

Transdermal patch

Oestradiol/norethisterone

50 mcg/140 mcg,
50 mcg/250 mcg

Estalis
Continuous

Side effects of therapy¹⁵

In the first 2–3 months, the woman may experience oestrogenic side effects, but these usually resolve or stabilise. Starting with a lower dose may minimise these side effects.

Premenstrual syndrome (in 15%)

Action: decrease progestogen dose *or* change to alternative progestogen

Nausea and breast symptoms

Cause: initial sensitivity to oestrogen

Action: reduce oestrogen dose, consider SERM if breast symptoms

Bleeding problems

Issue: Heavy bleeding

Action: decrease oestrogen

Issue: Unscheduled vaginal bleeding

Action: increase progestogen, consider LNG-IUD or SERM

Unscheduled vaginal bleeding occurring 3 months after initiating therapy requires formal investigation.

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Duration of treatment¹⁶

Recent guidelines published by the International Menopause Society recommend that there should be no mandatory limit to the duration of MHT.

Women who are prescribed MHT should be reviewed at least annually to check on its efficacy and side effects, with treatment tailored accordingly. The mode of delivery and the type of MHT should be adjusted according to age and circumstance.

Provided contraindications do not emerge, women can continue MHT as long as it addresses therapeutic goals, symptoms and quality of life.

Vaginal dryness¹²

While vasomotor symptoms improve over time in the majority of women, genitourinary symptoms generally do not. The first-line therapy is a non-hormonal lubricant such as Replens or K-Y gel. If these are ineffective, topical low-dose vaginal oestrogen preparations can be useful, for example:

oestrogen cream or pessary (e.g. Ovestin, Vagifem) intravaginally (inserted 1–1.5 inches), daily at bedtime for 2–3 weeks, then once or twice weekly for maintenance.

Topical oestrogen therapy is the preferred option for those women whose menopausal symptoms are limited to vaginal dryness and dyspareunia. Systemic absorption of oestrogen can occur and safety cannot be assured for women with contraindications to MHT. CO₂ Fractional Laser is an alternative treatment available for women with contraindications to topical oestrogen or for whom topical treatments have proved insufficient.

Non-hormonal therapy regimens

Lifestyle changes

Discuss triggers for hot flushes that might be avoidable, including spicy food, alcohol, coffee and emotional stressors. It is advisable to wear loose-fitting clothes and dress in layers.

Medical therapy

Non-hormonal, medical options for hot flushes include gabapentinoids, clonidine, oxybutynin and antidepressants. The front-line treatments are the SSRIs and SNRIs, for example:¹²

paroxetine 10 mg (o) daily increasing up to 20 mg daily after 1 week
or

venlafaxine 37.5 mg (o) daily, increasing to 75 mg

Complementary therapy

Options include black cohosh, red clover, soy products and other phytoestrogens (plants containing oestrogen-like compounds). Black cohosh has been linked to rare cases of abnormal liver function, hepatitis and liver failure.

The National Prescribing Service concluded that:

most complementary medicine has little evidence of efficacy and poor-quality safety data. Anecdotal evidence is particularly unreliable as hot flushes improve by up to 60% with placebo, partly due to natural fluctuation in symptoms^{17,18}

Bioidenticals

These are mixtures of hormones prepared by compounding chemists and supplied as lozenges, troches and creams. There is inadequate data to show that these are effective or safe.

Premature ovarian insufficiency¹⁹

Premature ovarian insufficiency (POI) is defined as a disorder in ovarian function in any woman before the age of 40 years, irrespective of the cause. It occurs spontaneously in 1% of women before the age of 40.

Causes and associations:

- idiopathic (most common)
- genetic (10%)
 - monosomy X (Turner syndrome)
 - fragile X mutation
- iatrogenic, e.g. ovarian surgery, chemotherapy, radiotherapy
- autoimmune associations (20%), e.g. coeliac disease, diabetes, Addison disease
- infection, e.g. mumps, TB, malaria, shigella
- metabolic disease, e.g. galactosaemia

Investigation is appropriate with FSH and oestradiol levels.

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Untreated POI is associated with increased incidence of osteoporosis, heart disease, cognitive impairment and premature death. Vasomotor symptoms may be more severe in premature menopause.

The cornerstone of treatment is MHT until the median age of menopause.

When to refer

- Symptoms insufficiently controlled with MHT
- Severe symptoms when there are contraindications to MHT, especially breast cancer and history of thrombosis
- Side effects of MHT that are not corrected by routine measures

Practice tips

- Careful pretreatment assessment is important.
- Encourage conservative management with an emphasis on lifestyle if symptoms

are mild.

- Ensure the patient is informed and accepts both benefits and risks.
- Individualise hormonal therapy.
- The prime treatment for an oestrogen-deficiency disorder is oestrogen.
- Use oestrogen-only therapy for women without a uterus.
- If a uterus is present, give combined oestrogen-progestogen therapy. A SERM is a new alternative to progestogen.
- Use cyclical MHT in perimenopausal women and continuous MHT in postmenopausal women.
- Always start with a low dose of oestrogen.
- Allow about 6 months to stabilise with MHT.
- Yearly follow-up is advised.
- Problematic loss of libido can be treated with tibolone or testosterone.
- Oestrogen deficiency causes vaginal dryness, which can be treated with topical oestrogen therapy.

Patient education resource

Hand-out sheet from *Murtagh's Patient Education* 8th edition:

- Menopause

Resources

The British Menopause Society: www.thebms.org.uk

The Australian Menopause Society: www.menopause.org.au

Jean Hailes Foundation: www.jeanhailes.org.au

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98 Vaginal discharge

In all cases of abnormal vaginal discharge consider the possibility of the sexually transmitted infections.

DR STELLA HELEY, VICTORIAN CYTOLOGY SERVICE, 2001

Vaginal discharge is a common complaint seen by family physicians, yet it is often difficult to solve, especially if it is recurrent or persistent. Women may complain of an increase in the amount of discharge, a change in the consistency or colour and the presence of an offensive odour. It is important to make a proper diagnosis, to differentiate between normal (physiological) and pathological discharge and to be aware of the considerable variation in secretion of vaginal fluid.

This variation extends to different age groups, with microbial causes less likely in prepubertal girls and the elderly, who more often present with dermatoses and symptoms related to reduced vaginal oestrogen.

The differential diagnoses should include consideration of normal discharge, vaginal candidiasis, bacterial vaginosis (BV), STIs, foreign body, vulval dermatoses, atrophic vaginitis and genital tract malignancy.

A diagnostic approach

A summary of the diagnostic strategy model is presented in TABLE 98.1 .

Table 98.1 Vaginal discharge: diagnostic strategy model

Probability diagnosis

Normal physiological discharge

Vaginitis:

- candidiasis
- bacterial vaginosis

Serious disorders not to be missed

Neoplasia:

- cancer
- fistulas

STIs/PID:

- *Chlamydia trachomatis*
- *Neisseria gonorrhoeae*
- *Mycoplasma genitalium*
- Herpes simplex—types 1 and 2

Sexual abuse, esp. children

Tampon toxic shock syndrome (staphylococcal infection)

Ectopic pregnancy ('prune juice' discharge)

Pitfalls (often missed)

Atrophic vaginitis

Contact dermatitis (e.g. intravaginal pessaries and creams)

Retained foreign objects (e.g. tampons)

Erosive lichen planus

Desquamative inflammatory vaginitis

Latex allergy

Herpes simplex virus (if causes cervicitis)

Threadworms

Seven masquerades checklist

Diabetes

Drugs

Is the patient trying to tell me something?

Needs careful consideration; possible sexual dysfunction.

Probability diagnosis

The most common causes of vaginal discharge are physiological discharge, vulvovaginal candidiasis and bacterial vaginosis.

Physiological discharge

Normal physiological discharge is usually milky-white or clear mucoid and originates from a combination of the following sources:

- cervical mucus (secretions from cervical glands)

- vaginal secretion (transudate through vaginal mucosa)
- vaginal squamous epithelial cells (desquamation)
- cervical columnar epithelial cells
- resident commensal bacteria

The predominant bacterial flora are lactobacilli, which produce lactic acid from glucose derived from the epithelial cells. The lactic acid keeps the vaginal pH acidic (<4.7). Other commensal bacteria include staphylococci, diphtheroids and streptococci.

With physiological discharge there is usually no odour or pruritus.

In addition, the egg-white discharge accompanying ovulation may be noted. Normal Page 1114 discharge usually shows on underwear by the end of the day. Clear or white, it oxidises to a yellow or brown on contact with air. It is often increased in pregnancy and during sexual arousal. Women using the combined oral contraceptive pill may notice less discharge.

Management is largely based on reassurance and explanation.

Important causative organisms

Vulvovaginal candidiasis is caused by an overgrowth of yeasts, usually *Candida albicans*, or less commonly other species such as *Candida glabrata*, *Candida tropicalis* and *Candida krusei*.¹ Bacterial vaginosis is a polymicrobial condition characterised by changes in the normal vaginal flora, with a reduction in key *Lactobacillus* species and high concentrations of anaerobic bacteria such as *Gardnerella vaginalis*.² *Trichomonas vaginalis* is of high prevalence in some remote Aboriginal and Torres Strait Islander communities. The comparable features are outlined in TABLE 98.2 .

Table 98.2 Characteristics of discharge for important causes of abnormal vaginal discharge

Infective organism	Colour	Consistency	Odour	pH (normal 4–4.7)	Associated symptoms
<i>Candida albicans</i>	White	Thick, lumpy (cottage cheese)	None	<4.5	Itch, soreness, redness
<i>Trichomonas vaginalis</i>	Yellow-green	Bubbly, profuse (mucopurulent)	Malodorous, fishy	5–6	Soreness, vulvitis
Bacterial	White	Watery,	Malodorous,	5–6	Irritation

vaginosis	or grey	profuse, bubbly, homogenous	fishy	(sometimes
Normal discharge	Clear– white	Varies with cycle	None	<4.5



Source: Reproduced with permission from Weisberg E. Wet film examination. Aust Fam Physician, 1991; 20: 291–4.

Serious disorders not to be missed

The ‘not to be missed’ group includes cancer of the vagina, cervix or uterus and STIs, including PID caused by *Chlamydia trachomatis*, *Neisseria gonorrhoeae* and *Mycoplasma genitalium*. Vaginal discharge is the most common presenting symptom of these STIs in women; however, they are commonly asymptomatic. Benign and malignant neoplasia anywhere in the genital tract may produce a discharge. Usually it is watery and pink or bloodstained.

Cervical screening co-test (Human papillomavirus test and liquid-based cytology) should be performed in patients with unexplained, persistent or bloodstained discharge.

Inspection should include vigilance for fistulas that may be associated with malignancy, inflammation (e.g. Crohn disease) or post-radiation.

Pitfalls

It is common to overlook contact dermatitis caused by topical preparations. Apart from the vaginal tampon, which may be retained (knowingly or otherwise), there is a variety of preparations that can induce a sensitivity reaction. These include deodorant soaps and sprays and spermicidal creams. Ironically, the various preparations used to treat the vaginitis may cause a chemical reaction. Common vaginal allergens and irritants are listed in TABLE 98.3 .

Table 98.3 Common vaginal allergens and irritants⁴

Vaginal allergens	Vaginal irritants
<ul style="list-style-type: none"> • Antifungal creams • Benzocaine • Chlorhexidine • Clothing dyes • Condoms, diaphragms • Spermicides, lubricants • Neomycin • Perfumes, deodorants • Preservatives—parabens, 	<ul style="list-style-type: none"> • Soap, shampoo, gels, bath oils, bubble bath, overzealous skin cleansing • Douches • Occlusive clothing, G-strings • Sanitary pads and liners • Perfumed toilet paper, wet wipes • Sweat • Hair removal products • Lubricants, spermicides, antifungal

ethylenediamine, propylene glycol <ul style="list-style-type: none"> • Semen • Tea-tree oil 	<ul style="list-style-type: none"> creams • Incontinence • Laundry detergents/fabric softeners • Pool/spa chemicals
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Source: Reproduced with permission from Boerma C, Wray L. Vaginal discharge: misconceptions, causes and treatments. Medicine Today, 2020; 21(2): 39–44.

Seven masquerades checklist

Of this group, diabetes mellitus leading to recurrent ‘thrush’ and drugs causing a local sensitivity have to be considered (see TABLE 98.1). Use of sodium-glucose cotransporter-2 (SGLT2) inhibitors for type 2 diabetes is associated with glycosuria, which can lead to recurrent and persistent *Candida*.⁴

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Psychogenic considerations

This question needs to be answered, especially if the discharge is normal. The problem could be related to sexual dysfunction or it may reflect a problematic relationship, and the issue may need to be explored diplomatically. Vaginal discharge is an embarrassing problem for the patient and any discussion needs to be handled thoroughly and sensitively.

The clinical approach

History

The history is important and should include:

- nature of discharge: colour, odour, quantity
- onset and duration, relation to menstrual cycle
- contraceptive use, chance of pregnancy, condom use
- irritation or itch and location
- personal or family history of atopy
- associated dyspareunia
- pelvic or abdominal pain
- sexual history: STI risk factors, previous STIs

- use of chemicals, such as soaps, deodorants, pessaries and douches
- pregnancy possibility
- drug therapy (e.g. antibiotics, oral or topical corticosteroids, SGLT2 inhibitors)
- associated medical conditions (e.g. diabetes, Crohn disease)
- urinary symptoms (frequency, dysuria, incontinence)

Examination

When performing intimate examinations, always offer an observer and advise that examination can be stopped at any time the patient wishes. Inspection in good light includes viewing the vulva, introitus, urethra, vagina and cervix. Check the vulva for erythema, excoriation, lichenification, linear fissures, ulceration and atrophic changes.

Speculum examination is essential to accurately assess the discharge and view cervix and vaginal walls. During speculum examination, look for the discharge and specific problems such as polyps, warts, uterine or vaginal wall prolapses or fistulas. A mucopurulent discharge appearing from the endocervix may be the clue to an STI such as *Chlamydia* or *N. gonorrhoea*.

Consider bimanual pelvic examination if there is pelvic pain or deep dyspareunia, checking for adnexal, uterine and cervical motion tenderness and any abnormal pelvic masses.⁴

Pitfalls to keep in mind include:

- A retained tampon may be missed in the posterior fornix, so the speculum should slide directly along the posterior wall of the vagina.
- *Candida* infection may not show the characteristic discharge.
- The ‘strawberry vagina’ of *Trichomonas* is uncommon and bubbles may not be seen.

Investigations¹

- High vaginal swab for microscopy and culture
for *Candida* species, bacterial vaginosis
- High vaginal swab for STIs *Chlamydia trichomatis*, *N. gonorrhoea* and *Mycoplasma genitalium* NAAT (i.e. PCR)
consider *Trichomonas vaginalis* NAAT if patient from endemic region
- pH test of vaginal discharge
use paper with a narrow range of pH 4–7

result can be altered by semen, blood, cervical secretions and lubricating jelly

- Amine or ‘whiff’ test for BV:

add a drop of 10% KOH to vaginal secretions smeared on glass slide, positive with release of fishy odour

while a useful bedside test, this is now rarely performed as potassium hydroxide is a caustic agent

the discharge of BV often has a characteristic amine or fishy odour which is easily recognised by the patient and the clinician

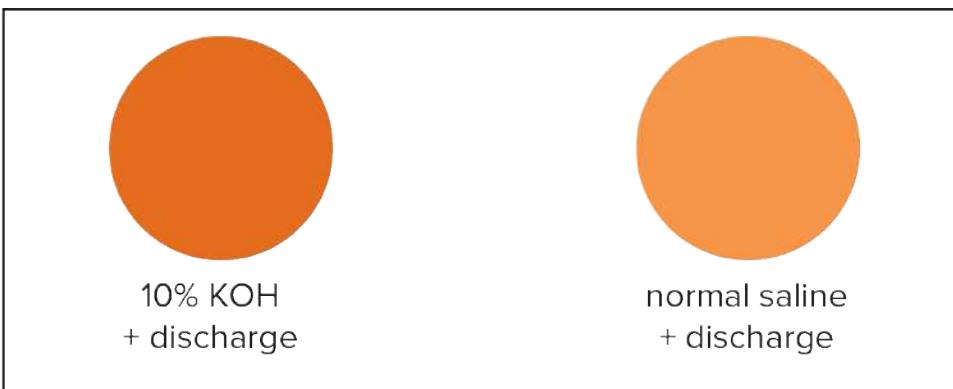
- Wet film microscopy of a drop of vaginal secretions (if microscope available)
- Consider PCR for herpes simplex virus if no other explanation

Preparation of a wet film

This very useful bedside test is no longer commonly performed as most GPs do not have onsite access to microscopy, but can be performed at the laboratory from a vaginal swab.

To make a wet film preparation³ (see FIG. 98.1), place one drop of normal saline (preferably warm) on one end of an ordinary slide and one drop of 10% KOH on the other half of the slide. A sample of the discharge needs to be taken with a swab stick, either directly from the posterior fornix of the vagina or from discharge that has collected on the posterior blade of the speculum during the vaginal examination. A small amount of the discharge is mixed separately with both the normal saline drop and the KOH drop. A cover slip is placed over each preparation. The slide is examined under low power with the light microscope to get an overall impression, and under high power to determine the presence of lactobacilli, polymorphs, trichomonads, spores, clue cells and hyphae.

A summary of various findings on wet film examination is presented in TABLE 98.4 . Page 1116
Lactobacilli are long, thin Gram-positive rods; clue cells are vaginal epithelial cells that have bacteria attached so that the cytoplasm appears granular and often the entire border is obscured. They are a feature of bacterial vaginosis. Trichomonads are about the same size as polymorphs; to distinguish between the two, one needs to see the movement of the trichomonad and the beating of its flagella under high power of the microscope. Warming the slide will often precipitate movement.



