

Medicine for Managers

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A Look at the Nails

Our fingernails and toenails can tell us a considerable amount about the state of our health. When examining a patient, the eye may be distracted by the cleanliness of the nails or the quality of the manicure but close inspection can reveal, not only local disease or injury, but more generalised and often serious diseases.

The nails are tough plates of horn-like material which cover the upper surfaces of the fingers and toes in humans, primates and some other mammals. They are made of keratin, which is a durable protein and which is also the key constituent of horn and hoof.



Beneath the nail is a matrix which contains a network of nerves and blood vessels which produce the cells that become the nail plate. Size and shape of the nail depend on the anatomy of the fingers or toes. As long as the matrix is healthy the nail will continue to grow. New nail plate cells push the older cells forward towards the tips of the digits and the older cells become flattened and translucent. In consequence the blood vessels beneath the nail plate

become visible making the nail bed look pink. At the growing end of the nail is the lunula (*small moon*) which can be seen as a crescent shaped whitish moon-shaped structure.

During a consultation with a doctor the nails are likely to be inspected. They may reveal a variety of changes including:

- Colour changes
- Brittleness
- Pits and dents
- Grooves
- Lines and stripes
- Changes in the nail bed beneath the nail
- Destruction of the nail
- Infection of the nail fold

Common Nail Disorders

Brittle or Crumbling Nails. Such nail changes are commonly seen because of the cosmetic consequences. Nails become more

brittle with advancing age and repeated exposure to chemicals such as detergents, various industrial agents and even water



can cause them to crumble. In such circumstances the only way to protect the nails is to wear gloves to protect the nails during exposure and to rub a moisturiser in the nails on a frequent basis. Sometimes, however, the breaking or crumbling may be associated with more specific local or systemic problems:

- **Fungal nail infections** (*onychomycosis*). These infections are usually caused by a dermatophyte fungus (the sort of fungus that causes athlete's foot). The infection develops slowly causing the nail to become thickened, distorted and discoloured. Generally the infection is pain free. The diagnosis is confirmed by taking clippings from the nails which are tested in the laboratory, including by examination under a microscope, and infections can usually be cleared by the use of an antifungal nail paint or tablets.
- **Lichen Planus** is a skin condition which causes changes on the skin and in the mouth and the nails are involved in about 10% of cases.

Sometimes only the nails are affected. There is brittleness and crumbling, often with marked surface ridging and darkening of the nail colour. The lunula may become raised. The condition is managed by a dermatologist.

- **Psoriasis** affects the nails at some time in almost everyone who suffers from the skin disorder and about 50% of psoriasis-sufferers have the nail changes at any one time. The nails are crumbly with pitting, grooves and roughening. The nail changes tend to improve with effective treatment of the general skin condition.
- **Thyroid disorders**, both underactivity (*hypothyroidism*) and overactivity (*thyrotoxicosis*) may result in nail changes. The nails may be brittle, crumbly and pale in colour. Improvement occurs with resolution of the disorder.

Paronychia. This is very commonly seen in surgeries. There is inflammation in the skin around the nail with pus accumulating



between the matrix and the surrounding tissue. The affected area becomes red, swollen and tender. The cause is usually a bacterial infection with *Staphylococcus aureus*. The acute infection is managed with antibiotics but nail surgery may be necessary if the problem is recurrent. A more mild chronic form of paronychia may occur in association with skin disorders such as eczema or psoriasis, with fungal infections or occasionally with a skin infection called *Pseudomonas* which produces a greenish discolouration. If the condition is persistent or recurrent, partial or sometimes complete removal of the nail is required.

Changes in Nail Colour. They may become discoloured for a variety of reasons:

(a) White Nails. Commonly seen in the elderly and in pregnant women, iron deficiency anaemia will result in the nail bed losing its colour and the nails appear white. Other causes may include liver cirrhosis, malnutrition and thyroid over-activity.

(b) Yellow Nails. The nails will appear yellow in



patients with jaundice. The colour may also be seen in some chronic infections, with some drugs, e.g. mepacrine, and with some respiratory diseases such as tuberculosis and bronchiectasis.

(c) Brown Nails may occur with pregnancy, malnutrition and sometimes with thyroid disease

(d) Grey Nails are a feature of the use of some drugs such as antimalarials and some long-acting tetracyclines.

(e) Green Nails may be the result of an infection beneath the nail with the bacterium *pseudomonas*. Treatment is with antibiotic usually in the form of eye or ear drops. An alternative may be to use dilute acetic acid (vinegar) to bathe the nails.

(f) Brown and White Nails. These may be seen in patients with kidney failure and are white near the lunula and brown towards the tips. The mechanism of the colour formation is not understood but up to half of all renal failure patients show the changes.

(g) Black Nail. Usually isolated and normally secondary to trauma resulting in a bleed beneath the nail bed (*subungual haematoma*).



The blood darkens making the nail appear black. It resolves spontaneously but the nail may become detached and lift off. Generalised black nails may be seen on occasion in vitamin B12 deficiency syndrome

(h) Brown stripes. In people with dark skin stripey nails are not uncommon but in Caucasian skins the development may be an indication of a melanoma. The skin cancer



develops under the nail (*subungual melanoma*) and will only affect one nail.

Disorders of Nail Growth. It is very common to see people with thickened, broken and often irregular nails for reasons described above.

- **Loose Nails.** Most commonly nails become loose and fall off following injury. The classic injury is the toe trodden on by a horse. There is bleeding beneath the nail which separates and is lost. A variety of other conditions can lead to loosening of nails (*onycholysis*), such as fungal infections and warts beneath the nail but other causes are relatively rare.
- **Overgrowth of nails.** In some patients, particularly the elderly who cannot reach their toes to manicure them, the nails become thickened and elongated so that, eventually, conventional nail-



cutting equipment becomes ineffective. Such nails have the colourful name of an *onychogryphosis* (literally a ram's horn). Treatment is generally by a hospital chiropodist or, to eliminate the problem, nails may be removed surgically.

Other nail changes.

Pits, dents, grooves and funny shapes. There are a variety of conditions that produce anatomical stigmata on the nails:

(a) Grooves. A series of lines running

transversely across the nails (called *Beau's lines*) may signify a period of severe illness where growth has been temporarily disrupted. It may



also occur with chemotherapy or other constitutional disturbance.

(b) Pitting. Sometimes the nails appear pitted and the change may be seen with skin diseases such as eczema.

(c) Clubbing. This is an interesting change which



occurs at the tips of the fingers in some patients with chronic lung disease or heart disease and, less commonly, with other chronic illnesses. The fingertips become bulbous and the fingernails curve over.

(d) Splinter haemorrhages. These are tiny linear haemorrhages lying along the long axis of the



fingernails. They are traditionally a feature of infective endocarditis although they are now seen less commonly because of the decline of

the disease. They can also occur with some blood cancers and severe anaemia.

Many nail problems can be treated by medication or by treatment of the general condition but many cannot. Examination of the nails can tell a lot about the health of an individual. When assessing a patient they are worth the look!

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