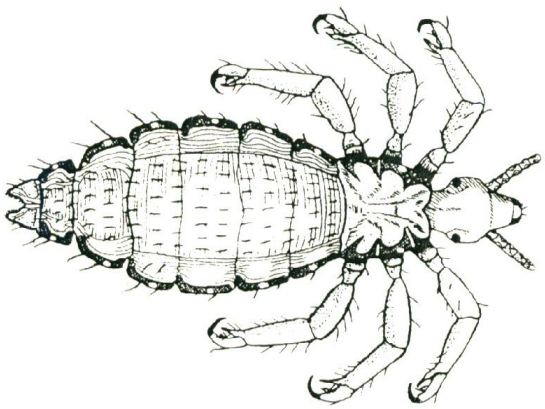
LICE

Lice are small, dorsoventrally flattened, wingless insects with a life cycle that involves incomplete metamorphosis (ie, the larval stages look very much like the adult). They have mouthparts that are modified for piercing and sucking and are obligatory ecto-parasites of humans. Lice spend their whole life cycle on or near the host, with both sexes feeding on blood and leave it only to transfer to another similar host. Lice are highly host specific.

The parasitic lice of humans are of 3 varieties:

1. *Pediculus humanus capitis* (Head louse).
2. *Pediculus humanus humanus* (Body louse).
3. *Pthirus pubis* (Crab louse or Public louse).

The body and head lice are morphologically similar and they can interbreed to produce fertile or offspring.



Pediculus humanus humanus, the body louse (The head louse, *P. humanus captis*, looks virtually the same.

Pediculus humanus capitis is found only on the hair of the head of man and measures 2-4 mm in length. It has curved teeth around the mouth for folding the skin and 3 small stylets for piercing it. The strong legs end in a single hook-like claw and an opposing tibial process for gripping hairs.

A female lays about 6-8 eggs per day and has a life-span of about one month. The eggs are cemented onto the base of the hairs on the bead, especially above and behind the ears, and the back of the neck. Eggs hatch in 7 - 10 days and the duration of the nymphal cycle is about 7 - 9 days.

The head louse, which is usually transmitted by close contact is most prevalent among school children. It is also commonly found in the hair of elderly and senile individuals unable to care for themselves. Most infections, especially in children, are light (10-20 lice) with only moderate itching of the scalp caused by sensitization to louse saliva. When large numbers of lice are present, however, there may be fever and aches and often secondary infection of the lesions, including impetigo, which can be carried by the louse.

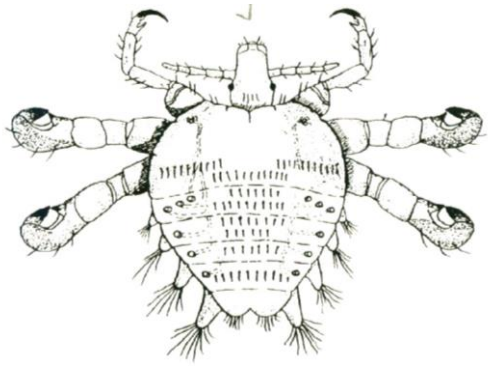
Diagnosis is usually by finding live lice or empty egg shells (known as nits and measuring 0.8 x 0.3 mm) attached to hairs. The head louse is not known to transmit any parasitic or viral disease of man.

Peduculus humanus humanus, the body louse is almost identical to the head louse, but lives in clothing and visits the skin only to feed. It is most common in persons of unclean habits in cold climates where heavy clothing is required and bathing is infrequent. It is transmitted by contact or by clothing or other personal items infested with nits. It is not seen in Sri Lanka.

The body louse is the vector of *Rickettsia prowazeki*, which causes the highly pathogenic epidemic. The organism multiplies in the cells of the louse gut and man becomes infected when louse faeces are rubbed into the abrasion or membranes of the eye and mouth. It kills the louse in about 12 days. Trench fever is also a serious disease which was particularly prevalent in soldiers in the two world wars. It is caused by *R. quintana* which also multiplies in the louse gut and infection is from a crushed louse or its faeces. Louse-borne epidemic relapsing fever is caused by *Borrelia recurrentis*.

When a louse bites an infected individual, the spirochaetes ingested with the blood meal penetrate the gut wall and multiply in the haemocoele. Another person can be infected only when a crushed louse is rubbed into an abrasion or perhaps when one is cracked between the teeth.

Pthirus pubis also known as crab lice, are small (up to 2 mm) lice that prefer widely spaced, coarse hairs. They are often found on the pubic hair or, in children on eyelashes or eyebrows. The adult may remain at the base of a single hair and is very difficult to see. Transmission is usually by sexual contact: and less commonly through toilet seats, bedding or clothing.



Pthirus pubis, the public louse showing large tarsal claws of mid and hind legs

Treatment

Head lice: several different preparations can be used. A 0.5% malathion lotion in 78% alcohol is reportedly the most effective, but it must be left on for 8-12 hours after application. It has an unpleasant smell and until the alcohol dries, it is inflammable. Permethrin lotion is also effective. Various preparations containing pyrethrins with piperonyl butoxide are also available but are considered less effective than malathion or permeethrin. Lindane shampoo that contains benzene hexachloride, is also effective.

Body lice: changing and washing the clothes in water hotter than 70°C. In epidemic situations insecticidal powders (10% DDT, 1%HCH, 1% Malathion powder) may be applied simultaneously to the body and to clothing.

Crab lice: on the pubic area, it should be treated as for head lice. For infestation on the eyelashes, nits and lice may be removed with forceps. Ophthalmic ointments of eserine (0.25% physostigmine) or of yellow oxide of mercury are both effective.

Control

Mass delousing campaign may be necessary to control the epidemic disease spread by lice. These usually involve the application of insecticidal powders such as 10% GBH or 10% DDT simultaneously to the body and to clothing. Exposure of infested clothing to temperature of 70^{o}C or more for 30 minutes will kill lice and eggs.