Vulval itch is common, and generally the differential diagnosis is fairly straightforward. In both children and adults, the most frequently seen vulval dermatoses are dermatitis, psoriasis and lichen sclerosus. In both age groups, the majority of patients with dermatitis are atopic. Streptococcal vulvovaginitis is seen only in the paediatric group, whereas chronic vulvovaginal candidiasis is an oestrogen dependent condition and is only seen postpuberty.

**Eczema and dermatitis**

Eczema and dermatitis are synonymous terms. Whitening and thickening of the skin develops with chronic rubbing and scratching and is termed lichen simplex chronicus. Dermatitis is the most common cause of chronic vulval itch. Major categories of dermatitis include atopic dermatitis, irritant contact dermatitis, allergic contact dermatitis, and seborrhoeic dermatitis. Multiple causative factors are often present in the one patient.

**Table 1. Potential irritants to vulval skin**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retained sweat</td>
<td>Sanitary pads,</td>
</tr>
<tr>
<td>Vaginal secretions</td>
<td>Tampon strings</td>
</tr>
<tr>
<td>Urine</td>
<td>Tight clothing,</td>
</tr>
<tr>
<td>Soaps, gels, bath oils,</td>
<td>synthetic underwear</td>
</tr>
<tr>
<td>bubblebath</td>
<td>Toilet paper</td>
</tr>
<tr>
<td>Disinfectants, tea tree</td>
<td>Overzealous</td>
</tr>
<tr>
<td>oil</td>
<td>cleansing, scrubbing</td>
</tr>
<tr>
<td>Douches, perfumes</td>
<td>Shaving, plucking hair</td>
</tr>
<tr>
<td>Lubricants, spermicides</td>
<td>Prolonged sitting</td>
</tr>
<tr>
<td>Medicaments, especially</td>
<td></td>
</tr>
<tr>
<td>antifungal creams</td>
<td></td>
</tr>
<tr>
<td>Depilatory creams</td>
<td></td>
</tr>
<tr>
<td>Semen</td>
<td></td>
</tr>
</tbody>
</table>

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Aetiology

Irritant reactions are common on the vulva, and there may be a background of atopy (eczema, asthma, hayfever) (Table 1). In the early stages, candida is often diagnosed (by the patient, friends or a GP) and topical creams applied that are irritant in themselves, thereby compounding the problem. Urinary and faecal incontinence can worsen eczema, as can heat, friction and stress. Allergic reactions are less common, but need to be considered if there is poor response to treatment (Table 2).

Clinical features

These conditions present similarly with itch being the predominate symptom. Burning will occur if the mucosal surface is involved and fissures can lead to pain and dyspareunia. Clinical signs need to be sought carefully as they may be subtle, such as interlabial erythema or small skin splits (Figure 1). Poorly defined erythema, with or without scale, may extend onto the pubis and thighs. Thickening and whitening of the skin (lichenification) (Figure 2, 3) with multiple small excoriations can be seen in more severe longstanding cases. Unlike lichen sclerosus, normal anatomy is preserved and the vagina is normal. Tinea should be considered in the differential diagnosis of dermatitis. Toenail and foot involvement is a helpful clue.

Management

Principles of management is that of most vulval diseases and includes:

- patient education and environmental modification (see Patient education page 517 this issue) – this is of vital importance as control rather than cure is usually the realistic aim. Washing without soap should be emphasised
- treatment of any secondary infection
- management of incontinence
- the use of bland, nonirritating moisturiser (eg. aqueous cream, petroleum jelly)
- if moderate to severe, a potent topical steroid such as methylprednisolone aceponate is recommended initially once per day (maximum of 1 month) until symptoms settle. Application frequency can be reduced (ie. every second day, 3 times per week) as symptoms improve. Follow with 1% hydrocortisone 1–2 times per day for maintenance if required, and
- cycling back to the more potent steroid may be necessary for flare-ups.

