Dysmenorrhoea is a common condition associated with potentially distressing cramps. The authors discuss the features that distinguish primary and secondary dysmenorrhoea and assess the currently available treatment options.

Dysmenorrhoea is a common condition defined as the occurrence of monthly painful cramps at the time of menstruation that are distressing and require some form of treatment to alleviate the pain and to allow continuation of daily activities.

Dysmenorrhoea can be either primary or secondary.

**Primary dysmenorrhoea**
Primary dysmenorrhoea refers to painful periods that are not associated with identifiable pelvic pathology. It is commoner in the years after menarche peaking at 20–24 years of age and decreasing thereafter (see Table 1). It occurs in up to 40–50 per cent of young women, with severe forms limiting activity and causing missed school days in 15 per cent.1

Primary dysmenorrhoea usually starts within 6–12 months of menarche, once ovulatory cycles are established. Presentation beyond a year after menarche should give rise to suspicion of secondary dysmenorrhoea.

Typically, pains are cramping and spasmatic, coming on a few hours after the onset of flow and peaking 24–36 hours into the period. They rarely last more than two or three days and can be accompanied by backache, nausea, vomiting and diarrhoea.

**Pathophysiology**
The most important cause of primary dysmenorrhoea is thought to be excessive secretion of prostanoids that induce uterine contractions, reducing uterine blood flow leading to uterine hypoxia and pain. The symptoms accompanying primary dysmenorrhoea, ie nausea, vomiting and diarrhoea, are typical of prostaglandin adverse effects.

**Secondary dysmenorrhoea**
In contrast to primary dysmenorrhoea, secondary dysmenorrhoea is a consequence of the presence of pelvic pathology. The typical age of patients is the third or fourth decade of life and it may be associated with other symptoms such as dyspareunia,
Dyschezia and disturbances of the menstrual cycle (see Table 1).

The commonest pathophysiological process involved is endometriosis. Adenomyosis is often found at the same time as endometriosis and can compound pain during menstruation.²

Dysmenorrhoea can also be secondary to previous pelvic infection that led to adhesions that envelop the ovaries and/or occlude the Fallopian tubes causing hydrosalpinges. Fibroids cause uterine enlargement and are commonly associated with menorrhagia that may also cause dysmenorrhoea. Structural abnormalities of the endometrium such as polyps give rise to cycle disturbances and can be accompanied by pain during menstruation.

Rare causes of dysmenorrhoea include uterine anomalies (eg unicornuate uterus with a noncommunicating rudimentary uterine cornu) or cervical stenosis.

### Table 1. Distinguishing features of primary and secondary dysmenorrhoea

<table>
<thead>
<tr>
<th></th>
<th>Primary dysmenorrhoea</th>
<th>Secondary dysmenorrhoea</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pathophysiology</strong></td>
<td>no underlying gynaecological pathology</td>
<td>pain manifestation of underlying gynaecological pathology</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>16–25 years</td>
<td>30–45 years</td>
</tr>
<tr>
<td>Onset</td>
<td>menarche</td>
<td>after menarche</td>
</tr>
<tr>
<td>Duration</td>
<td>8–72 hours during menses</td>
<td>prior to +/- throughout menstrual cycle; variable number of days</td>
</tr>
<tr>
<td>Nature</td>
<td>cramping pelvic pain, with or without nausea and vomiting, which commences with the start of menstrual flow; the pain may radiate to the lower back or upper legs</td>
<td>variable number of days; noncyclical and cyclical episodes</td>
</tr>
<tr>
<td>Co-morbidity</td>
<td>no other gynaecological, renal tract or gastrointestinal symptoms</td>
<td>co-existent gynaecological symptoms, eg heavy periods, dyspareunia, vaginal discharge, intermenstrual bleeding, postcoital bleeding, chronic pelvic pain; possible bowel and urological symptoms</td>
</tr>
<tr>
<td>Responds to NSAIIDs or COCs</td>
<td>yes</td>
<td>yes, but may require further treatment</td>
</tr>
<tr>
<td><strong>Clinical examination</strong></td>
<td>normal pelvis</td>
<td>fixed retroverted uterus, thickened uterosacral ligaments, endometriotic nodules on vaginal examination, enlarged tender uterus, adnexal masses</td>
</tr>
<tr>
<td><strong>Specialist investigations</strong></td>
<td>normal pelvic ultrasound no evidence of PID</td>
<td>pelvic ultrasound may show adenomyosis or uterine fibroids, ovarian endometriosis, evidence of PID on genital tract swabs</td>
</tr>
</tbody>
</table>

### Diagnostic approach to dysmenorrhoea

The starting point in distinguishing between primary and secondary dysmenorrhoea is the history. Primary dysmenorrhoea affects a younger age group of women and starts soon after the onset of menstruation. The pain is confined to the period and rarely lasts longer than two to three days.