Examine for:

- | | |
|--------------------------|-----------------------|
| 1 epithelial cell | 4 trichomonads |
| 2 polymorph | 5 clue cells |
| 3 lactobacilli | |

FIGURE 98.1 Wet film method

Table 98.4 Wet film examination

	Lactobacilli	Polymorphs	Epithelial cells	Clue cells	Other
Normal	+	None or occasional	+	-	
Candidiasis	+	None or occasional	+	-	Spores/hyphae
Trichomoniasis	Absent or scant	Numerous	+	-	Trichomonads
Bacterial vaginosis	Absent or scant	Numerous	+	2–50%	



Source: Reproduced with permission from Weisberg E. Wet film examination. Aust Fam Physician, 1991; 20: 291–4.

Refer to [FIGURE 98.2](#).

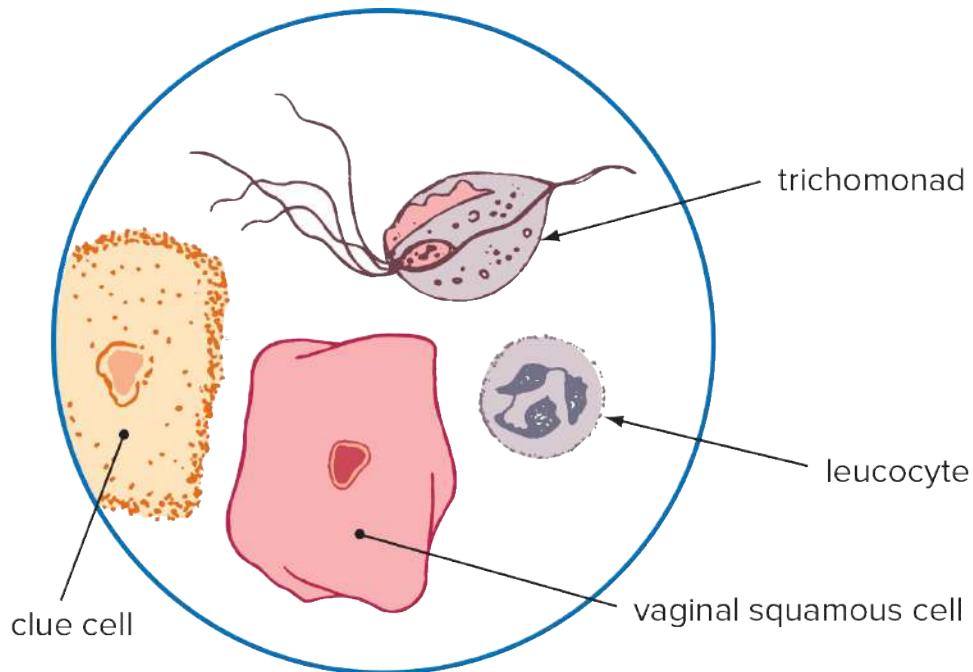


FIGURE 98.2 Relative sizes of various cells or organisms as seen in a wet smear

Vaginal discharge in children⁵

Most newborn girls have some mucoid white vaginal discharge. This is normal and usually disappears by 3 months of age. From 3 months of age to puberty, vaginal discharge is usually minimal. Vulvovaginitis is the most common gynaecological condition of childhood, the causal factors being the normal thin mucosa of the prepubescent state, moisture and irritants.

If discharge is profuse or offensive, take an introital swab, which may reveal organisms such as group A *Streptococcus*, *Haemophilus* and *Gardnerella*. If presence of an intravaginal foreign body needs to be excluded, a rectal examination can be performed. An appropriate antibiotic may help in this instance. *Candida* infection is unusual in children from 2 years until puberty as oestrogenisation of the mucosa is required for candida to be established.

Sexual abuse occasionally presents as vulvovaginitis.

Vaginal discharge in adults

Vaginal discharge in the elderly is most commonly due to atrophic vaginitis. Other causes include foreign bodies, bacterial vaginosis and neoplasia. It is important to exclude malignancy of the uterus, cervix and vagina in the older patient.

Vulvovaginal candidiasis does not occur in healthy, non-diabetic women who have not been

taking antibiotics and lack oestrogen. However, it can occur in women using menopausal hormone therapy (MHT), SGLT2 inhibitors and topical oestrogen therapy. Women who are using oestrogen should stop treatment and treat for chronic vulvovaginal candidiasis until symptoms resolve. It may then be appropriate to recommence oestrogen therapy at a lower dose or continue the usual dose, but with intermittent treatment for *Candida*.⁶

⌚ Atrophic vaginitis

In the absence of oestrogen stimulation, the vaginal and vulval tissues begin to shrink and become thin and dry. This renders the vagina more susceptible to bacterial attack because of the loss of vaginal acidity. Atrophic vaginitis is also seen in postnatal breastfeeding women. Rarely, severe atrophic changes can occur with very haemorrhagic vaginal walls and heavy discharge:

- yellowish, non-offensive discharge
- tenderness and dyspareunia
- spotting or bleeding with coitus
- the vagina may be reddened with superficial haemorrhagic areas

Treatment

oestrogen cream or pessary (e.g. Ovestin, Vagifem Low) daily at bedtime for 2–3 weeks, then once or twice weekly
or
zinc and castor oil soothing cream

Note: Perform a careful speculum examination.

⌚ Vulvovaginal candidiasis

Candida species are commensal organisms of the gastrointestinal and genital tract. Most cases of candidal vulvovaginitis are infrequent episodes resulting from sporadic increases in vaginal candida. It occurs when the vagina is exposed to oestrogen and is especially common in women aged 20–30 years and during pregnancy. *Candida* affects 70–75% of women at least once in their lifetime. It is not sexually transmissible, although sexual intercourse may be a trigger. Recurrent candidal vulvovaginitis is defined as four or more acute episodes per year.

Some 10–20% of women may be colonised with candida without signs or symptoms. Treatment is not indicated for these women.

Clinical features

- Intense vaginal and vulval pruritus
- Vulval soreness

- Vulval fissures
- Vulvovaginal erythema (brick red)
- Vaginal excoriation and oedema
- White, curd-like discharge (see FIG. 98.3)
- Superficial dyspareunia
- Dysuria

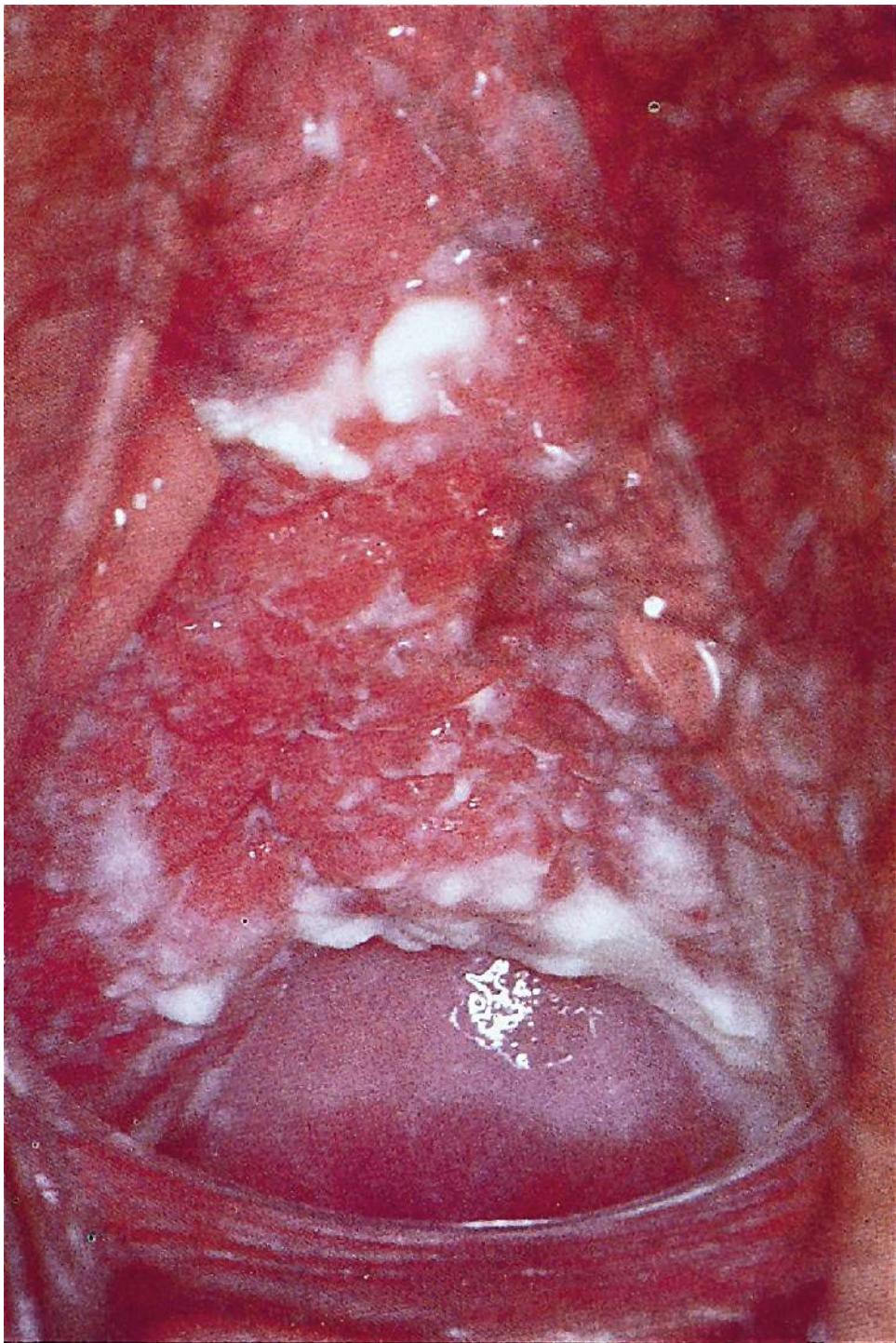


FIGURE 98.3 Vaginal candidiasis showing typical adherent, thick, milky-white vaginal discharge

Factors predisposing to vaginal candidiasis⁷

Endogenous

- Diabetes mellitus
- Pregnancy
- Immune deficiency, e.g. HIV

Exogenous

- Combined oral contraceptives (but cessation of the OCP does not usually improve candidiasis)
- MHT or topical oestrogen
- Antibiotics
- Corticosteroid therapy
- Immunosuppressants
- SGLT2 inhibitors
- IUD
- Tight-fitting jeans
- Nylon underwear, tight-fitting jeans
- Wet bathing suit

Recurrent vulvovaginal candidiasis

Recurrent vulvovaginal candida (VVC) is due to a hypersensitivity response to commensal candida organisms and swabs can be negative. Low vaginal and vulval swabs have higher rates of detection of *Candida*. Postcoital penile erythema can be seen in 20% of male partners of women with untreated VVC.⁸

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Treatment^{6,9}

Before starting treatment, take a swab to confirm the diagnosis and determine the species of *Candida* and susceptibility to antifungal agents. For the first episode of candidiasis, it is appropriate to select one of the range of vaginal azole therapies (clotrimazole, miconazole) for 1–7 days, depending on strength. There appears to be no significant difference between azoles. Nystatin is best reserved for recurrent cases or if there is local reaction to the azoles. Oral fluconazole 150 mg orally as a single stat dose is equivalent in efficacy to intravaginal therapy.

Creams can be applied to the vulva if there are vulval symptoms. Combining azole therapy with

a topical corticosteroid such as 1% hydrocortisone may also be useful.

Recommended initial regimen¹⁰

vaginal azole creams (e.g. clotrimazole 10% vaginal cream), 1 applicatorful intravaginally at night, as stat dose or 3–7 day course
or
fluconazole 150 mg (o) as a single dose

For recurrent infections:

episodic treatment with longer course of vaginal azole cream

and/or

fluconazole 150 mg (o), for 3 doses, 3 days apart, followed by maintenance with fluconazole 100 mg (o), weekly for 6 months

Chronic vulvovaginal candidiasis¹¹

Chronic vulvovaginal candidiasis is defined as >4 episodes of microbiologically proven candida in one year.⁸ It affects about 5% of patients with *Candida*.

Patients with chronic vulvovaginal candidiasis are a less well-recognised and managed group. The pathogenesis is unknown but may relate to an exaggerated immunological response to *Candida*. Viewing the condition as a hypersensitivity reaction to the presence of *Candida*, rather than infection, helps understanding and guides treatment. It may start at any age from menarche onwards and ceases at menopause provided MHT is not used.

The most common complaint is chronic itch with dyspareunia and pain. Vaginal discharge is common but may be absent and the typical cottage cheese exudate is not seen. Symptoms are often worse in the premenstrual week and improve during menses. Initial response to azole treatment is common but there is gradual reduction in efficacy of topical therapy. Almost 95% of cases are caused by *C. albicans*.

When taking the swab, a low vaginal swab usually has a higher yield than a high vaginal swab. False negatives are common.

Treatment⁶

fluconazole 50 mg (o) once daily
or
itraconazole 100 mg (o) once daily

The time to achieve remission varies from 2 weeks to 6 months. Review treatment after 3 months. A mild topical steroid is also appropriate to use in addition if vulval irritation is a prominent symptom.

Note: There is no evidence to support routine screening or treatment of asymptomatic partners.¹ If a male partner is symptomatic (usually balanitis in an uncircumcised male), treat with clotrimazole 1% + hydrocortisone 1% topically, 12 hourly until 2 weeks after symptoms resolve.

*Candida glabrata*⁶

A significant number of cases of vulvovaginal candidiasis are due to non-albicans species of *Candida*. *Candida glabrata* is the commonest non-albicans species, which exhibits reduced susceptibility to azoles. In resistant infections, use boric acid 600 mg (in a gelatin capsule) intravaginally at bedtime for 14 days. Do not use in pregnancy.

General advice to patients with vaginal candidiasis^{6,12}

- Bathe the genital area with water and dry gently but thoroughly after showering or bathing.
- No soaps or body washes.
- Wear loose-fitting, cotton underwear.
- Avoid wearing pantyhose, tight jeans or tight underwear.
- Do not use vaginal douches, powders or deodorants or take bubble baths.

¶ *Trichomonas vaginalis*¹⁰

This flagellated protozoan, which is thought to originate in the bowel, infects the vagina, Skene ducts and lower urinary tract in women and the lower genitourinary tract in men. It is easily transmitted through sexual intercourse. In Australia, *Trichomonas* is more common in older women and women from regional and remote areas, especially Aboriginal and Torres Strait Islander. If untreated, the infection is cleared more easily in men. NAAT test is available on vaginal swab and first-pass urine.

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Clinical features

- Profuse, thin discharge (grey to yellow-green in colour) (see FIG. 98.4)
- Small bubbles may be seen in 20–30%
- Vulval itch
- Malodorous discharge
- Dyspareunia
- Diffuse erythema of cervix and vaginal walls

- Characteristic punctate appearance on cervix—strawberry cervix

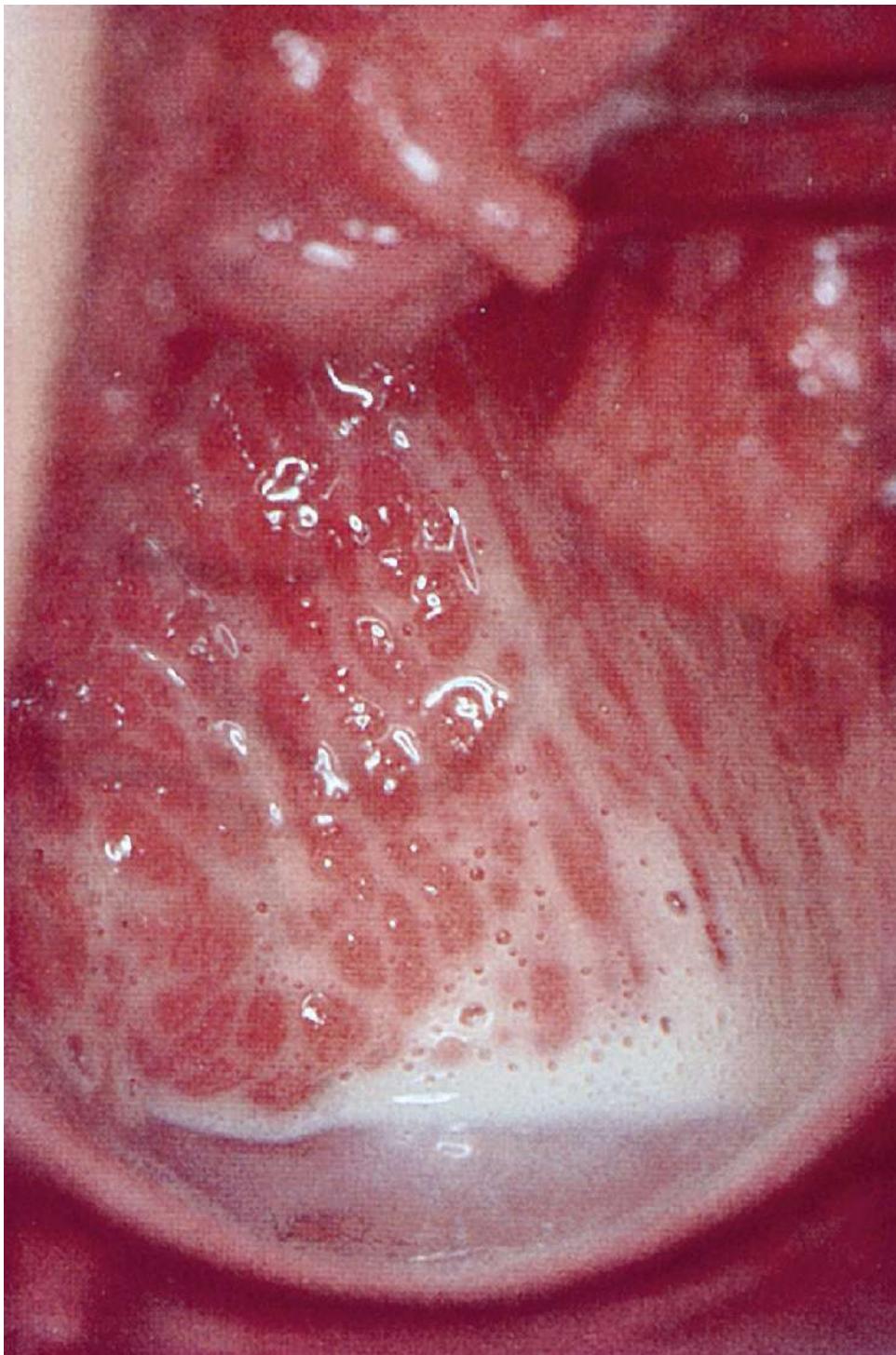


FIGURE 98.4 *Trichomonas vaginitis* showing profuse, thin, greyish discharge with erythema of the vaginal walls

Treatment

oral metronidazole 2 g as a single dose (preferable) or 400 mg bd for 5 days (if recurrent)
or
tinidazole 2 g as a single dose

- Sexual partners must be treated simultaneously
- No sexual contact is advised for 7 days after treatment for patient and partner

There is some metronidazole resistance in Australia and this is usually managed with higher doses and longer duration of treatment. If *Trichomonas* is persisting after treatment of the patient and sexual partner(s), seek advice from your local Sexual Health service or Infectious Diseases physician.