Psoriasis

Psoriasis is also common in the vulva (Figure 4) and

Table 2. Potential allergens

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaesthetics</td>
<td>Benzocaine (common), lignocaine (rare)</td>
</tr>
<tr>
<td>Antibacterial agents</td>
<td>Neomycin, chlorhexidine, tea tree oil</td>
</tr>
<tr>
<td>Preservatives</td>
<td>Ethylenediamine, parabens, propylene, glycol, chlorocresol, lanolin</td>
</tr>
<tr>
<td>Contraceptives</td>
<td>Condoms, spermicides, diaphragm</td>
</tr>
<tr>
<td>Clothing</td>
<td>Dyes</td>
</tr>
<tr>
<td>Cosmetics</td>
<td>Perfumes, deodorants</td>
</tr>
<tr>
<td>Sanitary products</td>
<td>Sanitary pads</td>
</tr>
<tr>
<td>Other medicaments</td>
<td>Antifungals</td>
</tr>
<tr>
<td>Semen</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Vulval dermatitis

Figure 2. Vulval dermatitis with lichenification of the labia minora due to chronic rubbing

Figure 3. Dermatitis with prominent lichenification involving the groin crease

Figure 4. Psoriasis in an adult

Figure 5. Psoriasis in a child
can be easily mistaken for dermatitis. It is generally not nearly as itchy as dermatitis, except in children (Figure 5). Diagnostic clues include a family history of psoriasis and evidence of psoriatic lesions elsewhere on the skin (postauricular erythema and scale, natal cleft, nail pitting). Clinically, psoriasis tends to be symmetrical, well defined and a beefy, red colour compared to dermatitis. The classic scale of psoriasis is absent. Psoriasis often requires more aggressive and prolonged treatment. Weaker potency steroids are usually insufficient to induce a response. Moderate to potent topical steroids such as methyl prednisolone aceponate 0.1% can be used once per day for 3–4 weeks followed by weak tar preparations such as 3% liquor picis carbonis (LPC) in aqueous cream, and/or 1% hydrocortisone for maintenance. Concurrent infection will worsen the psoriasis, therefore it is important this is identified and treated. Any condition not responsive to corticosteroids requires biopsy to exclude diseases such as extramammary Paget disease and Langerhan cell histiocytosis.

**Lichen sclerosus**

Lichen sclerosus (previously known as lichen sclerosus et atrophicus) is an uncommon inflammatory skin disease of unknown cause. It has a predilection for genital skin, and although seen in both sexes, is more commonly reported in women. It can affect all age groups with reported onset from 6 months of age to late adulthood. Lichen sclerosus has been reported in association with a number of autoimmune conditions. Patients diagnosed with lichen sclerosus, however, do not seem to be at continued excessive risk of developing autoimmune disease, so an exhaustive search for these diseases is not mandated.

Symptoms include pruritus, soreness, burning, dyspareunia, and – especially in children – dysuria, bleeding and chronic constipation. It may occur anywhere over the vulval, perineal or perianal skin, and rarely at extragenital sites. Typical features include well defined white plaques with an atrophic wrinkled surface. Telangiectasia, purpura, hyperpigmentation, erosions, fissures and oedema of the clitoral foreskin may also be seen (Figure 6). In longstanding disease, there may be an alteration of the normal anatomy of the vulva. The labia may shrink and the opening to the vagina may become narrowed, resulting in difficult and painful intercourse. The clitoris can become buried due to scarring of the clitoral hood and the labia minora may be lost. This diagnosis should be confirmed by skin biopsy. Although not itself considered a premalignant condition, longitudinal studies suggest a roughly 4% (reports range from 1–11%) lifetime risk of the development of squamous cell carcinoma within affected skin in patients with vulval lichen sclerosis.

The aims of treatment are:
- control of symptoms such as itch, soreness, and dyspareunia
- minimisation of scarring and alteration of normal vulval architecture, and
- lifelong 12 monthly surveillance for squamous cell carcinoma of the vulva.

Potent topical steroids are the mainstay of treatment in adults and children and response is usually rapid (Figure 7a, b). Betamethasone dipropionate 0.05% ointment in optimised vehicle is used initially twice per day for 1 month, then daily for 2 months, gradually tapered to an ‘as needs’ basis, ideally only 1–2 times per week. If symptoms flare-up, candida and bacterial swabs should be performed to exclude co-existent pathology.

**Vulvovaginal candidiasis**

More than 50% of women over 25 years of age have had one episode of acute vulvovaginal candidiasis. It is generally easily recognised and treated. However, there is a small subset of women (less than 5%) who suffer repeated or intractable clinical candidiasis. Vulvovaginal candidiasis is considered recurrent when at least four discrete episodes occur in 1 year or at least three in 1 year that are not related to antibiotic therapy.