In contrast secondary dysmenorrhoea usually affects older women with pain starting before the onset of bleeding and continuing throughout. Secondary dysmenorrhoea is associated with secondary effects of the underlying pathology such as dyspareunia and dyschezia.

While in primary dysmenorrhoea examination will be normal, secondary dysmenorrhoea is by definition associated with significant clinical findings. Pelvic examination in women with endometriosis may reveal a fixed retroverted uterus due to occlusion of the pouch of Douglas and/or the presence of thickened uterosacral ligaments or rectovaginal septum due to endometriotic nodules.

The uterus will be enlarged in women with fibroids, and pelvic tenderness may be elicited by gentle palpation in women with pelvic inflammatory disease. Pelvic examination may be inappropriate in
Teenagers and a transabdominal scan may be an alternative.

Pelvic ultrasound is the starting point in the investigation of dysmenorrhoea and recent advances allow the identification of endometriosis, adenomyosis, uterine fibroids and congenital uterine anomalies, all of which are associated with dysmenorrhoea.2,3

**First- and second-line medical treatment**

**NSAIDs**

A large number of NSAIDs have been compared to placebo in terms of their effectiveness in relieving menstrual pain. They have all been found to be effective treatments for dysmenorrhoea except aspirin.4 NSAIDs have also been shown to reduce interference with daily activities and school absenteeism when compared to placebo in dysmenorrhoea.

The evidence in terms of their relative effectiveness in symptom relief is limited so NSAID choice will depend on their side-effect profile and clinician familiarity.

NSAIDs are associated with significant side-effects, although the three-day regimen used when treating primary dysmenorrhoea is unlikely to bring these about. In the pooled results of placebo-controlled randomised trials, gastrointestinal side-effects were the commonest reported.

More recently, COX-2 inhibitors had been heralded as a potentially more effective treatment for dysmenorrhoea. However, those that have not been withdrawn due to safety concerns have not been shown to be superior to COX-1 inhibitors.

**Oral contraceptives**

Synthetic hormones, and more recently natural oestrogen, that suppress ovulation improve the symptoms of dysmenorrhoea. Inhibition of ovulation and reduced volume of endometrium at the time of menstruation reduce the amount of prostaglandins produced thereby relieving menstrual cramps. In addition to making periods less painful, the combined oral contraceptive can be taken continuously thereby reducing the number of cycles the patient goes through. Similarly injectable progestogens can also be used to induce reversible amenorrhea although they are associated with irregular bleeding.

Alternative delivery methods for combined oral contraception include transdermal skin patches and vaginal rings, which may be more suitable to those for whom daily pill taking is difficult.

The ability of oral combined contraceptives to relieve menstrual pain has been borne out by placebo-controlled trials that demonstrate significant pain relief with all combined oral contraceptives compared to placebo in women with primary dysmenorrhoea.5

**Intrauterine devices**

The levonorgestrel-releasing intrauterine system (Mirena) has been shown to be associated with improved pain scores and reduced menstrual flow in women with adenomyosis and endometriosis. In contrast the copper IUD may be associated with an increase in menstrual pain.6,7

**Other pharmacological treatments**

Agents that bring about myometrial relaxation can be used to relieve primary dysmenorrhoea. However these agents are not licensed for such use and therefore caution is advised.

Nitric oxide is effective for pain relief when compared to placebo, but compared to diclofenac sodium the GTN patch has reduced efficacy with low tolerability.8,9 Similar results have been obtained with nifedipine, a calcium-channel blocker.

**Nonpharmacological treatments**

A variety of nonpharmacological treatments for dysmenorrhoea have been suggested. There is limited evidence that high-frequency transcutaneous electrical nerve stimulation (TENS) is effective in reducing menstrual pain.

A meta-analysis of randomised controlled trials found that behaviour modification techniques, eg pain management training and relaxation plus biofeedback, may help with pain but the evidence is limited and the results not conclusive.10

The evidence regarding acupuncture, spine manipulation, fish oil and herbal

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**Figure 1.** Treatment pathway for women presenting with dysmenorrhoea in primary care

Patient history and examination

- No pelvic pathology suspected or detected
  - Requires contraception
    - COC
    - NSAID
  - Relief
  - No relief
    - Combined COC + NSAID
    - No relief
      - Refer to gynaecologist

- Suspected secondary dysmenorrhoea
  - Pelvic ultrasound scan
    - Significant pathology
      - No relief
      - Refer to gynaecologist

- No significant pathology

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medicine is inconclusive due to poor-quality data and therefore these cannot be recommended.\textsuperscript{11}

**When to refer**

The detection of significant pelvic pathology that is refractory to first- and second-line treatment options should prompt referral to secondary care where definitive, often surgical, treatment can be discussed for endometriosis, adenomyosis and fibroids.

It is reported that 50–70 per cent of teenagers who do not respond to medical treatments with NSAIDs and the COC have pelvic endometriosis,\textsuperscript{12} and such patients will benefit from specialist review.

**References**


**Declaration of interests**

None to declare.

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