Bacterial vaginosis

Bacterial vaginosis is a clinical entity of mixed aetiology characterised by the replacement of the normal vaginal microflora (chiefly *Lactobacillus*) with a mixed flora (referred to as polymicrobial clinical syndrome) consisting of *Gardnerella vaginalis*, other anaerobes such as *Atopobium vaginae*, *Mobiluncus* species and *Mycoplasma hominis*. This accounts for the alkalinity of the vaginal pH.

Clinical features

- A white or grey, homogenous discharge (see FIG. 98.5)
- Malodorous
- No obvious vulvitis or vaginitis
- Liberates an amine-like, fishy odour on admixture of 10% KOH (the amine whiff test)
- Clue cells on wet preparation
- ± Dyspareunia and dysuria
- ± Pruritus (uncommon)

Note. About 50% of patients are asymptomatic.



FIGURE 98.5 Bacterial vaginosis

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Treatment⁶

If symptomatic:

metronidazole 400 mg (o) bd for 7 days

or

0.75% vaginal gel applied at bedtime for 5 days

Clindamycin 300 mg (o) bd for 7 days or 2% clindamycin cream, 1 applicatorful at bedtime for 7 nights, can be used for resistant infections or during pregnancy. Treating male partners has not been recommended but is currently being studied in women with recurrent BV. Consider screening and treating female sexual partners.²

Group B *Streptococcus* vaginosis

Group B *Streptococcus* (*S. agalactiae*) is a commensal in up to 30% of healthy humans. It is a problem if detected in pregnant women because of the risk of serious infection in the neonate that is delivered vaginally. Other than in pregnancy, it is generally an incidental finding and should be ignored.¹³

Rarely, Group B *Streptococcus* produces a symptomatic vulvovaginitis with an irritating discharge. However, other causes of vulvovaginitis are more common and should be considered. Suitable treatment for symptomatic patients includes clindamycin 2% vaginal cream, 1 applicatorful intravaginally at bedtime for 14 nights, and phenoxymethypenicillin 500 mg orally, bd for 10 days.

Retained vaginal tampon

A retained tampon, which may be impacted and cannot be removed by the patient, is usually associated with an extremely offensive vaginal discharge. Its removal can cause considerable embarrassment to both patient and doctor. Removal of the retained tampon will lead to resolution of the discharge and no other specific treatment is indicated.

Methods of removal

Using good vision the tampon is seized with a pair of sponge-holding forceps and quickly immersed under water without releasing the forceps. A bowl of water (an old plastic ice-cream container is suitable) is kept as close to the introitus as possible. This results in minimal malodour. The tampon and water are immediately flushed down the toilet if the toilet system can accommodate tampons. An alternative method is to grasp the tampon with a gloved hand and quickly peel the glove over the tampon for disposal.

Tampon toxic shock syndrome: staphylococcal infection

This rare, dramatic condition is caused by the production of staphylococcal exotoxin associated with tampon use for menstrual protection. The syndrome usually begins within 5 days of the onset of the period.

The clinical features include sudden onset fever, vomiting and diarrhoea, muscle aches and pains, skin erythema, hypotension progressing to confusion, stupor and sometimes death.

Management

Active treatment depends on the severity of the illness. Cultures should be taken from the vagina, cervix, perineum and nasopharynx. The patient should be referred to a major centre if 'shock' develops. Otherwise the vagina must be emptied, ensuring there is not a forgotten tampon, cleaned with a povidone-iodine solution tds for 2 days, and flucloxacillin or vancomycin

antibiotics administered.

Prevention

- Good general hygiene with care in handling and inserting the tampons.
- Change the tampon 3–4 times a day.
- Consider using an external pad at night during sleep.

When to refer

- Evidence of sexual abuse in children (to an experienced sexual assault centre)
- Recurrent, recalcitrant infections
- Presence of cancer or fistula
- Staphylococcal toxic shock syndrome

Patient education resources

Hand-out sheets from *Murtagh's Patient Education* 8th edition:

- Vaginal thrush
- Vulvovaginal irritation in children

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99 Vulvar disorders

Genital skin is very sensitive. This sensitive organ needs protection from chemical and physical damage. The genital area is also affected by the way you feel and symptoms can appear worse at times of stress.

EXTRACT FROM PATIENT INFORMATION SHEET, ‘THE DO’S AND DON’TS OF GENITAL HYGIENE’,
DERMATOLOGY/VULVAL DISEASES CLINIC, MERCY HOSPITAL FOR WOMEN, MELBOURNE

The dermatoses are the predominant cause of vulvar problems and this chapter focuses mainly on the important female genital skin conditions.

The vulva is that part of the female external genitalia lying posterior to the mons pubis, comprising the labia majora, labia minora, clitoris, vestibule of the vagina, vaginal opening and bulbs of the vestibule.¹

The vaginal vestibule is an almond-shaped opening between the lines of attachment of the labia minora. The clitoris marks the superior angle and the fourchette the inferior boundary. It is approximately 4–5 cm long and 2 cm in width.¹ The four main structures that open into the vestibule are the urethra, vagina and the two secretory ducts of the Bartholin glands. The surface is composed of delicate, stratified squamous epithelium.

The genital area is affected by dermatoses found elsewhere on the skin but management is rendered more complex by the sensitivity and thinness of the skin, and a tendency to superinfection, in addition to the psychological problems, including the often-resultant dyspareunia.

The vulval area, which is innervated by nerves arising from L1–2 and S2–4 nerve roots, is sensitive to noxious stimuli but the vagina is not sensitive to pain.² Topical creams, soaps, perfumes and other toilet products irritate the vulva easily—it is an area prone to contact dermatitis.

Clinical manifestations of vulvar disorders include itching, pain, irritation, white mucosal patches, lichenification, erosions and intertrigo³ (see the diagnostic strategy model presented in TABLE 99.1).

Table 99.1 Vulvar discomfort/irritation: diagnostic strategy model

Probability diagnosis

Atopic dermatitis
Chronic vulvovaginal candidiasis
Irritant contact dermatitis (e.g. moisture with urinary incontinence or faecal soiling, panty liners, douches, bubble baths)
Allergic contact dermatitis (e.g. latex, topical antimicrobials)
Atrophic vaginitis
Trauma—tears from vaginal intercourse, vaginal delivery

Serious disorders not to be missed

Neoplasia:

- vulval intraepithelial neoplasia
- squamous cell carcinoma
- Paget disease
- melanoma

Pitfalls (often missed)

Provoked vestibulodynia

Psoriasis

Lichen planus

Lichen sclerosus

Lichen simplex chronicus

Aphthous ulcers

Dysaesthetic vulvodynia

Trichomonal vaginitis

Herpes simplex virus

Infestations:

- threadworms
- pubic lice
- scabies

Seven masquerades list

Depression

Diabetes

Drugs

Spinal dysfunction (dysaesthesia)

UTI

IS THE PATIENT TRYING TO TELL ME SOMETHING?

Common: psychosexual problems.

Key facts and checkpoints

- If a dermatosis is suspected, check the skin on the body.
- Provoked vestibulodynia (vulvar vestibular syndrome) is a distressing, reasonably common condition that gives superficial dyspareunia. Diagnosis is by an abnormal response to light touch, even by a cotton bud.
- The vestibule can exhibit pearly papules (the equivalent of pearly penile papules) that look like tiny regular warts—they are normal.
- Approximately 20% of women carry *Candida albicans* as genital flora but less than 5% suffer from repeated or intractable clinical candidiasis.
- Not all itching and burning of the vulva and vagina is *Candida* infection. Swabs should be taken for diagnosis before committing to treatment empirically.
- The cause of vulvar irritation may be multifactorial (e.g. atopic dermatitis or *Candida* with irritant or allergic contact dermatitis from applications).
- Be alert for malignant melanoma and be aware that an area of benign pigmentation with well-demarcated edges and bluish discolouration called vulvar melanosis can develop.

Dermatitis

As expected, the various common forms of dermatitis collectively represent the prime cause of a pruritic irritating vulvar skin disorder. They classically present with itching, burning and soreness initiated by scratching leading to white plaques of lichen simplex chronicus. The manifestations can vary from symptoms without a rash to a poorly defined rash without the above symptoms.

The causes of vulvar dermatitis are:

- atopic dermatitis
- irritant contact dermatitis (common irritants listed in TABLE 98.3)
- allergic contact dermatitis (common allergens listed in TABLE 98.3)

- seborrhoeic dermatitis
- corticosteroid-induced dermatitis
- psoriasis

Principles of management⁴

- Take an appropriate history, including atopy, skin diseases.
- Check allergens and irritants (e.g. panty liners, soap, bubble bath, perfumed toilet paper, douches, perfumes, condoms, tea-tree oil).
- Check for heat and friction (e.g. synthetic or tight underwear, tight denim jeans, sporting costumes/tights, sweating, vigorous activity—bicycle riding).
- Check gynae-urological history (e.g. oestrogen status, faecal or urinary incontinence, vaginal discharge, ‘thrush’).
- Check psychosexual history (e.g. dyspareunia, partnership issues, depression).
- Carefully inspect the vulva plus the rest of the skin, scalp and nails. Look for lichenification (see TABLE 99.2).
- Appropriate investigations: vaginal swab (?*Candida albicans*), cervical screening test if due, perhaps patch testing and vulval biopsy for a rare, premalignant or suspected malignant condition, especially if thickening or textural change.

Table 99.2 Causes of common vulvar signs

White patches	Lichen simplex chronicus (lichenification) Lichen sclerosus Vitiligo Vulval intraepithelial neoplasia
Erosions and ulcers	Herpes simplex or zoster Lichen planus Apthous ulcers Desquamative inflammatory vulvovaginitis Contact dermatitis Fixed drug reaction Excoriated scabies

	Crohn disease of the vulva
Intertrigo	Atopic dermatitis
	<i>Candida albicans</i>
	Seborrhoeic dermatitis
	Tinea
	Erythrasma
	Psoriasis

Treatment^{3,4}

- Provide supportive education and counselling.
- Correct underlying factors (e.g. tight clothes, incontinence, anal discharge, overused topical medications and cosmetics).
- Treat any secondary infection.
- Use aqueous cream moisturiser as cleanser.
- Start with potent topical corticosteroid (e.g. methylprednisolone aceponate 0.1% ointment topically until symptoms resolve) and follow with 1% hydrocortisone to prevent recurrence. Longer treatments such as 2–4 weeks are often required. Review treatment after 2 weeks.⁵

Psoriasis⁶

Psoriasis can affect the genital or perianal area (especially the natal cleft) and appears as a glazed, beefy red plaque without the classic scale seen elsewhere. Psoriasis does not involve the vagina. There may be minimal or no sign of psoriasis on the skin of the body.

The main symptom is itching. It is usual to take swabs to rule out infection.

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Treatment⁶

- Avoid irritants and use a soap substitute.
- First apply a moderately potent topical steroid (e.g. methylprednisolone aceponate 0.1%)—continue until resolution of rash. 2–3 weeks is usually sufficient.
- Second (when controlled) apply LPC 2% in aqueous cream daily. If not tolerated, use ichthammol 1% in aqueous cream daily.

Note: Maintenance with topical steroids—hydrocortisone 1% or resume potent agent for a flare-up.

Lichen planus^{7,8,9}

Genital lichen planus is relatively uncommon but may affect both the vulva and vagina and can occur in association with oral lesions. It can also occur on any part of the skin, causing itchy skin rashes and nail dystrophy. Symptoms include irritation, painful erosions and ulcers involving the vulva and vagina, dyspareunia and heavy but non-offensive vaginal discharge. Dyspareunia is usually severe.

Examination often reveals non-specific findings, ranging from subtle erythema to frank ulceration. Erosion of the mucosal surface of the introitus is a hallmark feature and may extend into the vagina and involve the cervix. If untreated, loss of the labia minora is typical and the clitoris may be buried by scar tissue.

Differential diagnoses of vulvar lichen planus include other causes of desquamative and erosive lesions, such as lichen sclerosus, pemphigus vulgaris, bullous and cicatricial pemphigoid and erythema multiforme.

A diagnostic biopsy is often difficult to obtain. Treatment is difficult and specialist input is required. Potent topical steroids provide symptomatic relief but oral steroid therapy may be required. There is a variety of treatment trials, including topical cyclosporin or oral methotrexate.

Lichen sclerosus^{4,8,9,10}

Also known as lichen sclerosus et atrophicus (see FIG. 99.1), this chronic inflammatory dermatosis of unknown aetiology (perhaps an autoimmune disorder) presents as well-defined white, finely wrinkled plaques and almost exclusively affects the anogenital skin, although can occur anywhere on the body. Lichen sclerosus spares the vagina.

Lichen sclerosus can occur at any age and 10% of cases are seen in prepubertal children. It is 10 times more common in women than men and when asymptomatic is often diagnosed in peri- and postmenopausal women attending for cervical screening. It can run a chronic and complicated course, with development of squamous cell carcinoma (SCC) in about 2–6% a concern. The differential diagnosis is atrophic vaginitis. There can be a family history of autoimmune disease and screening, in particular for autoimmune thyroiditis is recommended.



FIGURE 99.1 Lichen sclerosus et atrophicus in a 55-year-old woman. This shows white sclerotic plaques and epidermal atrophy.



DxT genital pruritus + soreness + white wrinkled plaques → lichen sclerosus

Clinical features

- Bimodal peak: prepubertal girls, perimenopause
- Mean age of onset in adult women is 50 years
- Pruritus is main symptom

- Soreness, burning, dyspareunia

Examination

- Variable distribution
- White wrinkled plaques
- Purpuric and ulcerated areas (due to scratching)
- May show ‘figure of 8’ pallor or skin in perianal and perivaginal area
- Fissures
- Hyperkeratotic plaques which may have variable pigmentation

Complications if untreated

- Vulval atrophy and labial (even clitoral hood) fusion, introital stenosis
- Lifetime risk of SCC 2–6%

Management⁵

- Best in consultation with a dermatologist.
- Confirm diagnosis by biopsy (tend to avoid in children).
- Potent topical corticosteroid ointment (e.g. betamethasone dipropionate 0.05% in optimised vehicle) applied bd until itching ceases, then daily⁸—show patients where to apply, using a mirror).
- Goal of treatment is to return the skin to a normal colour and texture, which can take up to 6 months and unlikely if scarring has already occurred.
- A lower dose topical corticosteroid can be used for maintenance as soon as the white areas have resolved.
- Long-term treatment is required in 85% of postmenopausal women.
- Lifelong surveillance with 6-monthly check-up.
- A similar topical program is used in children.
- Surgery is reserved for complications or SCC.

Infections

⌚ Chronic vulvovaginal candidiasis

This is different from acute candidiasis and remains difficult to treat because there may be a localised hypersensitivity to *Candida* (see [CHAPTER 98](#)).

Clinical features

- Chronic vulval itch–scratch cycle
- Burning, swelling—premenstrual exacerbation
- Dyspareunia
- Discharge not usually present
- Aggravated by courses of systemic antibiotics

Management⁵

- Swab—low vaginal—with each suspected episode, especially if discharge
- Aim for symptom remission with continuous antifungal treatment:
 - daily oral antifungals (monitor liver function tests) until symptoms clear—fluconazole 50 mg/day, or itraconazole 100 mg/day (symptoms may remit in 2 weeks but often requires 6 months)
- Relieve itching with hydrocortisone 1% (do not use stronger preparations)
- Use nystatin in pregnancy

⌚ Tinea

Tinea causes an annular spreading rash with an active border that spreads from the labia to the thigh (see tinea cruris, [CHAPTER 112](#)). A problem is the development of tinea incognito from the application of topical steroids. This lacks central clearing but the active margin can be seen. Skin scrapings are necessary for diagnosis. Treatment is with a topical imidazole (avoid nystatin) or oral agents if resistant or extensive.

⌚ Pruritus vulvae

The causes of an itchy vulva to consider are:¹¹

- candidiasis (rash, cottage cheese discharge)
- irritant dermatitis
 - especially if excessive sweating and tight clothing
 - sensitivity to soaps, bubble baths, cosmetics and contraceptive agents
 - overzealous washing or wiping with toilet paper
- local skin conditions:
 - psoriasis
 - dermatitis/eczema
- post-anal conditions (e.g. haemorrhoids)
- infestations:
 - threadworms (children)
 - scabies
 - pediculosis pubis
- infections (other than candidiasis):

Trichomonas

genital herpes, genital warts

- menopause: due to oestrogen deficiency (atrophic vaginitis)
- topical antihistamines
- vulval carcinoma
- psychological disorder (e.g. psychosexual problem, STI phobia)

If the labia minora are involved, consider lichen sclerosus. Treatment is according to the causation.

