Childhood conditions

Head lice

Head lice infection is common in young children. Effective treatments are available, but treatment failure may occur if products are not used correctly. Parents are often embarrassed to seek advice, particularly if the child has head lice. Pharmacists can reassure parents that the condition is common and does not in any way indicate a lack of hygiene.

Head lice infection is most commonly found in children, particularly at around 4–11 years, with girls showing a higher incidence than boys. Older children and adults seem to be less prone to infection.

Signs of infection

Checking for infection

Wet combing of the hair is a more reliable detection method than scalp inspection. Parents can easily check for infection by combing the child's hair over a piece of white- or light-colored paper, using a fine-toothed comb.

The hair should be combed one section at a time. The hair at the nape of the neck and behind the ears should be thoroughly checked. These spots are preferred by lice because they are warm and relatively sheltered.

If live lice are present, some will be combed out of the hair and onto the paper, where they will be seen as small beige, black, greyish or brown-colored specks. Cast shells are discarded as the louse grows and appear yellowish in color. Louse faeces may be seen as small blackish specks on pillows and collars.

Nits

The presence of empty eggshells – the cream- or white-colored nits attached to the hair shafts – is not necessarily evidence of current infection unless live lice are also found. This happened because empty shells are firmly glued to the hair shaft and will not be removed by the lotion used in treatment.

Itching

Contrary to the popular belief, **itching is not experienced by everyone with head lice** .Itching of the scalp is an allergic response to the saliva of the lice, which is injected into the scalp in small amounts each time the lice feed. Sensitization does not occur immediately, and it may take weeks for itching to develop. The absence of itching does not mean that infection has not occurred.

Previous infection

In particular, it is important to know whether there has been a recent infection, as reinfection may have occurred from other family members if the whole family was not treated at the same time. Head-to head contact, between family members and also among young children while playing, is responsible for the transmission of head lice from one host to the next.

Management

Preventative Measures:

1. Avoid direct contact with infected patients.
2. Do not share articles such as combs, brushes, hats and towels
3. Use hot water to wash hairbrushes and combs of patient for 10 minutes.
4. Use hot water to wash clothes, bedding, and towels of patient.

Note: Shaving the head is not an effective treatment because lice can cling to as little as 1 mm of hair.

Treatment

There are three options

- Dimeticone
- Insecticide (malathion, permethrin, phenothrin and carbaryl)
- Wet combing (‘bug busting’).

Note: Dimeticone and the insecticides malathion, permethrin and phenothrin are available OTC, while carbaryl is a prescription-only medicine (POM).

Formulation? Which one?

There are two issues to consider when choosing a formulation: *the concentration of insecticide and contact time with the scalp.*

Lotions are the preferred treatment for head lice. A lotion is applied to the scalp and the hair left to dry for 12 h or overnight to increase the likelihood that eggs are killed. The insecticide is therefore in contact with the hair for a long period of time and at a high concentration. ***By contrast,*** a cream rinse or shampoo is diluted by water, so that the concentration of insecticide is lower. After shampooing, the hair is rinsed so that the insecticide is in contact with the scalp for only a short time.

Because several applications of shampoo are needed, compliance may not be achieved, and treatment failure can result. A cream rinse is left on for 10 min and a foam for 30 min before shampooing off, so the contact time is short.

Alcoholic and aqueous lotions

Alcohol-based formulations are generally useful but are not suitable for all patients because they can cause two types of problems:

1- Alcohol can cause stinging when applied to scalps with skin broken as a result of scratching.

2-Secondly, in patients with asthma, it is thought that alcohol-based lotions are best avoided, as the evaporating alcohol might irritate the lungs and cause wheezing, perhaps even precipitating an attack of asthma (very rare).

Dimeticone Lotion 4%:

It is derived from silicone oil. it is not an insecticide. It kills lice by suffocation and disrupting their ability to regulate water. Dimeticone is thought to coat the lice and prevent the insects from excreting excess water. Products with this mechanism of action may become the preferred treatment for head lice as it is unlikely lice will develop resistance, which can occur with insecticide-based treatments.

It is applied to dry hair and scalp, left for 8 h and then rinsed off. A second application is used after 7 days.

Adverse effects from using a dimethicone lice treatment are unlikely; in clinical trials of 4% dimethicone lotion, itching or irritation of the scalp or neck was reported by less than 2% of participants.

Advise to avoid lotion dripping into the child's eyes, which can cause irritation; this was reported by less than 1% of participants in clinical trials.

