having no periods after the procedure - whatever the technique. Proponents of each swear blind that their preferred option is the best - I don't really know as objective trials with direct comparisons, assessed by independent 3<sup>rd</sup> parties are sparse. I would argue that it doesn't really matter. Having someone trained and able to show you an audit of their own results is helpful.

Although the initial studies suggested that ablation techniques can CAUSE pelvic pain, subsequent trials seem to suggest that painful periods (dysmenorrhoea) can be helped.

There are several further considerations to do with the longer term:

1. The endometrium sometimes regenerates and thus there is a 'failure rate' after an initial time when things appear to have gone well. It is not unreasonable to re-do the procedure in such women, accepting



that any change in bleeding pattern is investigated properly first if appropriate (it often depends on age).

2. This does NOT confer sterility - and appropriate contraception is necessary. Sometimes the procedure is combined with sterilisation. There have been pregnancies reported after ablation techniques, though fertility and a successful outcome to pregnancy are both reduced.
3. We do not yet know if there is a delay in diagnosing cancer of the womb, should this occur much later in life. Abnormal uterine bleeding, particularly in the post-menopausal woman, may be a sign of endometrial cancer. In fact, post-menopausal bleeding (in the absence of an expected bleed from HRT) should always be investigated for this very reason - although other causes of the bleeding are much commoner. It is this external sign (bleeding) that often leads to prompt, early diagnosis and thus high cure rates. If there is scarring and adhesions in the uterus, will there be a delay in seeing abnormal bleeding? So far, this doesn't seem to be the case.

### Hysterectomy.

The problem with hysterectomy for benign (not cancer) uterine bleeding, such as menorrhagia, is that it is major surgery. Although 2/3 women will feel that they should have had the surgery years previously, a fair few women get some form of problem and perhaps 1:10 will wish they had never heard of a gynaecologist. Gynaecologists reached for the scalpel all too readily in the past and women, overall, have resented this. The Government wants you to try easier (and cheaper) options first. The difficulty is that hysterectomy is the most effective treatment - 100% of women should never have a period again - and some women gamble on this because they do not want to consider a (lesser) treatment that we - as doctors as part of 'informed consent' are saying could be less successful. Of



course, it is all in the presentation, but direct progress to hysterectomy for benign uterine bleeding is to be discouraged (indeed the private health insurers will not pay until all the previous options have been tried and / or discounted).

Hysterectomy will need a section on its own at a later date.

### The order of treatment.

Most women will try some form of tablet treatment first, but many either don't want to take tablets long term or don't want to mess with their hormones. Next we would try a Mirena IUS - for 50% of women, this is satisfactory - and for many women, the added contraceptive effect is a bonus. It is really quite good at reducing blood loss by about 90%. The problem is that it doesn't always seem to do it at a time that is convenient - and some women ask for further intervention when their periods are 'sorted' but they are bleeding or spotting every day, long term.

The same potential problems are seen with endometrial ablation techniques: a further 50 % of women are reasonably happy and about 50% are not. For women in whom conservative measures have failed, we discuss hysterectomy - but the rate is now  $\frac{1}{4}$  of the rate 10 years ago falling. In fact, the level should be even lower as a large proportion of peri-menopausal women can be managed over this time with LHRH analogues.



## Further help:

<http://www.nice.org.uk/nicemedia/pdf/CG44publicinfo.pdf>

[http://www.hcd2.bupa.co.uk/fact\\_sheets/html/endometrial\\_ablation](http://www.hcd2.bupa.co.uk/fact_sheets/html/endometrial_ablation)

[http://www.hcd2.bupa.co.uk/fact\\_sheets/html/hysterectomy.html](http://www.hcd2.bupa.co.uk/fact_sheets/html/hysterectomy.html)

[http://www.rcog.org.uk/resources/Public/pdf/consent4\\_hysterectomy.pdf](http://www.rcog.org.uk/resources/Public/pdf/consent4_hysterectomy.pdf)