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Management

This depends on the primary cause (e.g. candidiasis, incontinence), which should be treated effectively.

General measures (advice to patients)³

- Avoid overzealous washing.
- Take showers of no more than 5 minutes duration.
- Avoid having water too hot (lukewarm preferable).
- Use a soap substitute (e.g. aqueous cream, Cetaphil lotion) and wash it off with water only.
- Use soap alternatives (e.g. Dove, Neutrogena) for rest of body.
- Pat the skin dry after showering (avoid harsh drying).
- Do not wear tight pantyhose, tight jeans or tight underwear, or use tampons.
- Do not use vaginal douches, powders or deodorants.
- After the toilet, wipe gently with a soft, non-coloured, non-perfumed toilet paper.
- Apply a good moisturiser (e.g. Hydraderm or 5% peanut oil in aqueous cream).

Treatment

- For pruritus, apply cool moisturising cream (kept in refrigerator) when there is an urge to scratch.
- A zinc-based barrier cream or petroleum jelly may be appropriate if there is moisture irritation.
- Apply prescribed steroid ointment to the rash.

Vulvovaginitis in prepubertal girls

Vulvovaginitis is the most common gynaecological disorder of childhood. It can affect women of any age but is particularly common in girls, especially between the ages of 2 and 8 years. It is a type of dermatitis of the vulva and the vagina.

Mild vulvovaginitis

Symptoms of this very common problem include:

- discomfort and soreness
- vulval itching
- redness

- discharge—usually a slight yellow discharge on the underwear
- dysuria

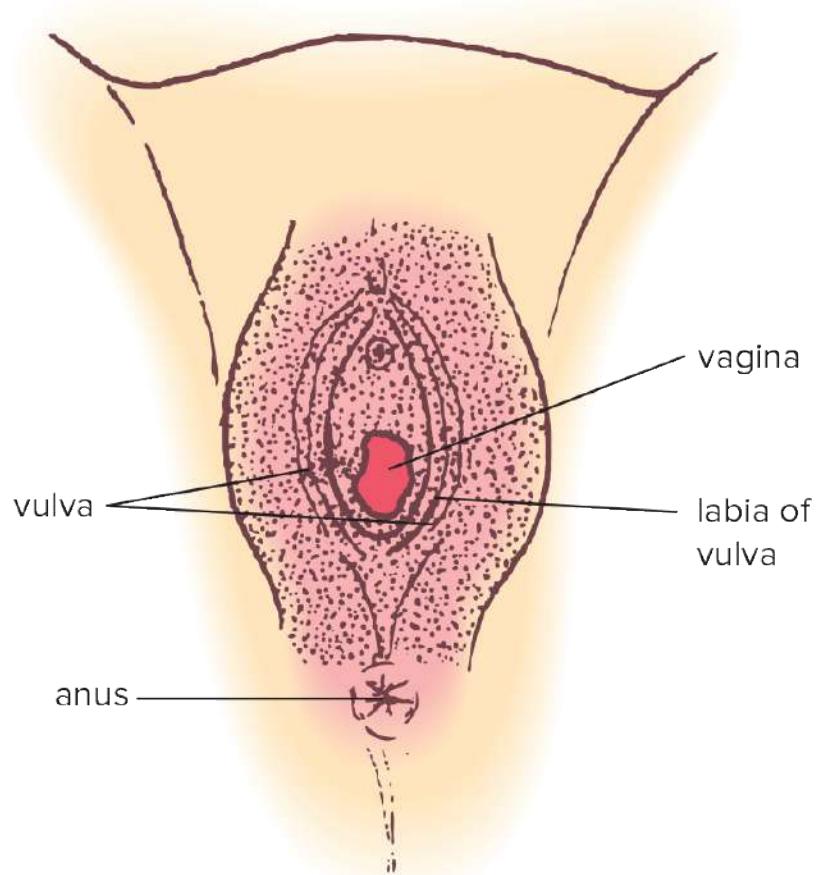


FIGURE 99.2 Typical area of inflammation of vulvovaginitis in girls

It is important not to confuse it with a urinary infection when the child is clearly uncomfortable due to stinging on urination.

The cause is usually due to a low-grade inflammation in an area with a possible underlying dermatological disorder such as atopic dermatitis, psoriasis or lichen sclerosus, leading to sensitivity to various irritants such as soaps and urine.

Affected girls are often ‘atopic’.

The causal factors include:

- thin vaginal mucosa (the normal prepubescent state)
- irritation from synthetic-fibre underwear, tight clothing, wet bathers, obesity

- over- or under-wiping after passing urine
- frequent self-handling, especially with irritation
- irritants (soap residue, bubble baths, antiseptics, chlorinated water)
- ‘sandbox’ vaginitis: girls sitting and playing in sand or dirt may develop irritation from particulate matter trapped in the vagina

Management

- Explanation and reassurance to parents
- Avoidance of the above causal factors, especially wet bathers, synthetic underwear, bubble baths, perfumed soaps and getting overweight
- Attention to good, supervised toileting practice
- Attention to bathing and drying

It is worth soaking the child in a warm shallow bath containing half a cup of white vinegar.

Alternatively, bicarbonate of soda (10 g/10 L water) can be used.

Soothing creams such as soft paraffin creams and nappy rash creams such as zinc and castor oil cream should be applied three times daily as a short-term measure. If a powder is required, use zinc oxide (e.g. Curash). Consider an oestrogen cream.

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Moderate/persistent vulvovaginitis

The symptoms may be more intense with increased itching, burning and discharge.

Important causes to consider¹²

- ‘Sandbox’ vaginitis
- Skin disorders, especially atopic dermatitis and lichen sclerosus (look for skin problems elsewhere on body)
- Foreign body: consider if a bloody, malodorous vaginal discharge
- Candidiasis—uncommon in prepubertal girls but consider if antibiotic therapy or possibility of diabetes
- Sexual abuse (uncommon but must not be missed)
- Pinworm infestation (*Enterobius*) (see FIG. 129.6 in CHAPTER 129)

- Sexually transmissible organisms—usually postpubertal

Examination

A careful general examination should be performed only if considered appropriate. In infants, the best examination method is to place the child on her parent's lap with the legs held well abducted. Lateral traction applied to the labia allows the hymen orifice to be examined. Look for vulval or vaginal infection.

An older child can be placed in one of two suitable positions:

1. supine, legs apart in a frog-leg position, with bottom of feet touching (generally preferred)
2. prone, knee/chest position. This allows a better view of the hymenal orifice but many children do not like this position

A rectal examination may be performed to try to feel for suspected foreign bodies in the vagina.

Taking a swab¹¹

If the discharge is profuse and offensive, take an introital swab (do not take a vaginal swab). Infective vulvovaginitis in girls is often due to a group A beta-haemolytic *Streptococcus*.

Treat with an appropriate antibiotic.

Treatment of dermatitis

Most cases of vulval dermatitis will respond to short courses of 1% hydrocortisone ointment or cream, provided aggravating factors are removed.

§ Labial adhesions (labial agglutination)

Labial fusion is caused by adhesions considered to be acquired from vulvovaginitis after which sometimes the medial edges of the labia minora become adherent. The adhesions are certainly not present at birth. Labial fusion is regarded as a normal variant and usually resolves spontaneously in late childhood. Provided the child is able to void easily, no treatment other than reassurance is needed.

For significant adhesions, treat as follows:

- oestrogen cream once a day until resolution (usually 2–6 weeks). Once the fusion has separated, ongoing treatment with soap avoidance, topical lubricants (e.g. Vaseline) and 1% hydrocortisone
- the fusion may re-form and have to be re-treated as necessary

Occasionally, a minor surgical procedure (sometimes under general anaesthetic) to separate the

labial adhesions may be required. However, such measures are not generally recommended.

Vulvodynia

Vulvodynia describes the symptom of pain (burning, rawness or stinging) and discomfort, where no obvious cause can be found. Itch is not a feature. Causes include provoked vestibulodynia (vulvar vestibular syndrome), dysaesthetic vulvodynia and various infections (e.g. herpes simplex virus). Virtually every condition of the vulva can be painful at times; even dermatitis can become painful if scratching or splitting leads to open areas and ulceration.

Provoked vestibulodynia^{2,13}

Definitions

Provoked vestibulodynia Vulvar pain of at least 3 months duration, localised to the vestibule, provoked by touch or sexual activity and occurring in the absence of an identifiable cause.

Vestibular hypersensitivity Severe vulvar or vestibular pain on touch or entry into the vagina.

Provoked vestibulodynia is a chronic pain condition characterised by sensitisation of peripheral and central nociceptive pathways with pain arising due to dysfunctional neuronal activity in the absence of painful stimuli.

Also referred to as vulvar vestibular syndrome (VVS) or vestibulitis, it is a very important disorder for the GP to be aware of in the woman with a typical history of introital dyspareunia. It is a difficult problem to treat. The characteristic feature is severe pain with vestibular touch, including attempted vaginal entry (early dyspareunia). The vestibule is very sensitive, featuring an inappropriate response to light touch. In many instances the cause of the primary condition is not apparent and a history of possible sexual abuse or other psychological provoking factors should be carefully elicited. Some patients can develop the problem after years of pain-free sex.⁷ It is the most common cause of dyspareunia in the premenopausal female.

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Secondary causes include inflammatory triggers such as irritant contact dermatitis and infection. This establishes a conditioned response.

Spontaneous resolution has been reported in up to 50% of cases. Prognosis appears to be reasonably good but depends to some extent on the premorbid traits of the patient.³



DxT young + nulliparous + dyspareunia → provoked vestibulodynia

Clinical features

- Delayed diagnosis (average 2–3 years)⁴
- Sexually active women in 20s and 30s
- Family history
- Pain provoked by intercourse, tampon insertion, tight underwear
- Superficial ‘entry’ dyspareunia
- Sexual dysfunction
- Tender vestibule on pinpoint light pressure
- Erythema (usually minute red spots) around Bartholin duct openings (consider *Candida*)

Diagnosis

Marked tenderness to light touch of the inner vestibule with a cotton bud.

Management¹³

- Investigate and treat if suspected underlying cause
- Patient education, counselling and support
- Multidisciplinary approach often required
- Physiotherapy—rehabilitation of pelvic floor musculature by increasing awareness and increasing elasticity of the tissues of the vaginal opening
- Counselling often beneficial, especially given impact on sexual health and relationships
- Genital skin care
- Encourage use of oil-based lubricants for intercourse
- Application of lignocaine 2% gel or 5% ointment to the vestibule 10–20 minutes before intercourse

Options¹³

- Biofeedback technique

- Tricyclic antidepressants (start low, e.g. amitriptyline 10–20 mg nocte then up to 100 mg—best option)
- Gabapentinoids (e.g. pregabalin starting at 75 mg or, if not tolerated, gabapentin starting at 300 mg)
- Intralesional therapy (no more effective than other treatments):
 - triamcinolone
 - botulinum toxin
- Vestibulectomy (role uncertain and controversial)

Dysaesthetic vulvodynia^{2,14}

The typical patient with this neuropathic pain problem is a middle-aged to elderly woman who presents with a constant burning pain of the labia, which typically builds up during the course of the day. Examination is often unrewarding. The underlying cause may be pudendal neuralgia (may be secondary to pudendal nerve block), referred spinal pain or simply unknown.¹⁵

Herpes simplex infection needs to be excluded.

Treatment options include antidepressants (TCAs and SNRIs), gabapentinoids and pelvic floor physiotherapy.

Bartholin cyst

A Bartholin gland swelling follows obstruction of the duct and presents as a painless vulval swelling at the posterior end of the labia majora, close to the fourchette. A simple, non-infected cyst can be left alone and may resolve spontaneously. If it becomes infected, an abscess may result, causing a painful, tender, red vulval lump. It may resolve with antibiotics or discharge spontaneously. Otherwise, drain and perform a micro and culture. The usual organism is *E. coli*, but STIs should be considered in sexually active women as *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infections can also lead to Bartholin cysts. If the cyst persists and becomes large, a surgical marsupialisation procedure, which allows permanent drainage, can be performed (see FIG. 99.3).

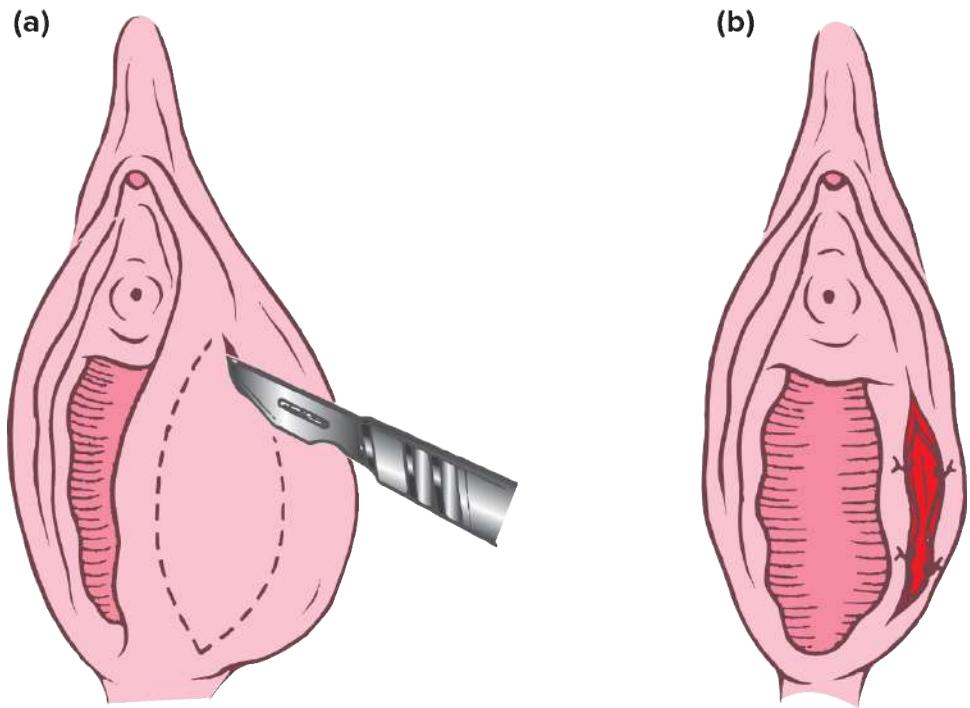


FIGURE 99.3 (a) Bartholin cyst: starting the marsupialisation procedure, (b) postoperative appearance

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Practice tip

- Always biopsy a focal lesion on the vulva⁷

Resources

International Society for the Study of Vulvovaginal Disease: www.issvd.org

Vulval Pain Society: www.vulvalpainsociety.org

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100 Basic antenatal care

*An examiner, no lover of females, thrust a femur into her hand.
‘How many of these have you got?’ he demanded.
‘Five.’
‘How do you come to that conclusion?’ he asked contemptuously.
‘I have two of my own, the one in my hand, and the two of my unborn child.’*

ANONYMOUS ANECDOTE

Pregnancy and childbirth are highly important and emotional events in the lives of women and their families. Their care during and after pregnancy is one of the most satisfying aspects of the work of the family doctor, who generally chooses breadth of knowledge rather than depth of knowledge. The changing trend towards specialisation has meant a change of role for the city practitioner and now shared obstetric care is a commonly practised routine. The quality of care that can be given in family practice is often superior to that offered in the hospital antenatal clinic, partly because of the continuing personal care offered by the family doctor.¹

Antenatal care presents preventive medicine opportunities par excellence and is the ideal time to develop an optimal therapeutic relationship with the expectant mother and her family.

The information presented here is a basis for the shared care model where family doctors share antenatal care with consultants and have a ready referral strategy for high-risk pregnancies.

The aim of antenatal care is to monitor the pregnancy, assess risk to the mother and fetus, address any risks that arise and ultimately improve outcomes for mothers and babies.

Preconception care

Preconception care is to be commended to the woman contemplating pregnancy and her family doctor is well placed to provide general health care and screening as well as genetic counselling.

General advice should include optimal nutrition and diet, weight control, regular exercise and discouragement of smoking, alcohol and drugs.

Ask if there are chronic conditions such as diabetes, thyroid disease, hypertension, epilepsy and thrombophilia, ensuring current management is optimal. Take a menstrual history and identify

women who may be at risk of fertility problems, such as those with endometriosis or oligomenorrhoea.

Folic acid (0.5 mg tablets daily) is recommended to commence at least 1 month prior to conception, continuing for the first trimester. The dose is 5 mg/day for women at increased risk, such as those on anticonvulsant medication, those with a past or family history of neural tube defects, a BMI >30, pre-pregnancy diabetes, 5-methyltetrahydrofolate deficiency or a risk of malabsorption.² This often comes combined with an iodine supplement (150 mcg daily), which is also recommended for women who are pregnant, breastfeeding or considering pregnancy. Examination should include blood pressure, cardiac status, breast examination and cervical screening test (if due).

Rubella and varicella serology should be estimated and, if required, immunisation 4 weeks prior to conception should be initiated. Rubella and varicella vaccines are both live vaccines and are not recommended in early pregnancy.

Vaccinations to consider are:

- MMR (measles, mumps, rubella)
- varicella
- hepatitis B
- diphtheria, tetanus, pertussis
- influenza
- COVID-19

Genetic counselling is based on past obstetric or family history, advanced maternal age, consanguinity or high-risk racial groups (e.g. for thalassaemia or sickle-cell anaemia). Screening for carrier detection should be discussed; the most common panel of tests includes cystic fibrosis, spinal muscular atrophy and fragile X syndrome.