Dimethicone lotion is also used in emollients and cosmetics, and is not absorbed via the skin.

Insecticides

The lotion or liquid should be applied to dry hair and scalp and left for a minimum contact time of 12 h (or overnight). A repeat application 7 day after the initial treatment should be recommended. This second application will kill any lice that have emerged from eggs in the meantime.

Wet combing method

Wet combing, or bug busting, is used to remove lice without using chemical treatments.

Effectiveness of this method is very dependent on repeated use over a fortnight (two weeks). The procedure is as follows:

- Wash the hair as normal.
- Apply conditioner liberally. (This causes the lice to lose their grip on
- the hair.)

- Comb the hair through with a normal comb first.
- With a fine-toothed nit comb, comb from the roots along the complete length of the hair and after each stroke check the comb for lice and wipe it clean. Work over the whole head for at least 30 min.
- Rinse the hair as normal.
- Repeat every 3 days for at least 2 weeks.

Practical points:

It is generally recommended to **treat all family members at the same time** to prevent reinfection from other family member. Another approach is to treat only those with confirmed infection and to check the hair of other family member on regular basis (but it required a high level of motivation)

Oral thrush

Oral thrush is a condition in which the fungus Candida albicans accumulates on the lining of your mouth. Candida is a normal organism in mouth, but sometimes it can overgrow and cause symptoms.

Oral thrush causes creamy white lesions, usually on tongue or inner cheeks. Sometimes oral thrush may spread to the roof of mouth, gums or tonsils, or the back of throat.

Although oral thrush can affect anyone, it's more likely to occur in babies and older adults because they have reduced immunity

.in other people with suppressed immune systems or certain health conditions; or people who take certain medications.

Oral thrush is a minor problem in healthy patient, but in cases of a weakened immune system, symptoms may be more severe and difficult to control

Risk Factors:

- **Weakened immunity:** Oral thrush is more likely to occur in infants and older adults due to reduced immunity. Some medical conditions and treatments can suppress immune system.
- **Diabetes:** untreated diabetes or the disease isn't well-controlled, the saliva may contain large amounts of sugar, which encourages the growth of candida**.**
- **Vaginal yeast infections:** caused by the same fungus that causes oral thrush. the infection may pass to baby.
- **Medications:** Drugs such as prednisone, inhaled corticosteroids, or antibiotics that disturb the natural balance of microorganisms in the body can increase risk of oral thrush.
- **Other oral conditions:** Wearing dentures and poor oral hygiene

Patients assessment and arriving to differential diagnosis

Age

Oral thrush is most common in babies, particularly in the first few weeks of life. Often, the infection is passed on by the mother during childbirth. In older children and adults, oral thrush is rarer, but may occur after antibiotic or inhaled steroid treatment. In this older group it may also be a sign of immunosuppression and referral to the doctor is advisable.

Affected areas

Oral thrush affects the surface of the tongue and the insides of the cheeks.

Appearance

Oral thrush

White patches known as plaques are formed, which resemble milk curds; and they may be confused with the latter by mothers when oral thrush occurs in babies. The distinguishing feature of plaques due to *Candida* is that they are not so easily removed from the mucosa, and when the surface of the plaque is scraped away, a sore and reddened area of mucosa will be seen underneath, which may sometimes bleed.

Previous history

In babies, recurrent infection is uncommon, Patients who experience recurrent infections should be referred to their doctor for further investigation.

Medication

Antibiotics

broad-spectrum antibiotic can predispose patient to oral thrush. Because they can wipe out the normal bacterial flora, allowing the overgrowth of fungal infection. It would be useful to establish whether the patient has recently taken a course of antibiotics.

Immunosuppressive

Any drug that suppresses the immune system will reduce resistance to infection, and immunocompromised patients are more likely to get thrush. Cytotoxic therapy and steroids predispose to thrush. Patients using inhaled steroids for asthma are prone to oral thrush because steroid is deposited at the back of the throat during inhalation, especially if inhaler technique is poor. Rinsing the throat with water after using the inhaler may be helpful.

Also, the pharmacist should identify any treatment already tried. In a patient with recurrent thrush it would be worth enquiring about previously prescribed therapy and its success.

Management

Symptoms should be cleared up within 1 week after starting therapy, if it is not ……referral is required.

Antifungal agents

Miconazole gel

It is the only product currently available as an OTC treatment. Preparations containing nystatin are also effective but are restricted to prescription-only medications.

Miconazole gel should be applied to the plaques using a clean finger four times daily after food in adults and children over 6 years, and twice daily in younger children and infants.