## Summary

*Heavy periods are in the eye of the beholder - although the medical definition is more than 80ml blood loss per period, some women who bleed more than this have no complaints and some bleeding considerably less are worried enough to seek medical advice. In the absence of other causes, bleeding with a period to the extent that you become anaemic is a problem - the odd patient even gets chest pain (angina). Otherwise, bleeding to the extent you are tied to the loo (flooding) is a more reliable gauge of heavy loss than clots or the number of pads or tampons used each day.*

*Periods are either heavy and regular or heavy and irregular. There are some specific causes of both, such as fibroids. In the absence of such pathologies, regular periods imply that a woman ovulates and an irregular cycle suggests that she might not. The treatment of both is logical and in sequence.*

*When using non-hormonal treatments, bleeding can be reduced using tablets that either improve clotting (anti-fibrinolytics, such as Tranexamic acid) or that reduce inflammation (such as Ibuprofen or Mefanamic acid).*



*The combined pill is often useful in younger women, especially with a contraceptive need, as it dominates the menstrual cycle and replaces it with a much lighter pill withdrawal bleed.*

*Progesterone opposes the effects of oestrogen. In an irregular cycle, the progesterone from the second half of the cycle is missing and replacement of this often restores both loss and the regularity of the cycle. If the cycle is regular, this should not be expected to work - it is illogical - but extending the progesterone into the first half of the cycle will reduce the effect of oestrogen in forming the endometrium (and therefore lighten the loss later in the cycle).*

*Progesterone itself, taken by mouth, is inactivated in the stomach. Similar hormones (progestogens) are medroxyprogesterone acetate (Provera) and Norethisterone acetate (Primulot). This latter is the most potent progestogen we use, but it is based on the male hormone, testosterone, so it should be used only in women not getting pregnant.*

*There are other ways of giving progestogens - such as the contraceptive injection, depot Povera, or a contraceptive rod inserted under the skin of the arm (Implanon<sup>®</sup>). Another progestogen, Levonorgestrel, is used in the Intra-Uterine System (IUS) Mirena<sup>®</sup>.*

*If the Mirena<sup>®</sup> is contra-indicated, does not work, or has intolerable side effects, then some form of endometrial ablation technique is often appropriate.*

*Although there are a few women for whom hysterectomy is employed early (it is, after all, the definitive and most effective treatment) this should be a last resort for most women and the hysterectomy rates, quite rightly, have fallen in the UK in recent years. Major surgery should be avoided if possible in benign (non-cancerous) conditions.*

### A note on Irregular Heavy Periods:

Although NICE do not recommend investigation of women with menorrhagia under the age of 40, because cancer of the lining of the womb (endometrial cancer) is relatively rare in this age group, heavy irregular bleeding may need further investigation whatever the age, especially if associated with bleeding between periods or after sexual intercourse. It is more common to have minor conditions causing such problems, for example, inflammatory conditions of the cervix or a polyp, but you must be sure that nothing more serious is going on. Heavy irregular periods can be associated with not ovulating (anovulation). Therefore, the [corpus luteum](#) is not formed and there is a lack of progesterone in the second half of the cycle. Luteal phase progestogens may help regulate the cycle and lessen the menstrual loss.

### A final thought:

There are new techniques for destroying (ablating) the endometrium being developed all the time - there is a lot of money to be made by companies here.

Although the manufacturers (and whoever does the original research) sometimes claim very high satisfaction rates, with each new system claiming to be better than the previous one, the rates are often lower when assessed independently by a 3<sup>rd</sup> party - an interesting example of how research in the past over-inflated the efficacy of new technologies. The logic went something like this: patients consented to take part in a study by that nice doctor doing his or her thesis. The procedure was carried out and the



patient was asked whether they were better by that same nice doctor or nurse. Two factors might immediately spring to the mind of said patient - if I say that I'm not better, will they do more to me, and do I really want to spoil that nice doctor's research project. Hence, there was a procession to hysterectomy in the private sector for those who still had a problem, but who didn't want to make waves for their gynaecology team.

Please be reassured that the Governance affecting clinical trials has tightened up enormously, particularly those funded in the public domain, and there are whole clinical trials units around the UK helping to run studies properly and more objectively.