Provide education on the average time to conceive, with the woman's age being the most important factor. The average woman aged between 25 and 35 years will have a 20% chance of conception each menstrual cycle. This is higher for younger women and lower for older, with a significant drop between the ages of 38 and 42. Advise women under 35 to seek help if they have been trying to conceive for 12 months without success, and sooner (after 6 months) for older women.

Checkpoint summary: advice to patients

- Stop smoking, recreational drugs and excessive alcohol use.

- Review current medications with your GP.
- Follow a healthy diet.
- Aim for a healthy weight.
- Take folic acid and iodine at least one month prior to conception.
- Have a good exercise routine.
- Ensure rubella and varicella immunity.
- Have a regular breast check.
- Ensure cervical screening is up to date.
- Eat freshly cooked and prepared food.
- Have a regular dental check.
- Consider genetic and family history.
- Consider health insurance cover.
- Consider and discuss future family planning.

The initial visit

The patient usually presents after a home pregnancy test has revealed a positive result. Calculate the expected due date if the woman knows the first day of her last menstrual period and the usual length of her cycle. The use of ultrasonography from about 7 weeks gestation can confirm the due date.

History checkpoints³

- Confirm pregnancy by menstrual history and by urine or serum human chorionic gonadotrophin (hCG), if necessary
- Offer ultrasound scan for gestational age assessment from 7 weeks
- Previous obstetric history:
 - number of pregnancies and outcomes
 - mode of previous deliveries, length and gestation, birthweight of each baby

complications; gestational diabetes, pre-eclampsia, cervical incompetence, fetal or neonatal abnormalities or death; pre-term or growth-restricted infants

- Medical history:

check for past evidence of diabetes, hypertension, cardiac, thyroid or kidney disease, iron deficiency, PCOS, STIs, mental illness and up-to-date cervical screening

- Family history:

features to consider are multiple pregnancies, hypertension and diabetes

- Psychosocial history:

this is very important and includes an assessment of the attitude towards the pregnancy and possible intimate partner violence

- Drug history:

includes smoking, alcohol, illicit drugs, OTC drugs and prescribed drugs

- Important points to consider:

establish date of confinement (see obstetric calendar in FIG. 100.1)

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The calculation is made from the first day of the last menstrual period																																			
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Or: (approximately) subtract 3 from months and add 7 to days e.g. 19/8/89
+ 7 - 3
26/5/90 Or: Naegele's rule—add 7 days, 9 months





FIGURE 100.1 Obstetric calendar to determine expected due date

Examination

During the initial examination, assess the patient's general physical and mental status. Examine the following:

- basic parameters: height, weight (calculate BMI), blood pressure, heart rate, urinalysis (protein and glucose). A woman is hypertensive if the systolic BP $\geq 140\text{mmHg}$ and/or diastolic BP is $\geq 90\text{ mmHg}$ ³
- chest: heart sounds, breath sounds and breast examination (flag women with flat or inverted nipples that may require extra assistance when establishing breastfeeding)
- abdomen: palpate for uterine size and listen to fetal heart (if indicated)

Perform a cervical screening test if due.

Antenatal screening

TABLE 100.1 reflects the recommendations of the RANZ College of Obstetricians and Gynaecologists.⁴

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Table 100.1 Routine antenatal screening^{3,5}

Recommended	Consider
First visit	
Full blood count	Serum ferritin
Blood group and antibodies	Haemoglobin electrophoresis
Rubella antibody status	Fasting glucose or HbA1c (if high risk for gestational diabetes)
HBV and HCV serology	Vitamin D
HIV serology (after counselling)	TSH
Syphilis serology	CMV serology (if frequent contact with large numbers of very young children)
MSU for asymptomatic	Chlamydia first pass urine or vaginal

bacteriuria	swab (if <30 yrs)
Cervical screening (if due)	Gonorrhoea (if risk factors)

Discuss:

Combined first trimester screening—11–13 weeks	Non-invasive prenatal testing (NIPT)—from 10 weeks
Fetal anomaly scan—18–20 weeks	

Subsequent visits

Oral glucose tolerance test (OGTT)—26–29 weeks	Early OGTT—14–20 weeks (if high risk for gestational diabetes)
Rhesus antibodies (Rh-negative mother)—28 & 34 weeks	
Hb & red cell antibodies—28, 36 weeks	
Genital swab for group B <i>Streptococcus</i> (GBS)—36 weeks	Fetal ultrasound—36 weeks (sometimes performed to confirm presentation & assess fetal well-being)

Combined first trimester screening test³

- Maternal serum screening⁷ (11–13 weeks):
 - Free β-hCG
 - PAPP-A
- Combined with nuchal translucency (i.e. nuchal fold thickness), enabling the risk of trisomy 13, 18 and 21 to be defined and compared with age-related risk
- Results may indicate very low risk (<1 in 1000), low risk (1 in 301–1000), increased risk (1 in 50–300) or high risk (>1 in 50)
- Has a sensitivity of 85% and specificity of 95%
- Risk of pre-eclampsia may be assessed and aspirin prophylaxis offered if high risk

Non-invasive prenatal testing (NIPT)

An emerging practice is the use of cell-free DNA (cfDNA) testing which is also referred to as

non-invasive prenatal testing (NIPT). It is performed on a maternal blood sample taken from 10 weeks gestation and allows for accurate measurement of aneuploidy of chromosomes 13, 18 and 21 (sensitivity and specificity of 99%), in addition to sex chromosomes if requested. For women who receive an increased combined first trimester screening risk result, cfDNA may be an appropriate alternative prior to amniocentesis. If the cfDNA test reveals a high-risk result, amniocentesis or chorionic villus biopsy would be required for confirmation.

Visits during pregnancy

The box below is a summary of standard antenatal practice.

A common routine schedule (if all appears normal)

- Initial in first trimester: by 10 weeks
- Up to 28 weeks: every 4–6 weeks
- Up to 36 weeks: every 2–4 weeks
- 36 weeks–delivery: every 1–2 weeks

Guidelines for screening for gestational diabetes (GDM)

- Fasting glucose or HbA1C at first visit—if previous gestational diabetes or high risk
- OGTT at 14–20 weeks—if above + normal initial test
- OGTT 26–29 weeks—for all other patients

Immunisations during pregnancy

- Seasonal influenza vaccine is recommended

- Pertussis booster is recommended between 20 and 32 weeks gestation

Plan visits according to need and circumstances in a flexible way. For a woman's first pregnancy without complications, a schedule of 10 visits should be adequate. For subsequent uncomplicated pregnancies, a schedule of 7 visits should be adequate.

For each visit, record:

- weight (to calculate gain)
- blood pressure
- uterine size/fundal height
- fetal heart (usually audible with stethoscope at 25 weeks and definitely by 28 weeks): best to have Doppler, which can detect the fetal heart from 18–20 weeks³
- fetal movements (if present)
- lie, presentation and position of fetus (third trimester)
- presence of any oedema
- urinalysis (protein and glucose—most clinics perform only if there is proteinuria at the first visit or if signs of hypertension or pre-eclampsia develop). See [TABLE 100.2](#) .

Table 100.2 Causes of proteinuria in pregnancy

Urinary tract infection

Contamination from vaginal discharge

Pre-eclampsia toxæmia

Underlying chronic kidney disease

Table 100.3 Risk factors for gestational diabetes mellitus (GDM)

High risk (1 or more)	Previous GDM BMI >35 Maternal age >40 years Family history of diabetes (1st degree relative with diabetes or sister with GDM)
--------------------------	--

PCOS with hyperandrogenism (clinical or biochemical)
Indian Subcontinent ethnicity
Previous baby >4000 g
Medications, e.g. oral corticosteroids, antipsychotics

Moderate risk (2 or more = high risk)	Maternal age 35–39 years BMI 25–35 Asian, Aboriginal, Torres Strait Islander, Maori, Pacific Islander, Middle Eastern or non-white African ethnicity Polycystic ovarian syndrome (androgens not elevated)
--	--

Record day of first fetal movements (i.e. ‘quickenings’) (ask patient to write down the dates):

- primigravida: 17–20 weeks
- multigravida: 16–18 weeks

Fundal height

The relative heights of the uterus fundus are shown in [FIGURE 100.2](#). The uterus is a pelvic organ until the 12th week of pregnancy, after which it can be palpated abdominally. At about 20–22 weeks it has reached the level of the umbilicus and reaches the xiphisternum between 36 and 40 weeks.

From 24 weeks, measure the fundal height from the pubic symphysis and the distance [Page 1134](#) in centimeters should match the number of weeks gestation. Refer for ultrasound if the fundal height is ≤ 3 cm than expected.⁴

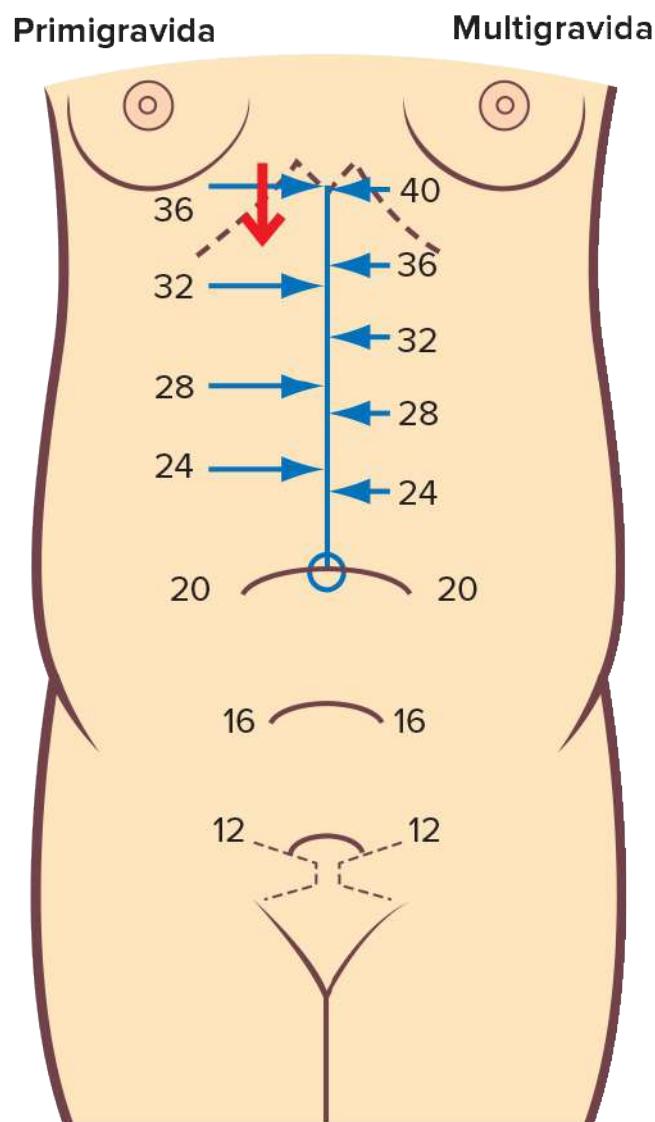


FIGURE 100.2 Fundal height in normal pregnancy (in weeks); the height of the fundus is a guide to the period of gestation. Nulliparas experience lightening at about 36 weeks when the fundal height usually reverts to the 34-week level.

Management of specific issues

Nutrition advice

A healthy diet is very important and should contain at least the following daily allowances:

- 1. Eat most:

- fruit and vegetables (at least 4 serves)
 - cereals and bread (4–6 serves)
- }. Eat moderately:
- dairy products—3 cups (600 mL) of milk or equivalent in yoghurt or cheese
 - lean meat, poultry or fish—1 or 2 serves (at least 2 serves of red meat per week)
- }. Eat least:
- sugar and refined carbohydrates (e.g. sweets, cakes, biscuits, soft drinks)
 - polyunsaturated margarine, butter, oil and cream

Bran with cereal helps prevent constipation of pregnancy.

If the ideal diet is followed, iron, vitamin and calcium supplements should not be necessary, although most patients prefer to take OTC vitamin and mineral preparations (e.g. iron, folic acid, multivitamins, iodine). Do not diet to lose weight. It is usual to gain about 12 kg during pregnancy. Less weight gain is recommended for women who are overweight pre-conception.

Healthy environment²

It is appropriate to discuss measures to avoid the following infections and toxins known to be harmful in pregnancy.

Listeria

- Infection in pregnancy has a fetal mortality of 30–50%
- Practise good personal and food hygiene; wash hands and use fresh ingredients
- Wash raw vegetables, fruit and herbs thoroughly prior to consumption
- Avoid unpasteurised dairy products, soft cheeses, cold meats, pâté, raw seafood, raw egg and chilled ready-to-eat foods
- Cook meat thoroughly

Mercury

- 2–3 serves/week of seafood is considered safe
- Avoid regular consumption of larger fish with higher mercury levels, e.g. orange roughy, shark (flake), marlin or swordfish

Toxoplasmosis

- Delegate cleaning of cat litter trays to others; if not possible, gloves should be worn during cleaning and hands washed well afterwards
- Ensure litter trays are emptied daily and regularly disinfected with boiling water

Cytomegalovirus and parvovirus B19 (fifth disease)

- Women who work with children or in the health care sector can further reduce risk by frequent handwashing and using gloves when changing nappies

Smoking, alcohol and other drugs

Encourage patients to stop all recreational drugs, alcohol and tobacco. Caffeine reduction is advised, with some guidelines recommending complete avoidance, while others allow for a maximum of 200 mg/day, i.e. one cup of strong espresso-style coffee, or four cups of medium-strength tea.

Other household members should also stop smoking as passive smoking may be harmful to mother and child. There is convincing evidence that promotion of smoking cessation programs during pregnancy is effective, with improved outcomes, including reduction in preterm birth rates and low birthweight rate.⁷ Nicotine replacement therapy (NRT) should be recommended to all nicotine-dependent women who have been unable to quit using non-pharmacological approaches.

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We do not know a safe lower limit of alcohol consumption and fetal alcohol syndrome is a significant cause of mental impairment, so it is best to abstain.

Mothers taking illicit drugs, especially opioids and amphetamines, require identification, counselling, treatment and surveillance for the neonatal abstinence syndrome in the newborn child.

Breastfeeding

Mothers-to-be should be encouraged to breastfeed; however, their choice should be respected if that is not their wish. Give advice and relevant literature. They can be directed to a local nursing mothers' group for support and guidance if necessary.

Antenatal classes

Referral to therapists conducting such classes can provide advice and supervision on antenatal exercises, relaxation skills, pain relief in labour, infant care and breastfeeding. Enrolment with the partner is recommended.

Psychosocial and emotional stress

Antenatal visits provide an ideal opportunity to become acquainted with the patient and explore issues that help her. Provide whole-person understanding with appropriate help and reassurance where necessary. Areas to be explored include support systems, attitudes of patient and partner to the pregnancy, issues in the relationship such as domestic violence, sexuality, expectation of labour and delivery, financial and housing issues, and attitudes of parents and in-laws.

Mental health

The effect that pregnancy can have on mental health is variable and women with pre-existing mental illness should receive optimal support and close surveillance. Many treatments for mental illness can be safely used in pregnancy and women should be referred promptly if symptoms deteriorate.

Weight gain in pregnancy

Although a standard weight gain is given as 12 kg over 40 weeks of pregnancy, it is common for some women in Australia to gain up to 20 kg without adverse effects.⁸ Less weight gain is recommended for women who are overweight pre-conception. Dieting to lose weight is not recommended during pregnancy. Encourage sensible weight control.

Normal weight gain is minimal in the first 20 weeks, resulting in a 3 kg weight gain in the first half of pregnancy. From 20 weeks onwards there is an average weight gain of 0.5 kg per week. From 36 weeks the weight gain usually levels off.⁸

Fetal movement chart

If daily fetal movements exceed 10 and the regular pattern has not changed significantly, then usually the fetus is at no risk. However, if the movements drop to fewer than 10 per day, the patient should be referred to hospital for fetal monitoring.

⌚ Vaginal bleeding in early pregnancy⁹

This is a common problem in the first trimester in particular. At least 10% of normal pregnancies will have an episode and about 15% of recognised pregnancies will miscarry. If the bleeding is light to moderate and the pain mild or absent the question is ‘Can a viable pregnancy continue or is there an ectopic pregnancy or a threatened miscarriage?’

- <6 weeks: serial quantitative hCG levels should increase by at least 66% every 2 days (ultrasound usually unhelpful)
 - rises below 66% in 2 days suggest a non-viable pregnancy (consider ectopic)
 - once hCG >1500 IU/L transvaginal ultrasound should be arranged

gestational sac should be visualised once hCG is >1500–2000 IU/L, although variation is common

- 6–8 weeks: ultrasound is used to define an intra-uterine pregnancy and exclude an ectopic. A repeat ultrasound in 1 week may be required if viability is in doubt
- >8 weeks: normal ultrasound is reassuring since miscarriage rate is only 3% unless the amount of intra-uterine blood is large

Note: Rest is not necessary for threatened miscarriage.

Be aware that an incomplete abortion can cause cervical shock (pelvic pain and fainting). Products of conception must be removed from the cervical os.

Anti-D is required only in the event of complete miscarriage.

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Consider the antiphospholipid syndrome for recurrent miscarriage and arrange antibody testing (see CHAPTER 21). Refer to a specialist for full assessment if 3 consecutive miscarriages have occurred.

