TREATMENT OF SCABIES & LICE

SUMMARY

- Malathion followed by permethrin and lindane are the treatments of choice in uncomplicated scabies.
- Malathion is the treatment of choice for scabies during pregnancy, lactation, and in young children.
- Combing is an effective means of removing head lice.
- Rotation of insecticides used for head lice treatment is recommended to reduce the risk of resistance developing.

SCABIES
Scabies is a common, highly pruritic and contagious infestation caused by the mite *Sarcoptes scabei*. It is spread through close physical contact with an infested person and rarely spread by clothing or impregnated bedding.¹

CLINICAL PRESENTATION
Pruritus is the earliest and most common manifestation of scabies. Acute onset of pruritus with no previous pruritic dermatoses helps distinguish scabies from many disorders with similar clinical features.¹ Symptoms occur three to six weeks after infestation and coincide with the development of an immune response.² Because of this lag period, unrecognised transmission may continue. If a patient is reinfected, onset of symptoms is rapid, occurring within 24 hours.³

The characteristic burrow is found typically on the wrists, interdigital webs of fingers and groin but may occur anywhere on the body. The presence of the mite can be confirmed microscopically, by removing it from the end of the burrow.⁴

In immunocompromised hosts scabies may become crusted giving rise to "Norwegian Scabies". Here the skin becomes hyperkeratotic with infectious crusts containing hundreds of mites.⁵

LICE
Infestation by lice may involve the head (*Pediculus humanus capitis*), the body (*P. humanus corporis*) or the genital area (*Phthirus pubis*).⁴ Head and pubic (crab) lice live directly on the host whereas body lice are found in the undergarments. The lice on the eye lashes and beard are crab lice.

HEAD LICE
Pediculosis capitis is transmitted by close physical contact. It is more common in school children than adults especially those between 5-14 years and with a female to male preponderance. Head lice infestation usually begins around the ears and nape of the neck. Once a person is infected, the adult female louse lays eggs (nits) that become firmly attached to the hair shaft. A single adult female may lay as many as 140 whitish oval eggs during her life. The louse becomes a mature breeding adult within ten days.⁶

CLINICAL PRESENTATION
Severe pruritus is one of the most common symptoms. This is due to an accumulation of bites on the host's head leading to primary sensitisation manifesting itself as itching. An infestation may therefore go undiscovered for up to 8-10 weeks or longer. With reinfection, irritation may occur sooner.⁶ The presence of live lice and eggs can be checked for using a detection comb with the hair held over white paper. Live lice will be trapped between the teeth of the comb or dislodged onto the paper. Nits will be firmly attached to the hair shafts and may not be removed with an ordinary comb. Live eggs are plump, shiny and vary in colour from grey to yellow brown. Dead eggs are flattened or collapsed and dark brown.⁷

WHO TO TREAT?
For both the treatment of scabies and head lice it is important that all household contacts of the infected person are treated at the same time. School and social contacts should be examined and treated accordingly.

**HOW TO TREAT?**

**Scabies:**
- Thorough body application of scabicide e.g. malathion 0.5%, below the jaw line in adults. The scabicide should be reapplied to the hands if washed during the 24 hour treatment period.
- In children under 2 years the entire body should be covered, avoiding the mouth, where the lotion may be licked off!
- Traditional pre-treatment hot baths are no longer considered necessary.
- Problems with scabicide therapy are commonly due to inadequate coverage and inadequate treatment of contacts. Resistance is rare.\(^8\)
- Lotions are preferable to creams as they give better coverage.\(^9\)

**Lice:**
- Combing using a fine comb (preferably metal) is an effective means of removing lice and preventing reinfeestation.
- Chemical therapy is usually effective and has little toxicity.
- Alcoholic lotions are preferable to shampoos as contact time with hair is longer, they are undiluted with water and compliance may be greater.
- Shampoos are preferable to alcoholic lotions in asthmatics, where the alcohol content of a lotion may trigger an attack and in patients with scalp conditions e.g. eczema.
- For eradication of crab lice the limbs and trunk should be treated.
- Infestation of eyebrows and eyelashes requires mechanical removal of lice and eggs with fine forceps. If chemical insecticides are used an aqueous preparation is preferred, e.g. malathion 0.5%.
- Clothing and not the patient requires treatment for body lice. Washing clothes in hot water and then tumble drying is the most effective means of killing lice and eggs in clothing.\(^{10}\)

