

BIOLOGY

Infectious And Non-Infectious Diseases

RINGWORM

INFECTIOUS DISEASE

The Cause of the Disease:

Ringworm is caused by various types of fungi. These fungi are known as Dermatophytes. This fungi feeds on keratin, found in hair, which is why ringworm is found in areas where bodily hair is present. Ringworm is divided into categories regarded where it is occurring:

- Tinea capitis: Ringworm of the scalp, eyebrow and lashes.
- Tinea corporis: Ringworm of the body.
- Tinea cruris: Ringworm of the groin region, often known as, "jock itch".
- Tinea unguium: Ringworm of the nail.
- Tinea barbae: Ringworm of the beard.
- Tinea pedis: Ringworm of the feet, often known as athlete's foot.
- Tinea manuum: Ringworm of the hand.

The Method of Transmission:

Ringworm is an infectious disease. It is spread by direct contact between person to person, or person to animal (cats, dogs, cattle, etc.) and even contact with soil. It can also be contracted through indirect contact with contaminated items such as clothing, towels, manchester, chairs. It can also be contracted through same usage of showers with an infected person, but this link is only when personal hygiene is extremely poor.

The Symptoms/ Host Response:

Symptoms of Ringworm include:

- Red, itchy, scaly patches.
- These patches redder around the outside, and normal skin tone in the center, making it look like a ring.
- The patches may have pus.
- If ringworm occurs on the scalp, bald patches will occur.

The Treatment

Firstly, ringworm is fairly easy to diagnose. A doctor can simply take a look at the rash. A doctor can also perform tests such as a skin biopsy.

If you are diagnosed with ringworm, treatment is fairly simple. It includes:

- Keep your skin clean and dry.

- Apply antifungal creams, powders, lotions, or creams that contain miconazole, clotrimazole, or similar ingredients to infected areas.
- Don't wear tight clothing which rubs the skin. Wear looser clothing allowing the skin to breathe.
- While infected, wash sheets and clothes worn every day.

If you have a severe case of ringworm or ringworm is reappearing or on the scalp you are prescribed stronger medication. Sometimes from itching, infections can occur and you may be prescribed antibiotics.

The Prevention and Control of the Disease:

- Keep your skin and feet clean and dry, by performing regular hygiene rituals.
- Shampoo regularly, especially after haircuts, as tools may not be sterile and the infection can be transmitted.
- Do not share clothing, towels, hairbrushes, combs, headgear, or any other personal care items with infected people. If an infected person has used such items, they should be thoroughly cleaned with products killing all the fungus and dried after use. If not then products should never be reused and disposed safely.
- Wear closed shoes, even sandals, at gyms, lockers, and pools. This will prevent you from contracting ringworm on your feet.
- Do not touch pets with bald spots, as this is a symptom of ringworm.
- Wash hands after being in public places or public transport.

Social Issues such as History and Epidemiology:

Ringworm has been present since before 1906. During this time periods, ringworm was treated with mercury, sulfur or iodine. Extremely hairy areas of skin, such as the scalp were treated with x-rays and antiparasitic medication.

Epidemiology of Ringworm in Cattle

Ringworm is prevalent in calves between the ages of two and seven months. This is mainly due to their low immunity as a result of lack of exposure. Especially in areas of high humidity ringworm can survive for up to 12 months.

In the 1970's- 80's there were cases of the epidemiology of ringworm in race horses. The fungus was transmitted by infected saddle-girths. On the saddle's the fungus could survive up to 12 months. Abrasions from the saddle to the horse during riding allowed the development of lesions. Young horses, particularly under the age of 3 were most susceptible to the disease, due to lack of immunity. It was also prevalent in humid conditions.

THALASSEMIA

NON-INFECTIOUS DISEASE

The Cause of the Disease:

Thalassemia is an inherited blood disorder, in which the body creates an abnormal form of the protein, haemoglobin. Haemoglobin is made of two proteins: Alpha globin and beta globin. Thalassemia is caused when there is a defect in a gene that helps control production of either one of these proteins. Two types of Thalassemia can occur:

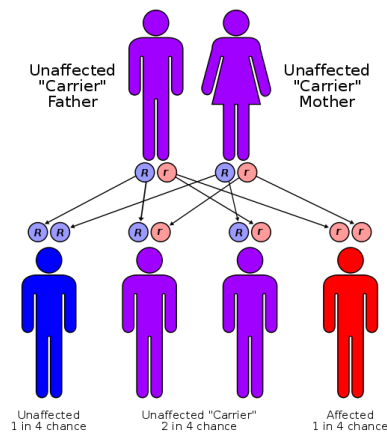
Alpha thalassemia occurs by the deletion or mutation of certain genes, which control the production of alpha globin protein.

Beta thalassemia occurs by the deletion or mutation of gene, which control the production of the beta globin protein.

Within these forms of thalassemia there are subtypes: major or minor thalassemia. With thalassemia major (also known as Cooley's anaemia) a very severe form of thalassemia and thalassemia minor less so.

The Method of Transmission:

Thalassemia is an inherited disease. As a recessive gene, if one parent is thalassaemic then there is a chance the child will have thalassemia, but will only develop thalassemia minor. However, if both father and mother hold the gene then the child holds the chance of contracting thalassemia major.



The Symptoms/ Host Response:

General symptoms of thalassemia minor include:

- Bone deformities in the face
- Fatigue
- Stunted growth
- Shortness of breath
- Jaundice
- Weakness
- Anemia

Children born with thalassemia major (Cooley's anemia) are at first normal at birth, but can develop anemia during their first year. Children may also grow quite slowly. There may be feeding problems, fevers and diarrhea. Without early treatment, an infant may die or develop severe problems, such as bone deformities, enlarged liver and spleen, weak bones.

Treatment:

People with thalassemia major often require regimented blood transfusions to increase iron levels. Bone marrow transplants can occur, particularly for young thalassemic major children, to increase the level of healthy red blood cells.

People with thalassemia minor do not need heavy treatment but as anemia is a symptom of thalassemia iron tablets are prescribed to maintain healthy iron levels.

In extreme cases bone marrow transplants between mother and child are now being performed as a cure. The results are: thalassemia free survival rate 70%, rejection 23% and mortality 7%. Majority of positive outcomes occurring in infants.

The Prevention and Control of the Disease:

As thalassemia is an inherited disease there is not much anyone can do to prevent or control it. However, if planning to have a child one can be tested for the thalassemic gene, or if one has thalassemia they can be prepared to facilitate for their child.

Social Issues such as History and Epidemiology:

Thalassemia is often associated with people of Mediterranean and Asian backgrounds. The Maldives has the largest thalassemia carrier rate of 18%. On average 3-8 % carrier rate of people from Asian origin, specifically people from China, India, Pakistan, Bangladesh etc.

Thalassemia can often protect people living in areas of high malaria risk such as Africa, against malaria due to the red blood cells' capability of being easily broken down.