Nausea and vomiting in pregnancy¹⁰

- Nausea and vomiting occur in more than 50% of women
- Majority of cases disappear by the end of the first trimester
- Mild cases can be dealt with by explanation and reassurance; it is preferable to avoid drug therapy if possible
- Simple measures:

small, frequent meals including ginger up to 1 g daily

dry crackers can be kept by the bed to consume first thing

a fizzy soft drink, especially ginger drinks, may help

ensure adequate hydration, including sucking ice chips and drinking small amounts of fluid

avoid stimuli such as cooking smells

take care with teeth cleaning

rest where possible, especially later in the day, as fatigue often worsens symptoms

- Medication:¹¹

pyridoxine (vitamin B6) 25 mg (half-tablet or full) bd or tds

doxylamine 25 mg tds (often sedating, consider half-tablet at night only)

if still ineffective, add metoclopramide 10 mg tds

if persistent nausea and vomiting, consider ondansetron 4–8 mg bd or tds (limited safety data)

consider treating associated gastro-oesophageal reflux

Hyperemesis gravidarum

This is severe vomiting in pregnancy, which may result in severe fluid and electrolyte depletion. It occurs in about 1 in 100 pregnancies.

Associations

- Normal complication
- Hydatidiform mole
- Multiple pregnancy
- Urinary infection

Management

- Test urine—MCU (microculture of urine); ketones: if +ve, admit to hospital
- Ultrasound examination
- Test electrolytes, urea, LFTs
- Bed rest
- Nil orally
- Fluid and electrolyte replacement
- Pyridoxine and doxylamine as per nausea and vomiting in pregnancy
- Metoclopramide 10 mg IV → 10 mg (o) tds (if necessary); if ineffective, ondansetron 4–8 mg IV 8–12 hourly

Heartburn

Gastro-oesophageal reflux is a major source of discomfort to women in the latter half of pregnancy. Non-pharmacological treatment such as frequent small meals, avoidance of bending

over and elevation of the head of the bed are the mainstays of treatment. Regular use of antacids is effective (e.g. alginate/antacid liquid—Gaviscon, Mylanta Plus—10–20 mL) before meals and at bedtime. H₂-receptor antagonists or PPIs may be necessary and are considered safe.

Cramps

Pregnant women are more prone to cramp. If it develops they should be advised simply to place a pillow at the foot of the bed so that plantar flexion of the feet is avoided during sleep. Prolonged plantar flexion is the basis of the cramps. Quinine, including tonic water, should be avoided. There is no evidence that calcium supplements help cramps during pregnancy.¹²

Varicose veins

Wearing special supportive pantyhose is the most comfortable and practical management, in addition to adequate rest.

Haemorrhoids

Haemorrhoids in the later stages of pregnancy can be very troublesome. Emphasising the importance of a high-fibre diet to ensure regular bowel habits is the best management. Some women are prone to constipation in pregnancy and may require regular laxatives such as lactulose or macrogol powder. Painful haemorrhoids may be eased by the application of ice packs or perhaps haemorrhoidal ointments containing local anaesthetic, which are considered safe.

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Dental hygiene

Dental problems can worsen during pregnancy so special care of teeth and gums, including a visit to the dentist, is appropriate. Continuation of cleaning with a softer brush is recommended.

Back pain

Back pain, especially low back pain, is common during pregnancy and special back care advice can help women manage this problem, which can become debilitating. Physical therapy administered by a skilled therapist can be extremely effective for pregnant patients.

Guidelines for treatment

- Keep mobilisation and manipulation to a minimum.
- Use stretching and mobilisation in preference to manipulation.
- Safeguard the SIJs in the last trimester.

- Encourage active exercises as much as possible.
- Simple paracetamol is appropriate.
- A brace may be of benefit.
- Give trigger-point injections (5–8 mL 1% lignocaine) around the SIJs if necessary.

Pubic symphysitis

Pubic symphysitis is characterised by increasing difficulty sitting, moving, walking, getting in and out of cars and bed. Examination of the pelvis with AP and lateral bony pressure reproduces the pain. Treatment is use of a pelvic support garment, physiotherapy and time. Sleeping with a pillow between the knees and avoiding hip abduction may also be helpful. Most but not all settle after delivery.

Exercise guidelines

Exercise advice depends on the woman's fitness and exercise routine prior to pregnancy. General advice includes:

- exercise at a mild to moderate level only
- avoid overheating and dehydration
- allow for a long warm-up before exercise and a long cool-down
- choose low-impact or water exercise
- stop if there are adverse symptoms (e.g. any pain, bleeding, faintness, undue distress)
- avoid scuba diving and sky diving

Carpal tunnel syndrome

Splinting of the hand and forearm at night might be beneficial. If needed, an injection of corticosteroid into the carpal tunnel can be very effective (check drug category for risk relative to dates). Rarely, operative division of the volar carpal ligament is necessary. Most problems subside following delivery.

Hypotension

This is due to increased peripheral circulation and venous pooling. It is especially common in the first trimester. Advise to avoid standing suddenly and hot baths as these may cause syncope. Fainting may also occur when the woman lies on her back in the latter half of pregnancy (supine hypotension). It is advisable to try to lie on the left side.

Pruritus

Generalised itching (pruritus gravidarum) is usually associated with cholestasis due to oestrogen sensitivity in the third trimester. Order LFTs and, if not elevated, reassure and prescribe a soothing skin preparation (e.g. aqueous cream ± glycerol). Monitor LFTs every 1–2 weeks. If LFTs markedly abnormal or if pruritus is severe, the risk of fetal death is increased and special care and assessment is required.

Obesity⁴

There is a well-documented increased risk of complications for women who are overweight or obese during pregnancy:

- large-for-gestational-age babies
- caesarian section
- stillbirth
- neural tube defects
- hypertension
- pre-eclampsia
- preterm birth
- gestational diabetes
- major depressive disorders

Consider dietitian input to support controlled weight gain for overweight women during pregnancy. A pregnancy weight gain of 5–9 kg is recommended for women with a preconception BMI above 30.

Breathlessness of pregnancy¹³

Consider physiological breathlessness of pregnancy in a woman with unexplained dyspnoea. It starts in the second trimester, is constant and aggravated by exercise and emotional stress. No special treatment is needed or helpful. The breathlessness usually settles 6–8 weeks after delivery.

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Supplements in pregnancy

Iron

Iron is not routinely recommended for pregnant women who are healthy, following an optimal diet and have a normal blood test. Those at risk (e.g. with poor nutrition, vegan diet) will require supplementation.

Folic acid

Folic acid is advised for *all* women contemplating pregnancy, starting about 1 month prior to conception and continuing for the first trimester. Dose: 0.5 mg (o) daily.⁹ In those at risk (as mentioned earlier in the chapter), the dose is 5 mg per day.⁴

Vitamin B12

Vitamin B12 is essential for the developing fetus and if deficiency is known or suspected (e.g. vegetarian/vegan diet), test and give B12 supplementation if deficient.

Iodine

It is recommended, for pregnant and lactating women and those planning a pregnancy, to take 150 mcg of supplementary iodine as soon as possible by using iodised salt for cooking and a multivitamin that includes iodine.

Vitamin D⁴

There may be a case for routine testing but it is advisable to test women who are dark-skinned, veiled and at risk. Recommend supplementation for women with vitamin D levels <50 nmol/L with cholecalciferol 1000–4000 IU daily (depending on severity).

Omega 3

Women who eat very little seafood should consider omega-3 supplementation, which may be obtained from fish oil and some commercially available pregnancy supplements.

Calcium

If the woman avoids dairy in her usual diet and does not consume alternative high-calcium foods, she should take a calcium supplementation of at least 1000 mg per day.

Advice on when to seek medical help

- If contractions, unusual pain or bleeding occur before term
- If the baby is less active than usual: fetal movements should not decrease close to term
- If the membranes rupture (with fluid loss)
- The onset of regular contractions 5–10 minutes apart if >34 weeks gestation but earlier if possible premature labour occurring between 22 and 34 weeks gestation

Patient education resources

Hand-out sheets from *Murtagh's Patient Education* 8th edition:

- About your pregnancy
- Miscarriage
- Pregnancy planning

Resources

NICE: www.nice.org.uk

NHS Fetal Anomaly Screening Programme: www.fetalanomaly.screening.nhs.uk/

The Royal Women's Hospital: www.thewomens.org.au

MotherSafe: www.mothersafe.org.au/

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101 Postnatal care

As concerning the bringing up, nourishment and giving of suckle to the child, it shal be beste that the mother give her child sucke her selfe, for the mother's milk is more convenient and agreeable to the infant than any other woman's or other milke.

THOMAS RAYNALDE, *THE BYRTHE OF MANKYNDE* (1540)

Education for the puerperium and caring for the baby should begin during pregnancy so that a new mother is familiar with the basic principles of motherhood, especially infant feeding.¹ The puerperium is defined as the period of approximately 42 days from the completion of the third stage to the return of the normal physiological state.

It is important to educate postpartum women on care of the baby and breastfeeding, self-care, healing of the genital tract, sexual life and contraception, nutrition and what happens to their bodies and preventive issues. The uterus involutes to non-pregnant size by 6 weeks and the cervical os should be closed by 2–3 weeks post delivery.

Postnatal consultations

The two-week consultation

Mother:

- take history of birth and any perinatal complications
- check blood pressure, weight (BMI)
- assess how she is adjusting to motherhood
- look for signs/symptoms of postpartum depression
- provide encouragement and advice
- check breastfeeding

Baby:

- measure weight, height and head circumference
- routine baby examination by checking the following:
 - fontanelles
 - eyes (observation, corneal reflexes, white pupil)
 - cardiovascular examination
 - femoral pulses
 - hip tests for dislocation
 - testes fully descended
 - genitalia
 - anal region
 - skin
 - reflexes

The six-week consultation

This is basically a repeat of the previous consultation—a checklist is presented in [TABLE 101.1](#) .

Table 101.1 Checklist for postnatal check at 4–6 weeks

Mother

- Enquire about vaginal discharge (lochia) and whether ceased
- Ask about healing of the perineum if vaginal delivery
- Check for any bowel or urinary problems
- Check if breastfeeding and whether there are concerns
- Check abdomen (uterus should be impalpable) and Caesarean wound if present
- Check if intercourse has resumed and whether there are problems or concerns
- Discuss contraception options
- Advise on postnatal exercises
- Discuss adequate diet, rest and personal care
- Check psychological health, consider Edinburgh Postnatal Depression Scale
- Consider pelvic examination, checking the perineum and pelvic floor strength
- Cervical screening test (if due)

Review antenatal screening tests for follow-up action (e.g. rubella booster)

Further follow-up if necessary

Baby

Measure weight, height and head circumference

Routine examination, e.g. check for red reflex, hips, heart sounds, testes in boys

Check growth and feeding

Complete childhood health record

Discuss immunisation schedule with parent/s

Contraception

Lactational amenorrhoea method (LAM) (see [CHAPTER 92](#)) is an effective contraceptive for the first 6 months, but only if the woman remains amenorrhoeic. Because some women ovulate before their period returns, breastfeeding women are usually advised to use an additional method of contraception if they wish to avoid pregnancy.

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Oral contraception

Most progesterone-only contraception (i.e. the etonogestrel implant/Implanon, POP and depot medroxyprogesterone acetate) can be commenced in the immediate postpartum period. The exception is IUDs, which are considered safe from 4 weeks. The POP has been a popular choice for breastfeeding women; however, adherence may be difficult given the strict daily 3-hour timeframe for maximum efficacy.

- The progestogen-only pill (POP or mini-pill)

norethisterone 350 mcg/day

or

levonorgestrel 30 mcg/day

Combined hormonal contraception (COC or contraceptive vaginal ring) can be used from 6 weeks postpartum, even if breastfeeding.

After-pains¹

After-pains, which are more common and most intense after the second and subsequent pregnancies, are characterised by intermittent lower abdominal pains, like period pains, which are often worse during and after feeding in the first 2 weeks. They are caused by oxytocin released from the posterior pituitary, which also causes the milk ejection (let-down) reflex of

nursing. Suspect endometritis if there is offensive lochia, fever and poor involution of uterus.

Treatment, after examination, is reassurance and analgesics in the form of paracetamol every 4 hours for 3 days or as long as necessary.

Breastfeeding problems

Insufficient milk supply

Studies have shown that many women wean because of perceived low milk supply. It is rare that a woman is truly incapable of making sufficient milk for their infant's needs (i.e. 'insufficient glandular tissue').

Factors and events in the very early postnatal period can affect the establishment of maternal breast milk supply, such as separation from the infant (limiting opportunities for skin-to-skin contact), postpartum haemorrhage or factors affecting milk ejection reflex such as pain or stress. Low milk supply can also occur secondary to 'lactation mismanagement' such as insufficient frequency of feeds and poor latch and/or position resulting in inadequate transfer of milk.²

Important factors in establishing breastfeeding:

- 1. positioning and attachment of the baby on the breast—essential for adequate transfer of milk
- 2. the milk ejection reflex
- 3. supply and demand feedback—the more the breasts are emptied, the more milk is produced
- 4. intact milk ducts and sensory nerves
- 5. sufficient glandular breast tissue
- 6. infant being able to feed

Maintenance of breast milk supply can be affected by:

- 1. Maternal factors
 - hydration
 - adequate calorie intake
 - stress
 - physiological diurnal/hormonal variations
 - maternal medical conditions, eg. PCOS, anaemia, thyroid disease

2. Infant factor

individual variation in metabolism

age/size

physiological periods of increased demand relating to growth, development and hydration/climate

pathological causes of increased infant demand such as cardiac, respiratory and metabolic disorders

Signs of low supply include:

- poor infant weight gain
- dark, hard, infrequent stools
- <6 wet nappies per day

Red flag

- Beware of the sleepy baby who does not demand enough and may quietly starve.

It is easy to misinterpret unsettled infant behaviour or fussing at the breast as signs of low breast milk supply. If there is good infant weight gain and urine output, then poor latch and position are more likely to be the cause.

Management

General advice to the mother:

- Try to practise relaxation techniques including conscious relaxation of shoulder muscles during breastfeeds.
- Offer the breast frequently and liberally to infant demand.
- Feed at first signs of baby's readiness to feed.
- Express after feeds if possible, with the aim to upregulate the supply-demand feedback (note this can be very arduous and is not usually feasible for long-term management).
- Make sure to get adequate rest, eat well and drink ample fluids (drink to thirst).

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Lactation stimulation

Lactation can be improved by more frequent breastfeeding and correct position and attachment. Referral to a breastfeeding specialist may be required.

Consider domperidone as a galactagogue for increasing milk supply.

- Domperidone 10 mg (one tablet) tds for 2–4 weeks, reducing slowly once an adequate breast milk supply is established. Women with persistent low milk supply may increase to 20 mg three times a day (maximum 60 mg day)

Note: There is a small risk of prolongation of QT with domperidone. Check for personal or family history of heart disease, history of prolonged QT, arrhythmia and concurrent use of CYP3A4 inhibiting medications.³

GP management might also include:

- Advice to supplement breastfeeding with expressed breastmilk and/or formula if there are significant concerns about infant weight gain.
- Investigations to diagnose underlying maternal or infant medical conditions (see above).
- Assessment and management of maternal mental health issues.

Engorged breasts

Engorgement occurs when the milk supply comes on so quickly that the breasts become swollen, hard and tender. There is an increased supply of blood and other fluids in the breast as well as milk. The breasts and nipples may be so swollen that a small newborn baby will have difficulty latching and suckling. Once again, careful attention to latch and positioning is a key factor. If a newborn is attached properly and feeds often and liberally, engorgement should settle relatively quickly.

Advice to the mother

- Feed your baby on demand from day 1 until the baby has had enough.
- Finish feeding from the first breast completely—consider offering one breast per feed rather than both (with care to avoid mastitis). The other breast may require hand-expressing for comfort.
- Try hand-expressing a little milk before putting the baby to your breast—softening the area under and around the areola may help the baby to latch.
- Massage any breast lumps gently towards the nipple after feeding.
- Apply cold packs after feeding and between feeds. Nappies that have been soaked in water and then frozen or kept in the refrigerator make useful cold packs to relieve engorgement.
- Consider waking your baby for a feed if your breasts are uncomfortable or if the baby is

sleeping longer than 4 hours.

- Use a comfortable and well-fitted bra.
- Take ibuprofen or paracetamol regularly for severe discomfort.

Regular feeding and following demand feeding is the best treatment for engorged breasts.

⌚ Suppression of lactation^{4,5}

Women may seek suppression of lactation for a variety of reasons such as weaning the baby, not wishing to breastfeed initially or after stillbirth.

Mechanical suppression

The simplest way of suppressing lactation once it is established is to transfer the baby gradually to a bottle or a cup over a 3-week period. The decreased demand reduces milk supply, with minimal discomfort.

If abrupt cessation is required, it is necessary to avoid nipple stimulation, refrain from expressing milk and use a well-fitting bra. Use cold packs and analgesics as necessary. Express small amounts of milk if there is the concern of emerging mastitis. Engorgement will gradually settle over a 2–3 week period.

Hormonal suppression

Hormonal suppression can be used for severe engorgement but only as a last resort. It is more effective if given at the time of delivery but may produce side effects. Avoid oestrogens.

- cabergoline 1 mg (o) statim (once only)

⌚ Drugs affecting lactation

Drugs that can affect lactation or a breastfed infant are listed in TABLE 101.2 . Most drugs can be compatible and tolerated, but check with prescribing guidelines. Consider risk versus benefit.

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Table 101.2 Drugs taken by nursing mother that can affect breastfed infant or lactation

Antibiotics:

- aminoglycosides
- chloramphenicol

- nitrofurantoin
 - metronidazole
 - tetracycline
 - sulfonamides
- Antihistamines
- Antineoplastics/cytotoxics*
- Benzodiazepines
- Bromocriptine
- Combined oral contraceptive/oestrogens
- Ergotamine*
- Gold salts
- H₂-receptor antagonists (e.g. cimetidine, ranitidine)
- Illicit drugs (e.g. cocaine, codeine combinations, cannabis, LSD)*
- Lithium
- Methotrexate*
- Quinidine
- Laxatives (e.g. senna)
- Alcohol (no harmful effects unless taken in excess)
- Nicotine (increased respiratory distress in infants exposed) but if necessary NRT is preferable to smoking
-

*Indicates contraindicated drugs

Nipple problems with breastfeeding⁵

Nipple pain

Nipple pain affects 34–96% of breastfeeding women⁶ and is a common reason for breastfeeding cessation.⁷ It is often due to issues with latch and positioning. Inadequate drying of nipples after feeds and wearing soggy breast pads are other contributing factors.