For young babies, the gel can be applied directly to the lesions using a cotton bud or the handle of a teaspoon. The gel should be retained in the mouth for as long as possible.

Treatment should be continued for 2 clear days after the symptoms have apparently gone, to ensure that all infection is eradicated.

Practical points

Oral thrush and nappy rash

If a baby has oral thrush, the pharmacist should check whether nappy rash is also present. Where both oral thrush and nappy rash occur, both should be treated at the same time. *An antifungal cream containing miconazole or clotrimazole can be used for the nappy area.*

Breastfeeding

A small amount of miconazole gel applied to the nipples will eradicate any fungus present.

Threadworms (Pinworms)

Threadworm or pinworm (*Enterobius vermicularis*) is a parasitic worm that infects the intestines of humans. It is common in young children. In addition to recommending OTC anthelminthic treatment, it is essential that advice be given about hygiene measures to prevent reinfection.

Perianal itching is a classic symptom of threadworm infection and is caused by an allergic reaction to the substances in and surrounding the worms' eggs, which are laid around the anus. Sensitization takes a while to develop, so in someone infected for the first-time itching will not necessarily occur. Itching is worse at night, because at that time the female worms emerge from the anus to lay their eggs on the surrounding skin. Persistent scratching may lead to secondary bacterial infection. If the perianal skin is broken and there are signs of weeping, referral to the doctor for antibiotic treatment would be advisable.

Itching without the confirmatory sighting of threadworms may be due to other causes, such as an allergic or irritant dermatitis. In some patients, scabies or fungal infection may produce perianal itching.

Appearance of worms

The worms themselves can be easily seen in the faeces as white- or cream-coloured thread-like objects, about 10 mm in length and less than 0.5 mm in width. In severe cases of infection, diarrhea may be present.

Other family members

Threadworm infection spreads rapidly in families and if one child is infected, it is likely that all other people in the family home have it. The reason for this is that the sticky eggs get under fingernails at night, following scratching, and get passed on to the other children, and then other household members, by oral ingestion. The pharmacist should enquire whether any other member of the family is experiencing the same symptoms. However, the absence of perianal itching and threadworms in the faeces does not mean that the person is not infected; it is important to remember that during the early stages, these symptoms may not occur.

Management

Mebendazole

It is a broad-spectrum anthelmintic which act by inhibiting the uptake of glucose by the worms, causing immobilization and death within a few days. It is largely unabsorbed from the gut and systemic adverse effects are minimal. Mebendazole is the preferred treatment for threadworms and is an effective, single-dose treatment. Compliance with therapy is high because of the single dose. The drug is formulated as a suspension or a tablet, which

can be given to children aged 2 years and over and to adults (100 mg as single dose). Although it is not licensed for use in children under 2 years of age, it can be used for treating threadworm infection in children over 6 months (by doctor's prescriptions only.

Reinfection is common, and a second dose can be given after 2–3 weeks. Occasionally, abdominal pain and diarrhea may occur as side-effects. *Mebendazole is not recommended for pregnant women.*

Piperazine

Piperazine is effective against threadworm. It is available in granular form in sachets. The mode of action of piperazine seems to be paralysis of the threadworms in the gut. The incorporation of a laxative (senna) in the sachet preparation helps to ensure that the paralysed worms are then expelled with the faeces. One dose is followed by another 2 weeks later to destroy any worms that might have hatched and developed after the first dose. Only two doses are required.

Side-effects

Side-effects of piperazine include nausea, vomiting, diarrhea and colic but these are uncommon. Adverse effects on the central nervous system include headaches and dizziness but these are rare.

Contraindications

Piperazine can be recommended OTC for children from 3 months onwards. It should not be recommended for pregnant women. Its use is contraindicated in epileptic patients since it has been shown to have the potential to induce fits in patients with epilepsy.

Practical points

1 Parents are often anxious and ashamed that their child has a threadworm infection, thinking that lack of hygiene is responsible. The pharmacist can reassure parents that threadworm infection is extremely common, and that any child can become infected.

2 All family members should be treated at the same time, even if only one has been shown to have threadworms. This is because other members may be in the early stages of infection and thus asymptomatic.

3 Transmission and reinfection by threadworms can be prevented by the following practical measures:

(a) Cutting fingernails short to prevent large numbers of eggs being transmitted. Hands should be washed after going to the toilet and before preparing or eating food, since hand-to-mouth transfer of eggs is common.

(b) Affected family members having a bath or shower each morning to wash away the eggs that were laid during the previous night.