The vast majority of these women are otherwise healthy. The pathophysiology of recurrent infection is unclear but appears to involve an abnormality in the host micro-organism relationship. These women often develop a florid dermatitic reaction to low levels of candida organisms and a hypersensitivity reaction to candida antigen has been postulated.

The vast majority of cases are caused by *Candida albicans*. Other candida species may be responsible such as *C. glabrata*, *C. tropicalis*, and *C. parapsilosis*, and these may be relatively treatment resistant. For this reason, any fungi grown on culture should be characterised.

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### Table 3. Safety of treatments for candidiasis in pregnancy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Pregnancy category</th>
<th>Compatibility with breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluconazole</td>
<td>D</td>
<td>Not recommended</td>
</tr>
<tr>
<td>Ketoconazole</td>
<td>B3</td>
<td>Not recommended</td>
</tr>
<tr>
<td>Intravaginal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nystatin</td>
<td>A</td>
<td>Compatible</td>
</tr>
<tr>
<td>Miconazole</td>
<td>A</td>
<td>Compatible</td>
</tr>
<tr>
<td>Clotrimazole</td>
<td>A</td>
<td>Compatible</td>
</tr>
<tr>
<td>Econazole</td>
<td>A</td>
<td>Compatible</td>
</tr>
<tr>
<td>Boric acid</td>
<td>Not recommended</td>
<td>Not recommended</td>
</tr>
</tbody>
</table>

**Category A**
Drugs taken by a large number of pregnant women and women of childbearing age without any proven increase in the frequency of malformations or other direct or indirect harmful effects on the fetus having been observed.

**Category B3**
Drugs taken by only a limited number of pregnant women and women of childbearing age without an increase in the frequency of malformations or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals have shown evidence of an increased occurrence of fetal damage, the significance of which is considered uncertain in humans.

**Category D**
Drugs that have caused, are suspected to have caused or may be expected to cause an increased incidence of human fetal malformations or irreversible damage. These drugs may also have adverse pharmacological effects. Accompanying texts should be consulted for further details.

### Table 4. Treatment options for recurrent vulvovaginal candidiasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>Dosing regimen options</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nystatin pessaries</td>
<td>100 000 units alternate nights for 6 months</td>
<td>Messy, requires patient motivation</td>
</tr>
<tr>
<td>Clotrimazole</td>
<td>100 mg pessary intravaginally twice weekly or 500 mg pessary once weekly</td>
<td>Potential for irritation, but less costly</td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluconazole</td>
<td>150 mg immediately then 50 mg weekly or 150 mg monthly in premenstrual week</td>
<td>This drug is used at our institution with success. It has a good safety profile and is well tolerated</td>
</tr>
<tr>
<td>Itraconazole</td>
<td>100 mg daily during the premenstrual week or 200 mg once per month or 400 mg once per month</td>
<td>Good safety profile, interacts with astemizole and terfenidine</td>
</tr>
<tr>
<td>Ketoconazole</td>
<td>200 mg daily for 3 months then 100 mg daily for 3 months or 100 mg daily for 6 months</td>
<td>Hepatotoxicity a risk, requires monthly monitoring of LFTs, interacts with astemizole and terfenidine</td>
</tr>
</tbody>
</table>
terised even if reported as 'nonpathogenic' by laboratory.

An environment rich in glycogen favours growth of candida. As oestrogen levels increase, so to do glyco-
gen containing superficial cells in the vagina. Thus, the
typical patient is premenopausal or taking hormone
replacement therapy. It is characteristic for these
symptoms to flare-up in the premenstrual week and
improve with the onset of menstruation. It is
common to elicit a history of repeated episodes of vul-
valvaginal candidiasis (often this diagnosis is
presumptive) and exacerbations with oral antibiotics.
Temporary relief is gained from topical or short term
oral antifungals. A secondary irritant contact dermatitis
from topical imidazoles is very common. Vulval itch is
the most frequent symptom, but soreness, splitting
(particularly at the posterior forchette) and burning
after intercourse is also common. Clinical appearance
is often not helpful in making the diagnosis. Varying
degrees of vulvar erythema and swelling is often seen,
but vaginal discharge is rare.