Causes of nipple pain include:

- trauma from problems with latch and position, i.e. ‘cracked nipples’
- infection—bacterial, *Candida albicans* (i.e. thrush) or viral (often due to underlying nipple trauma)
- vasospasm (may be secondary to Raynaud disease and associated autoimmune conditions)
- dermatitis (e.g. contact or atopic dermatitis)

Symptoms

A nipple crack may be so small that it cannot be seen. The crack is either on the skin of the nipple or where it joins the areola. A sharp pain in the nipple with suckling probably means the crack has developed. Feeding is usually very painful, and bleeding can occur.

If exudate is present then there may be secondary infection. Breast and nipple candidiasis are controversial topics. The classic presentation is nipple pain that starts following a course of antibiotics and continues between feeds. Pain may be sharp and shooting and radiate to the breast.

Nipple vasospasm may cause nipple pain that is worse when exposed to cold, with or without colour changes in the nipple.

Assessment

Inspect the nipples closely for trauma and for any dermatitis or secondary infection.

If suspicious for secondary infection, consider swabbing the nipple/areola. If possible, also examine the infant's mouth. Nipple candidiasis is unlikely if there is no infant oral candidiasis.

Advice to the mother

- Try to be as relaxed and comfortable as possible during feeds (with your back well supported).
- Pay close attention to ensuring a good latch and positioning.
- Start feeding from the less painful side first.
- Consider resting a traumatised nipple for 1–2 feeds and express during this time.
- If both nipples require resting, feed the baby expressed milk and gradually re-start with short feeds.
- Use expressed breast milk to soften and lubricate the nipples before feeds.
- Keep nipples dry by exposing to air or using a hair dryer on a low setting.
- Have as much time as possible without a bra or fabric against the nipple.
- Consider use of soothing hydrogel pads inside the bra or barrier cream on the nipples (watch for irritant dermatitis).
- Take paracetamol or ibuprofen just before feeding to relieve pain.
- Consider use of a nipple shield after seeking face-to-face expert advice (ensure correct sizing and fit of the shield to avoid further trauma).

- Consider seeing a breastfeeding specialist for assessment and advice on latch and position.

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Further management

- Treat dermatitis with topical steroid ointment after a breastfeed

- Treat secondary infection as guided by swab MC&S:

Topical antibiotic, e.g. topical mupirocin, for bacterial infection

Topical antifungal applied to nipples and infant's mouth for candida infection

- If features of nipple candidiasis:⁸

miconazole gel qid to nipple after feeds for at least 7 days

treat the baby with miconazole oral gel four times/day after feeds or nystatin drops 1 mL tds for one week, then daily for a further one to two weeks

consider fluconazole 150 mg (o) alternate days for 3 doses, then oral nystatin (o) tds for 10 days

Nipple vasospasm management:

nipple warmers/heat packs and avoid exposure to cold

avoidance of medications and drugs that can trigger vasoconstriction, e.g. caffeine, nicotine

consider nifedipine (29–30 mg SR daily), with specialist input⁹

consider screening for associated autoimmune disease

Nipple pain and tongue tie

Maternal nipple pain and trauma is frequently attributed to infant oral connective tissue ties, i.e. tongue tie. Frenotomy for treatment of tongue tie has been shown to reduce associated maternal nipple pain; however, there is inconclusive evidence that frenotomy improves any other breastfeeding outcomes.¹⁰ There is no evidence supporting treatment of other ties such as posterior tongue tie or lip tie.¹¹

Ultrasound studies have revealed that effective feeding is dependent on an intraoral vacuum between the infant mouth and maternal nipple/breast, rather than movement of the infant tongue.¹² This supports the focus of treatment being on good latch and position to allow adequate intraoral breast tissue volume, rather than surgical treatment of oral connective tissue ties.

Inverted nipples

An inverted nipple is one that inverts or moves into the breast instead of pointing outwards when the baby tries to suck from it. When the areola is squeezed, the nipple retracts inwards.

Treatment⁵

The best approach is good preparation with prolonged breast contact and feeding prior to milk ‘coming in’ and knowledgeable helpers giving advice and confidence. If a baby continues to have ongoing problems with attachment, a nipple shield may be helpful.

Mastitis

Mastitis, which has a high incidence (up to 20%), is basically cellulitis of the interlobular connective tissue of the breast (see [CHAPTER 93](#)). Usually restricted to lactating women, it is caused mainly by a cracked nipple or poor milk drainage. Not all mastitis is infective. Many instances are related to milk not being drained adequately and will improve if appropriate breastfeeding technique is followed. A blocked duct or ducts may be the cause. It is a serious problem and requires early treatment. Breastfeeding from the affected side can continue as the infection is confined to interstitial breast tissue and doesn’t usually affect the milk supply.

Note: Mastitis must be treated vigorously—it is a serious condition. Refer to [CHAPTER 93](#) .

Bacterial mastitis

Clinical features

- A lump and then soreness (at first)
- A red, wedge-shaped, possibly tender area
- Fever, tiredness, muscle aches and pains, flu-like symptoms

Management

Prevention (in lactation).

Rule: ‘Heat, rest and drain the breast’.

- Keep feeding and feed frequently.
- Maintain free breast drainage.
- Attend to breast engorgement and cracked nipples.

If symptoms persist >24 hours or patient is unwell, commence antibiotics.¹³

- Ensure good latch and positioning to promote drainage of breast and minimisation of nipple trauma.
- Antibiotics: resolution without progression to an abscess will usually be prevented by antibiotics:

dicloxacillin 500 mg (o) qid for 5–10 days

or

flucloxacillin 500 mg (o) qid for at least 5–10 days

or

cephalexin 500 mg (o) qid for at least 5–10 days

If severe cellulitis: flucloxacillin 2 g IV 6 hourly

- Ibuprofen or paracetamol for pain

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Instructions to patients

- Keep the affected breast well drained.
- Continue breastfeeding: do it frequently and start with the sore side or begin feeding from the normal side until the milk comes and then switch to the sore side.
- Heat the sore breast before feeding (e.g. hot shower or hot washcloth).
- Cool the breast after feeding: use a cold facewasher from the freezer.
- Massage any breast lumps gently towards the nipple after feeding (avoid during a feed as it may interrupt the latch and position).
- Empty the breast well: hand express if necessary.
- Get sufficient rest.
- Keep to a nutritious diet and drink ample fluids.
- Avoid restrictive bras and clothing.

Breast abscess

If tenderness and redness persist beyond 48 hours and an area of tense induration develops, then a breast abscess may have formed. It can be treated with needle aspiration or may require surgical drainage under general anaesthesia.

For a description of surgical and other management refer to [CHAPTER 93](#).

Secondary postpartum haemorrhage¹⁴

Secondary postpartum haemorrhage is any bright bleeding from the birth canal 24 hours or more after delivery. It may vary from very slight to torrential and may occur at any time up to 6 weeks postpartum. It tends to peak at 5–10 days.

Causes

- Retained products of conception (PoC)
- Infection, especially at placental site
- Laceration of any part of the birth canal
- Coagulation disorder
- Rarely due to gestational trophoblastic disease

No cause is found in one-third of cases (i.e. idiopathic subinvolution).

Treatment

Rule: An empty and contracted uterus will not bleed.

- Investigation:
 - ultrasound (?retained PoC)
 - cervical swab for culture
 - FBE
 - β-hCG
- IV oxytocin 10 IU followed by infusion of 40 IU in Hartman solution
- Ergometrine 250 mcg IM or 25–50 mcg slowly IV (if continuing heavy bleeding)
- Consider misoprostol, 4 or 5 × 200 mcg tablets per rectum or otherwise by intramyometrial injection of prostaglandin F2 alpha (caution: specialist supervision)
- Exploration under general anaesthetic if blood loss >250 mL:
 - gentle blunt curettage required in the postpartum uterus (aim to prevent uterine adhesions —Asherman syndrome)

- Consider blood transfusion if Hb is <100 g/L
- Antibiotics (e.g. amoxicillin/clavulanate + metronidazole + gentamicin while awaiting culture)
- Consider Bakri balloon tamponade and uterine packing for major PPH

Note: Referral is necessary after the oxytocin/ergometrine injection. Occasionally a life-saving hysterectomy or ligation of the internal iliac arteries may be necessary.

Lochia discharge

The discharge of lochia, which is blood and sloughed-off tissue from the uterine lining, should be monitored.

Normal:

1. bloody loss = lochia rubra: 2–12 days
2. serous loss = lochia serosa: up to 20 days
3. white loss = lochia alba
4. offensive lochia = endometritis

Lochia loss persists for 4–8 weeks. Abnormal lochia rubra may indicate retained PoC or endometritis. If there is a problem, examine with a speculum and take cervical/vaginal swab.

Puerperal fever

Puerperal fever is defined as raised temperature of $\geq 38^{\circ}\text{C}$ from day 1 to day 10. If fever, think of the three **Bs**—birth canal, **b**reast, **b**ladder. The cause is genital infection in about 75% of patients. Endometritis presents with offensive lochia, abdominal pain and a tender uterus. Other causes include urinary tract infection, mastitis and an intercurrent respiratory infection.

Investigations include a vaginal swab for microscopy, culture and sensitivities and a midstream specimen of urine for microscopy and culture, blood culture and an FBE.

Treatment

amoxicillin/potassium clavulanate

plus

metronidazole (while awaiting sensitivities)

Beware of severe puerperal sepsis such as Gram-negative septicaemia or *Clostridium welchii* septicaemia and the rare *Bacteroides fragilis*.

Postnatal depressive disorders

Hormonal changes, fatigue, adjustment and physical changes can all contribute to mood changes in the postnatal period. There are three separate important problems:

- 1. postnatal blues
- 2. postnatal adjustment disorder
- 3. postnatal (or postpartum) depression

Postnatal blues

‘The blues’ is a very common problem (occurs in 80%) that arises in the first 2 weeks (usually days 3–10) after childbirth.

Clinical features

- Feeling flat or depressed
- Mood swings
- Irritability
- Feeling emotional (e.g. crying easily)
- Feeling inadequate
- Tiredness
- Sleep disturbance unrelated to baby’s sleep needs
- Lacking confidence (e.g. in bathing and feeding the baby)
- Aches and pains (e.g. headache)

Fortunately, ‘the blues’ is a passing phase and lasts about 4–14 days. Management is based on support, reassurance and basic counselling. Contact friends and relatives to help.

Advice to the mother⁴

- Rest as much as possible.
- Accept help from others in the house.
- Talk about your concerns with a good listener.

- This is common and should improve within a week or two.

If ‘the blues’ lasts longer than 14 days, it is very important to contact your doctor.

❸ Postnatal adjustment disorder

- Occurs in first 6 months
- Similar symptoms to ‘the blues’
- Anxiety with handling baby
- Psychosomatic complaints
- Fearful of criticism

Treatment

- Support and reassurance
- Cognitive therapy
- Parentcraft support
- Settles with time

❸ Postnatal depression

Some women develop a very severe depression after childbirth. Always consider it in the frequent attender. Symptoms are present for at least 2 consecutive weeks, with onset in the first few days postpartum. It should be treated as for major depression. (See [CHAPTER 10](#) for an overview.)

- Occurs in 10–30% of women
- In first 6–12 months (usually first 6 months: peaks about 12th week)
- Anxiety and agitation common
- Marked mood swings
- Poor memory and concentration
- Typical depressive features

Use the Edinburgh Postnatal Depression Scale (a score of 12 or more is significant).

Treatment

- Support, reassurance, counselling
- Group psychotherapy and support group (e.g. www.panda.org.au)
- Couple therapy (must involve partner)
- Postnatal depression support group
- Parentcraft support
- Hospitalisation may be necessary (especially if suicidal or infanticidal ideations)
- Medication—SSRIs (sertraline, paroxetine—agents of choice)
- Closely monitor any risk of self-harm
- Consider referral if poor response to treatment in 2 weeks

Note: Beware of puerperal psychosis with onset usually within first 2 weeks.

Postpartum psychosis

The most common postpartum psychosis is an affective disorder: mania or agitated depression. It is treatable and requires urgent attention. Symptoms that appear within the first month include unusual behaviour, agitation, delusions, hallucinations, mania and suicidal ideations.

It is rare, occurring in about 1:500 births.

Past history may be a pointer. Suspect if severe depression not responding to treatment. An important differential diagnosis is delirium with puerperal fever. Check thyroid function and organise inpatient psychiatric care. There is an increased risk of further episodes with subsequent pregnancies.

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Other issues in postnatal care

Sleep deprivation

Give advice and counselling. Use the ‘sleep when baby sleeps’ rule. Avoid sedatives. Insomnia experienced when the baby finally sleeps should raise suspicion of postnatal depression.

Tiredness

Tiredness is very common in the first few months after delivery. It may be a presenting symptom of anaemia, depression, hypothyroidism, anxiety or depression (in particular).

Perform FBE, TFTs, iron studies, B12, blood glucose and urinalysis.

Postpartum thyroid dysfunction¹⁵

Postpartum thyroiditis may be misdiagnosed as postpartum depression and should always be considered in the tired, apparently depressed woman in the first 6 months after delivery. It is common in women with pre-existing autoimmune thyroid disorders and often flares up in this period. It must be differentiated from new onset or relapsing Graves disease indicated by positive anti-thyroid stimulating hormone receptor antibodies. Women who have had postpartum thyroid dysfunction are at greater risk of developing hypothyroidism within 10 years postpartum.

The initial phase of hyperthyroidism is often followed by a phase of temporary hypothyroidism, with eventual return towards normality. Beta blockers are useful during the hyperthyroidism phase, while short-term replacement with thyroxine can be required in the hypothyroid phase.

Hair loss

Increased hair shedding as telogen effluvium is common about 3–4 months after delivery. Large clumps of hair with white bulbs come out easily with combing or shampooing. Reassure that it reverts to normal in 3–6 months.

Sexual difficulties

Decreased libido is a common problem and often related to sleep deprivation, as well as hormonal changes. Decreased libido can also be due to one of the postnatal depressive disorders or to tension in adjusting to the new relationships.

Dyspareunia is common, especially following an episiotomy or vaginal tear, and should be treated symptomatically and with education. Simple lubrication or vaginal oestrogens can help until perineal healing is achieved. A topical corticosteroid may be appropriate for scar tissue that appears inflamed.

Early intercourse is risky with deaths from air embolism reported in the first 2 weeks. Intercourse is not advisable in the first 6 weeks.

Elimination disorders⁴

Always enquire how the patient is coping with her bowels and urination. Simple advice such as stool softening and pelvic floor exercises will help. However, serious problems such as faecal incontinence secondary to a fistula from a third-degree tear or urinary retention due to neuropraxia of the pelvic floor can develop and need urgent attention.

Patient education resources

Hand-out sheets from *Murtagh's Patient Education* 8th edition:

- Breastfeeding and milk supply
- Establishing breastfeeding
- Mastitis with breastfeeding
- Nipple problems with breastfeeding
- Postnatal depression

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102 Men's health: an overview

Call it the 'M factor', call it maleness, call it what you like—but from infancy onwards, in every age group, males are more likely to die than females.

ANDREW PATTISON¹

In recent years, increasing attention has been focused on men's health, mainly because it became evident that the average male's lifestyle was slowly killing him. As doctors we are beginning to understand that a great proportion of male ill-health is related to behavioural and social factors.

An important statistic is the constant discrepancy in average life expectancy (ALE) between the sexes. At present in Australia, the ALE is 80.7 years for males born in 2016–2018 compared with 84.9 years for females.²

This discrepancy has been evident for as long as Australia has had reliable records. In 1900 the ALE for males was 55.2 years and 58.8 for females.³ This increased to a difference of 6 years for most of the past century. However, the significant increase in ALE for both sexes has been encouraging; every four years of the past century saw around a one-year gain in ALE.

Men have a significantly greater incidence of medical conditions such as cardiovascular disease, obesity, alcoholism, HIV and hypertension, as well as having higher rates of accidental death and suicide. The following comparative statistics for Australian society highlight this difference.

Men's health at a glance^{1,2,4}

- Up to 14 years, boys are at least twice as likely as girls to die from accidental injury (e.g. motor vehicle accidents [MVAs] and drowning).
- In the 15–24 years age group, males are three times more likely to die in MVAs and three times more likely to commit suicide. The overall death rate is 3.65 times higher than for females.

- In the 25–65 age group, males are four times more likely to die from coronary artery disease, three times more likely to die in MVAs, three times more likely to commit suicide, four times more likely to die in other accidents and twice as likely to die from cancer. The overall death rate is two times that of females.
- The figures are worse in the lower socioeconomic groups. Low-income males are nearly three times more likely to state that their overall health is poor compared to men with higher incomes.
- About 2 in 3 adult males and 1 in 4 older boys are overweight or obese.
- Roughly 1 in 4 men have a disability and almost 1 in 3 have a chronic health problem.
- Only 1 in 4 men ≥ 65 years get sufficient physical activity.
- An estimated 1 in 2 men (54%) have experienced sexual difficulty in the past 12 months.
- At least 4 out of 5 heroin overdose deaths occur in males.
- Aboriginal and Torres Strait Islander males' life expectancy is 9 years less (71.6 years) than that of non-Indigenous males.⁵ In the 35–45 age group, the death rate is 11 times that of non-Indigenous males.
- Workplace deaths—93% occur in males (who constitute 56% of the workforce).
- Some 46% of Australian marriages end in divorce. The majority of these are initiated by women.
- Among those convicted for acts of violence, 90% are males; 80% of the victims are males.
- In Australian schools, 90% of children with documented behavioural problems are males.

