

(Refer to page 331)

Answer: Meuhrcke's lines

The Panel showed white bands known as '**Muehrcke's lines**' or '**leuconychia striata**' separated by brown lines and from the lunulae by areas of normal pink nail. These lines are not palpable indentations of the nail. Meuhrcke's lines was first described by Dr Robert C. Muehrcke in 1956, on a series of 65 patients who had undergone cytotoxic therapy. He suggested that the changes were related to a single biochemical alteration associated with the use of cytotoxic agents.

The first description of typical Muehrcke's lines are "paired transverse white line, parallel to lunula" and are typically found in the second, third and fourth fingers. The white bands typically cross the entire breadth of the nail and tend to be more homogenous to the lunula. The bands can occur in several nails at once – either fingernails, toenails or both. The white bands are in the vascular nail bed underneath the nail plate, and therefore do not move with nail growth and do not indent the nail (which is different from **Beau's lines**, which are actually changes in the nail plate resulting in indentations). Muehrcke's lines blanch on pressure.

Muehrcke's lines have been linked with various systemic disease and use of cytotoxic agents for the treatment of malignancies. There are also correlation between the development of the bands and duration of the



systemic insults which can be estimated by measuring the distance from the proximal nail fold to the leading edge of the pigmentation change.

The actual pathophysiology is unknown. There are reports that proposed the relationship between Muehrcke's lines and low serum albumin (<2.2g/100mL): nephrotic syndromes and severe nutritional deficiencies. Cytotoxic agents such as doxorubicin, bleomycin and fluorouracil, are also associated with Muehrcke's lines and with only slight decrease in serum albumin (less than 4g/100mL). It is hypothesised that localised oedematous in the nail bed (from hypoalbuminaemia) exerts pressure on the underlying vasculature and thereby decreasing the normal erythema of the nail palate. On histology, Muehrcke's lines have "compact orthokeratotic keratinous material in combination with areas suggesting delay in keratinisation" and "no evidence of parakeratotic change present".³ The white bands can disappear with replacement of albumin and appropriate treatment of underlying condition.

REFERENCES

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- 3: Schwartz RA, Barnett CR. Muehrcke lines of the fingernails. *Medscape Reference.* Available from <http://emedicine.medscape.com/article/1106423-overview#showall> (Accessed 26th September 2011).