SELF-ASSESSMENT PROGRAMME

A 36 year old male clerk complained of spotty thickening of the palms and the soles and darkening of skin over the trunk, the face and the extremities for 9 months. The lesions were asypmtomatic and gradually progressive. There were no systemic manifestations. There was no history of ingestion of any drugs, indigenous or others.

His wife (non consanguinous) and son had similar complaints of punctate thickening of the palms and the soles without much change in pigmentation for 5 months.

Examination revealed punctate hyperkeratosis of the palms and the soles. Nails were brittle, thin and extremities showed slate grey diffuse and spotty hyperpigmentation. No other skin lesions were discovered. Systemic examination was non-contributory.

A. What is the likely diagnosis?

1. Punctate keratoderma
2. Arsenical keratoses
3. Darier's disease
4. Lichen planus

B. Which of the following investigations would be most helpful?

1. Skin biopsy
2. Arsenic estimation of hair and nails
3. X-ray chest
4. Barium swallow study of oesophagus.

The skin biopsy showed the presence of dyskeratotic cells and pronounced but irregular acanthosis.

C. Which of the following two is the more likely possibility?

1. Darier's disease
2. Arsenical keratoses

Arsenical content of hair and nails was seen to be elevated.

D. What is the likely outcome?

1. Progression to squamous cell carcinoma of the skin
2. Development of associated systemic malignancies
3. Spontaneous resolution.

E. What should be the line of treatment.?

1. No active treatment.
2. Local cauterisation and destruction of the lesions.
3. Systemic administration of BAL or sodium thiosulphate.

ANSWERS

A. The presence of keratotic lesions together with pigmentation on the trunk suggests arsenical keratosis as the most likely diagnosis. The presence of similar lesions in his wife (no blood relation) lends further support to the diagnosis. In the absence of other skin lesions it is difficult to make a diagnosis of Darier's disease or lichen planus. Punctate keratoderma is autosomally dominantly inherited and could explain the keratotic lesions in the son but not in the wife. The chances are that it would be an environmental disease most probably due to the ingestion of arsenic.

B. Skin biopsy and arsenic estimation of hair and nail are both essential since many a time a typical Bowenoid picture of arsenical keratoses may not be forthcoming and a diagnosis then would depend upon the estimation of arsenic content in the hair and nails.

C. For making a diagnosis of Darier's disease, it is necessary to find a cleavage or spot in the epidermis. Irregular acanthosis and dyskeratotic cells would do very well for arsenical keratoses.

D. Left alone the lesions are likely to progress to local or invasive squamous cell carcinomata. Spontaneous resolution must be very uncommon indeed and association of systemic malignancies is uncertain.

E. Administration of BAL (British Antilewisite, Dimercaprol) is a quasi-specific treatment for arsenic toxicity which tends to mobilise arsenic that is combined with tissue proteins. Local cauterisation of lesions may be undertaken as a palliative form of treatment.

Comment

Chronic arsenical poisoning occurs through occupational (insecticides), medicinal (e. g. Fowler's solution) or environmental exposure (water). Environmental exposure was perhaps responsible for keratoses in this family. Skin manifestations of chronic arsenical toxicity are : diffuse pigmentation which generally appears first, punctate hyperkeratotic lesions on the palms and the soles followed, several years later, by Bowenoid lesions. Hyperpigmentation may improve gradually after cessation of exposure to arsenic[1]. Punctate keratoses may undergo malignant transformation or evolve into lesions of Bowen's disease. These latter lesions may, in turn, develop into invasive squamous cell

carcinoma ; a periodic followup is therefore mandatory. Evans[2] studied 144 subjects who had received medicinal arsenic. Seventeen of these developed premalignant tumors and six of them had multiple lesions. Chemically induced cancers have long latent periods ; in Evan's study it was 21–47 yrs. Patients who developed cancer were older in age and their skin arsenic content was not elevated. Various internal malignancies associated with arsenic include respiratory, gastrointestinal and urinary tract tumors. Of these, lung cancer has more frequently been reported[3]. Our earlier case discussed in self-assessment programme[4], had multiple keratoses, including palmoplantar, Bowen's patches ; cutaneous squamous cell carcinoma and an adenocarcinoma of the bronchus.

References

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