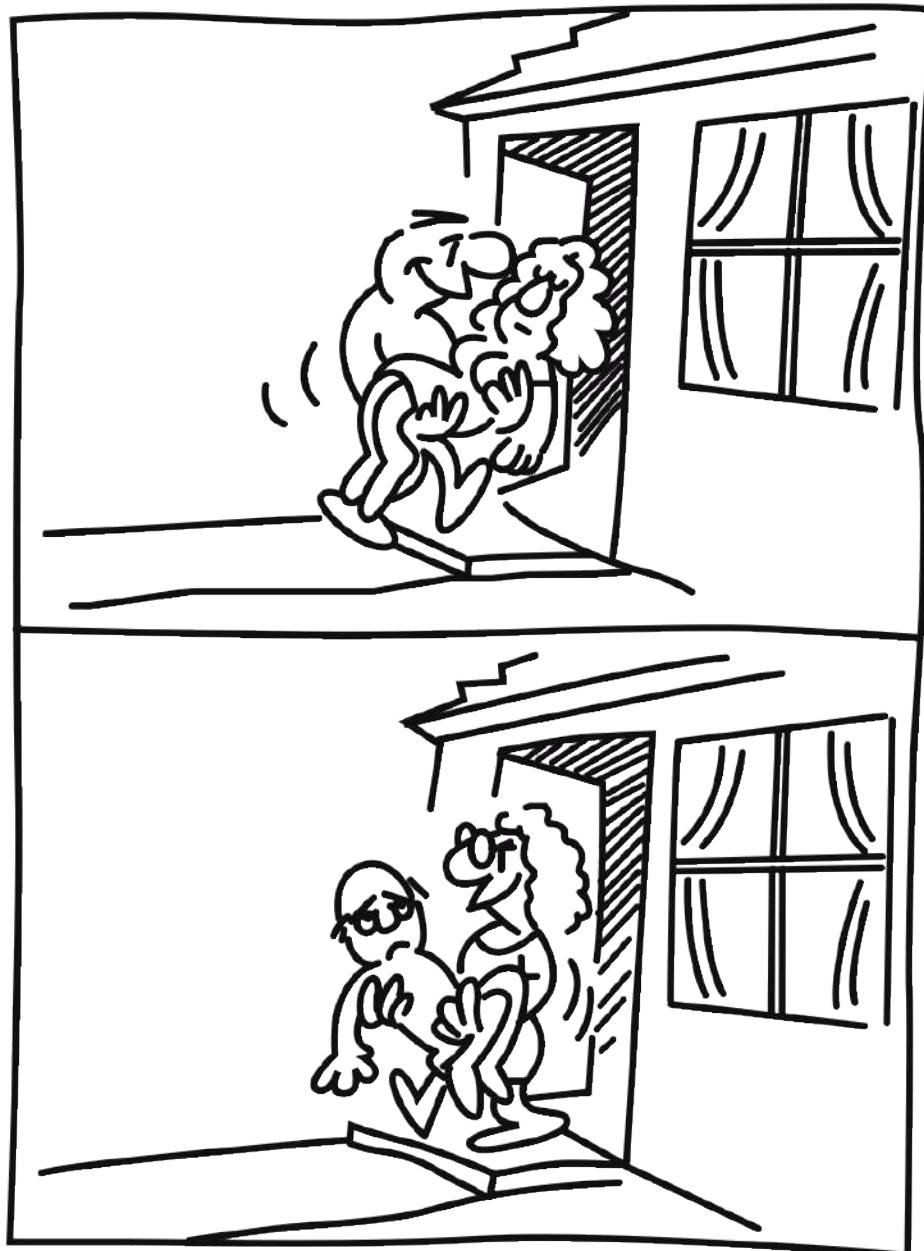


FIGURE 102.1 A cartoonist's view on men's ageing

Source: Courtesy Ron Tandberg

These statistics are revealing and in part reflect attitudes to lifestyle. Men smoke more, [Page 1151](#) drink more and indulge in greater risk-taking behaviour in general. Only 5% of men have adequate fruit and vegetable intake.⁴

Young males in particular are more likely than young females to take risks in areas such as conflict or violence, sexual behaviour, drinking, gambling and accident-prone behaviours.⁶ The

main causes of death by age group for Australian males are summarised in TABLE 102.1 .⁷

Table 102.1 Main causes of death by age group for Australian males

Years	No. 1	No. 2	No. 3
1–14	Non-traffic accidents	Traffic accidents	Cancer
15–24	Traffic accidents	Suicide	Non-traffic accidents
25–44	Suicide	Cancer	Non-traffic accidents
45–54	Cancer	Circulatory diseases	Suicide
55–64	Cancer	Circulatory diseases	Suicide
65–74	Circulatory diseases	Cancer	Respiratory diseases
75+	Circulatory diseases	Cancer	Respiratory diseases

Prostatic disease

Ageing men find disorders of the prostate almost inevitable, as they become aware of lower urinary tract symptoms (LUTS). The usual cause of benign prostatic hyperplasia is now being managed better with α -blocking agents, such as tamsulosin and 5-alpha-reductase inhibitors (such as dutasteride), which delay the resection of the prostate—a procedure that provokes considerable anxiety in men. Cancer of the prostate is the second commonest cause of death from cancer in men and the third overall including both sexes, yet its management remains controversial and population screening tests have proved to be of limited benefit (see CHAPTER 106).

Androgen deficiency^{1,3}

True androgen deficiency, which affects about 1 in 200 men under 60 years of age and possibly 1 in 10 older men, is likely to be an underdiagnosed condition. About 1 in 3 cases are associated with Klinefelter syndrome, which is more common than realised, with 50% remaining undiagnosed.

On the other hand, there has been a large increase in the number of men who take prescribed (and self-initiated) testosterone supplementation, plenty of which is not justified by medical evidence. It is important to have a scientific approach to weighing up the pros and cons of prescribing.

Androgen deficiency should be considered when the following signs and symptoms present:

- *infancy*—micropenis, small testes
- *puberty*—delayed, small testes, failure of growth of larynx or penis, failure of skin of scrotum to thicken and/or pigment, poor muscle development, poor facial, body and pubic hair, marked and persisting gynaecomastia
- *adult*—regression virilisation, mood changes, poor concentration, lethargy, hot flushes, sweats, decreased libido, decreased semen volume, gynaecomastia, osteoporotic fracture, erectile dysfunction (ED)

Androgen deficiency is an uncommon cause of ED, but men presenting with ED should be assessed for androgen deficiency (ED is discussed in [CHAPTER 108](#)). This should be done initially through history and examination rather than a blood test, including examining the size and firmness of the testes. An orchidometer (a series of beads of various sizes to match clinical testicular size) can assist with this and can be obtained through Andrology Australia.⁸

Diagnosis is by at least two testosterone levels taken on different mornings (luteinising hormone added to the second collection if the first testosterone is low).⁹ Other tests may include semen analysis (if fertility is an issue), bone density, karyotype (Klinefelter syndrome—see [CHAPTER 23](#)), FSH and iron studies (haemochromatosis).

Abnormal testosterone (for healthy males) results:⁹

- 21–35 years <10.4 nmol/L
- 70–89 years <6.4 nmol/L

Treatment under consultant guidance is with testosterone replacement with injections, gel, implants, patches or tablets.^{9,10} There is no evidence that testosterone gel is a panacea.¹¹

Osteoporosis in men¹²

While more common in women, osteoporosis still has a high prevalence in men and remains a major health concern for older men. Almost a quarter of Australian men >60 years of age will suffer a minimal trauma fracture.¹² Yet the identification of osteoporosis in men remains poor, possibly because it is considered a predominantly female condition. BMD testing rates for women are four times those of men.¹³

Prevention can be achieved through reducing risk factors where possible. Risk factors include poor dietary calcium, lack of weight-bearing exercise, vitamin D deficiency, hypogonadism,

smoking, excess alcohol and medications (corticosteroids used for >3 months, anti-epileptics, e.g. phenytoin). Other risk factors for osteoporosis and fractures include a family history of osteoporosis, malabsorption, hyperthyroidism, hypothyroidism, hyperparathyroidism and being underweight. Reducing falls risk is clearly also important for the end goal: avoiding fractures. Men with osteoporotic risk factors should be screened using BMD testing. Other indications for screening include height loss, kyphosis or back pain suggesting possible vertebral fractures, low-impact fractures and possibly even high-impact fractures.¹⁴

Investigations can include bone densitometry, FBE, LFTs, testosterone and vitamin D. When identified, osteoporotic men should be encouraged to have adequate dietary calcium, be educated on fall-prevention strategies and encouraged to do weight-bearing exercise. Medication management options include first-line treatment oral bisphosphonates and (only if deficient) supplemental calcium, vitamin D or testosterone.

Gynaecomastia

This is a ‘true’ enlargement of the male breast tissue, not to be confused with false enlargement of obese men. Gynaecomastia occurs in up to 50% of adolescent boys. Virtually no breast tissue is palpable in normal men.

If present in adult men, look for evidence of testosterone deficiency. Other causes include drugs (e.g. anabolic steroids, oestrogen, digoxin, calcium antagonists, marijuana, spironolactone, amiodarone, tricyclic antidepressants, cimetidine), liver failure, testicular feminisation syndrome and oestrogen-secreting tumours, such as adrenal carcinoma and Leydig cell tumour.

Sex-linked inherited disorders

Males bear the burden of X-linked recessive gene disorders, which always manifest as there is no normal gene on the additional X chromosome (as there is in the female) to counteract the action of the abnormal gene.

Occasionally a gene can be carried on an autosome but manifests only in one sex. An example is male-pattern baldness, manifesting as an autosomal dominant disorder in males but as a recessive disorder in females.

Examples of X-linked disorders significantly affecting males include:

- haemophilia A and B
- glucose-6-phosphate dehydrogenase deficiency
- Duchenne muscular dystrophy
- retinitis pigmentosa
- Hunter syndrome

- fragile X syndrome

Summary

There is an increasing emphasis on and interest in men's health. In 2008, in response to the growing awareness of men's health issues, the first Australian National Male Health Policy¹⁵ was developed. Initiatives that have emerged from and been enhanced by this policy include programs and campaigns that focus on male mental health, work safety, male health in particular risk groups and prevention of chronic disease and injury. Examples have included the Men's Sheds, Man Health and Strong Father Strong Family programs.

Many of these programs, especially those concerning mental health and psychosocial aspects such as family relationships and risk behaviour, focus on issues such as what it means to be male. Topics explored include the positives of maleness, the behaviours males should be avoiding and personal responsibility.

The GP is in an ideal position to identify, assess and manage significant health problems in males. Men's reluctance to access health services when they need them makes the GP's role all the more important. Opportunities should be grasped to discuss health issues with male patients and foster preventive issues where appropriate.

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103 Scrotal pain

Failure to diagnose the surgical condition of testicular torsion is a relatively common source of claims against GPs.

SARA BIRD

Scrotal pain in males can occur in all age groups but the child or adolescent with acute scrotal pain often poses a diagnostic challenge. Serious problems include testicular torsion, strangulation of an inguinoscrotal hernia, a testicular tumour and a haematocoele, all of which require surgical intervention.

Key facts and checkpoints

- Torsion of the testis is not the most common cause of acute scrotal pain in childhood and adolescence, but it is the most important.¹
- Torsion is most common in males younger than 25 years.
- Testicular pain can be referred to the abdomen.
- Torsion should form part of the differential diagnosis in a boy or young man who is vomiting and has intense pain in the lower abdomen inguinal region.
- The loss of a testicle from torsion, an avoidable problem, is a real 'time bomb' and a common reason for litigation for medical negligence.
- The clinical picture of epididymo-orchitis can mimic torsion so closely that in many boys and young men the diagnosis should be made only at surgical exploration.¹
- An abnormality predisposing to torsion is usually present bilaterally; the opposite testis should also be fixed to prevent torsion (orchidopexy).
- Torsion must be corrected as soon as possible to reduce the chance of gangrene and loss of the testis.

- Suspect self-correcting testicular torsion in repeated episodes of severe spontaneously resolving pain. Refer for possible orchidopexy.
- Suspect abscess formation if epididymo-orchitis does not settle with a reasonable course of antibiotics. Surgical drainage may be necessary.
- A varicocele can cause testicular discomfort—examine the patient in the standing position.

The clinical approach

History

It is important to determine whether there were any pre-existing predisposing factors or history of trauma.

Key questions

- Have you noticed any burning of urine or penile discharge?
- Have you had an injury to your scrotal region such as being struck by a ball or falling astride something?
- Have you travelled overseas recently?
- Have you been aware of a lump in your testicle or groin?
- Have you had an illness lately and have you noticed swelling of the glands in your neck or near your ear (i.e. screening for mumps)?
- Do you have back pain or have you injured your back?

Examination

Examine and compare both sides of the scrotum. Inguinal and femoral hernial orifices, the spermatic cord, testis and epididymis must be checked on both sides. The size, lie and elevation in the scrotum of the testis should be assessed, as should the cremasteric reflex. This is done by stroking or pinching the medial thigh, and considered positive if the testicle moves at least 0.5 cm. An absence of the ipsilateral cremasteric reflex is the most sensitive physical finding in testicular torsion but the reflex is often absent in small boys (under 2½ years) without torsion.²

The patient should be examined standing and supine. The scrotum and its contents are examined systematically starting with the skin, which may include sebaceous cysts or other dermatological conditions. A painful testis should be elevated gently to determine if the pain improves.

Investigations

Investigations that may help diagnose the painful testis in particular include:

- blood cell count
- urine analysis: microscopy and culture
- *Chlamydia* antigen detection tests
- ultrasound
- technetium-99m scan

Acute scrotal pain in children and adolescents —‘the acute scrotum’

This problem is more likely to be encountered in the adolescent, especially after the testis enlarges at puberty (13–16-year-olds).¹ A list of causes is presented in TABLE 103.1. Infants, however, can also have torsion of a testis or a testicular appendage.

Table 103.1 Causes of scrotal pain or swelling

- Torsion of the testis
- Torsion of a testicular appendage
- Epididymo-orchitis
- Mumps orchitis
- Acute hydrocele
- Idiopathic scrotal oedema (rare)
- Haematoma/haematocele
- Testicular neoplasm
- Henoch–Schönlein purpura
- Strangulated inguinoscrotal hernia
- Scrotal skin conditions
- Varicocele
- Referred pain (e.g. spine, ureteric colic, abdominal aorta)

Clinical problem

A 15-year-old teenager presents with relatively acute onset of pain in his lower right abdomen and scrotum. He has vomited several times. On examination the right testicle is tender, red and swollen.

Discussion

The three main differential diagnoses of the acute scrotum in an adolescent are torsion of the testis, torsion of a testicular appendage and acute epididymo-orchitis (see FIG. 103.1). Less commonly the problem would be a haematoma or an acute hydrocele mimicking testicular torsion. This patient, however, must be regarded as having torsion of the testis until proven otherwise. Early operation with torsion is imperative because if the testis is deprived of its blood supply, infarction is inevitable and excision becomes necessary. With the exception of mumps (now rare) no pre- or peripubertal youth should be diagnosed as suffering from acute epididymo-orchitis until the testis has been exposed at operation and torsion excluded.

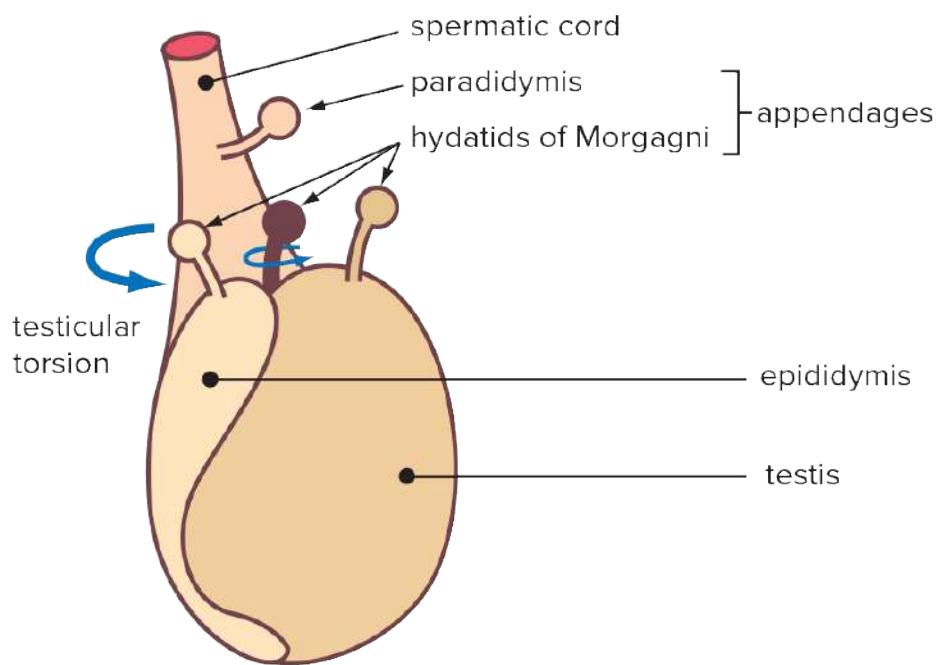


FIGURE 103.1 Illustration of torsion of the testis and an appendage: the 'black' hydatid of Morgagni is the one most likely to undergo torsion

⌚ Torsion of the testis

Torsion usually occurs because of an abnormally narrow anchoring of the testis by the testicular mesorchium posteriorly¹ and the tunica vaginalis (which normally covers only the testicle and epididymis) also covering the bottom end of the spermatic cord. This allows the testicle to have a more mobile and transverse lie, referred to as a 'bell clapper deformity', and makes it easier for