**CHOICE OF THERAPY**

**Malathion:**
This organophosphorus compound is effective against a number of clinically important ectoparasites including Pediculosis capitis and Sarcoptes scabei.\(^{11}\) Malathion, as an aqueous lotion, may also be used for eradication of crab lice affecting the genital area and eyelashes (an unlicensed indication). After topical administration, malathion is only minimally absorbed through the skin with less than 10% entering the systemic circulation. Although there have been rare reports of skin irritation, malathion can be applied to broken or eczematous skin. It is the treatment of choice for scabies during pregnancy or lactation and in young children.\(^{11,12}\)

**Permethrin:**
Pyrethrins are naturally occurring insecticides extracted from plants of the genus Chrysanthemum. Synthetic pyrethroids developed from natural pyrethrins have greater insecticidal activity as well as having low mammalian toxicity.10 Permethrin, a synthetic pyrethroid, acts as a toxin to the insects nervous system, causing paralysis and death of the lice or mite. Indicated for eradication of head lice and scabies, permethrin, like malathion, is only minimally absorbed following topical administration. There is no evidence of teratogenicity and so it may be used during pregnancy with caution.1,13 Permethrin may also be used in young children. Adverse reactions to permethrin are rare, the most commonly reported side effect being pruritus.3,13

**Carbaryl:**
Like malathion, carbaryl is an anticholinesterase inhibitor. It is indicated for the treatment of head and pubic lice. Recently there have been reports of a risk of cancer associated with carbaryl when used in laboratory animals at very high doses over prolonged periods. The increased risk is a theoretical one and patients who have used carbaryl products should be reassured that cancer has not been shown with topically applied preparations or in humans.14 Side effects are rare with carbaryl therapy manifesting mainly as skin irritation.12,15

**Phenothrin:**
Like permethrin, phenothrin is a synthetic pyrethroid. Indicated only for head and pubic lice. This treatment is not known to cause any adverse effect in pregnancy and lactation.18 Use without medical supervision is restricted to children older than six months. As it is presented as an alcoholic lotion, it may cause wheezing in asthmatic patients and inflammation or stinging of the skin in patients with severe eczema.

**Lindane:**
Also known as gamma benzene hexachloride lindane is used mainly for the treatment of scabies. It is no longer recommended for the eradication of head lice because of the development of resistance.16 Adverse neurotoxic effects, mainly seizures, have been reported, however most cases have occurred as a result of misuse or ingestion. Lindane should not be used in infants, pregnant or nursing women.3

**Others:**
Benzyl benzoate is the oldest and cheapest available treatment indicated for scabies and lice but has largely gone out of favour in recent years.5 As it is irritant it should not be used on broken or eczematous skin. Dilution is necessary before use in children, which makes it a less effective treatment in this group.

Crotamiton is indicated for pruritus associated with scabies and pediculosis. It is used in children, mainly as adjunctive therapy as its scabicidal efficacy is inferior to other agents.11

5% precipitated sulphur in soft paraffin, is a scabicidal treatment still employed by Consultant Dermatologists for use in young children (less than 3 months).

Ivermectin, more commonly used in veterinary medicine is currently undergoing studies for use in the treatment of scabies and lice in humans.17

**Rotation Policies:**
With time lice become resistant to the insecticides used in their treatment. In order to reduce the risk of resistance developing, it is important that pharmacists and G.P's are aware of the need to rotate the insecticide used. There are currently no formal guidelines for the rotation of insecticides in Ireland. However other countries such as England have adopted policies for rotation as follows malathion for 3 years, permethrin for 3 years, carbaryl for 3 years.7,16,19.
SUITABLE QUANTITIES FOR A SINGLE APPLICATION IN ADULTS

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<th>Skin Creams</th>
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<th>Cream Rinses</th>
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<tr>
<td>Scalp head lice</td>
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<tr>
<td>Body (Scabies)</td>
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<tr>
<td>Body (Crab lice)</td>
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COST OF A SINGLE APPLICATION (Based on GMS/MIMS 1996 prices.)

* Malathion 0.5% (Derbac M Lotion) 50ml £1.50
* Malathion (Rhoderm cream shampoo) 30g £1.19
Pentherin 1% (Lyclear cream rinse) 50ml £1.68
* Pentherin 5% (Lyclear dermal cream) 30g £5.49
Carbaryl 0.5% (Carylderm lotion) 50ml £1.36
Carbaryl 1% (Derbac-C liquid) 50ml £1.50
Lindane 1% (Quellada lotion) 100ml £1.94
* Benzyl benzate 25% (Ascabiol Emulsion) 100ml £1.26
* Crotamiton 10% (Eurax cream) 30g £1.45
Phenthorin 0.2% (Headmaster Lotion) 50ml £1.36

* GMS Re-imbursable.

REFERENCES

5. Practitioner, 1994; 238: 632-635.