Diagnosis rests on a history of itch and burning with
the key feature being premenstrual exacerbation and
repeated positive low vaginal swabs (performed a
week after ceasing topical antifungals) and/or fungal
hyphae present on biopsy.

Optimal treatment for recurrent vulvovaginal can-
didiasis has not yet been defined. The realistic aim is
to control rather than cure with an understanding that
treatment is long term, low dose maintenance is usually required.
There are numerous regimens cited in the literature,
but overall treatment needs to be individualised based
on convenience, cost and potential side effects.
Topical agents need to be used during pregnancy and
lactation (Table 3). Table 4 gives an example of treat-
ment options. Compliance tends to be better with oral
therapy and avoids the development of irritation with the
topical treatments. We get good responses to
50 mg per week of fluconazole. Treatment is contin-
ued for 6 months then slowly tapered but this may
vary depending on patient response. If there is a signif-
ificant dermatitic reaction, 1% hydrocortisone ointment
is useful at least in the early stages. Boric acid 600 mg
(extemporaneously prepared in a gelatin capsule)
intravaginally daily for 10–14 days can be used to treat
infection with non-
C. albicans species. Treatment
strategies for which there is little or no evidence
include a role for dietary modification, elimination of
candida from the gastrointestinal tract with oral nys-
tatin, and treatment of male sexual partners.
Although progesterone only oral contraception is
preferable, the combined oral contraceptive pill can
continue to be used as long as the oestrogen dose is
low (ie. 20–30 µg).

Vulval itch – prepubertal girls

Atopic and irritant dermatitis are the commonest causes of
vulval itch in prepubertal girls, and often the two go
together. Irritant factors in this age group may include
urine, soap and bubblebath, and creams. Psoriasis is a
more common vulval presentation in children than in
adults. It presents as a well demarcated red patch
usually involving the perianal area also. Lichen sclerosus
is not uncommon in young girls. A white plaque in a
‘figure of eight’ is the classic presentation. Haemorrhage
into the skin is quite frequent and may lead to the issue
of sexual abuse, sometimes inappropriately. It is treated
the same way as in adults, although it is not usually nec-
essary to use such potent preparations as
betamethasone dipropionate 0.05% in optimised
vehicle. Methyl prednisolone aceponate fatty ointment is
potent, has low irritancy and is a good alternative. As for
adults, prolonged follow up is recommended.

In prepubertal girls, vulvovaginitis caused by strepto-
coccus species is common, staphlococcus, haemophilus and shigella are rare. Streptococcal vulvo-
 vaginitis due to group A β-haemolytic streptococcus is
seen only in this age group and may present acutely
with erythema, pain, swelling and discharge; but may
also present with a subacute vulvitis and itch. Vaginal
and perianal swabs demonstrate the organism. Treatment of streptococcal infection is with phe-
oxymethyl penicillin 10 mg/kg up to 500 mg orally
every 6 hours for 7 days. Vulvovaginal candidiasis is
not found in prepubertal girls.

Conclusion

Vulval itch is a common and distressing problem.
Presentation to a GP is often delayed due to embar-
rassment and the condition is often complicated by
self application of home remedies which may have
worsened the situation. There are many similarities
between the adult and paediatric age group when con-
sidering the dermatoses (dermatitis, lichen sclerosus
and psoriasis), however, it is important to remember
streptococcal vulvovaginitis is seen only prepuberty,
and candidiasis seen postpuberty. Swabs should
always be performed as often conditions may co-exist
and all patients should be instructed about the impor-
tance of avoidance of irritants as part of an overall
management plan.
Summary of important points

- The most frequently seen vulval dermatoses are dermatitis, psoriasis and lichen sclerosus.
- Streptococcal vulvovaginitis is seen only prepuberty and candidiasis postpuberty.
- Clinical appearance is often not helpful in making the diagnosis of candidiasis.
- Candidiasis causes itch and burning, typically worse premenstrually.
- All postpubertal patients should have a low vaginal swab to diagnose candidiasis rather than treating empirically.
- A secondary irritant contact dermatitis from topical imidazoles is very common.

Conflict of interest: none declared.

References


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