Yaws is a disease caused by Treponema pallidum subsp. pertenue, a spirochaete closely related to Treponema pallidum, the causative agent of syphilis. It is one of the non-venereal treponematoses, the others being pinta and endemic syphilis.2 The endemic treponematoses are transmitted by direct contact, acquired during childhood and can cause severe late manifestations years after initial infection.

Yaws is chronic and manifests in primary and secondary stages. The primary stage is characterised by a single skin lesion (“mother yaw”) followed by multiple disseminated lesions. The skin lesions are infectious and may persist for years. Late manifestations include bone, cartilage and joint infections in the form of granulomas (gummata) or destructive lesions which cause deformities.

In the 1930s yaws was an endemic disease in the hilly areas of the princely state of Travancore in South India. Dr. Sankaran Govindan was an assistant surgeon in Kadakkal, a small town in what is now Kollam district, Kerala. The following description and the above photos are from his records of the disease (unpublished, 1936).

“The primary lesion is almost always single and often occurs at the site of an existing ulcer or bruise. The primary lesion may be too small to attract attention or as big as a rupee resisting all local treatment and persisting for years.

Young children of both sexes are very susceptible to the attack of Yaws. The tender skin of children coupled with their poor vitality must play a great part in the high incidence of the disease in them. Healthy children with primary or secondary manifestations get over the disease in course of time. Nevertheless, at any period of their life under favourable conditions, the latent infections may reappear with secondary or even tertiary manifestations. The secondary stage begins before or after the primary lesion heals, with desquamation all over the body in characteristic patches, each patch being made up of a...
number of small rounded papules the enlargement and coalescence of which results in the formation of a granulomatous ulcer. Mucocutaneous junctions like the angle of the mouth, anal margin and vulva are common sites for ulceration. Less commonly areas rich in sebaceous secretion form a suitable spot for the early appearance of ulceration- inner aspect of the arm, axillae, groin folds, perineum, etc.

The secondary manifestations sometimes appear after a period of years. In weak individuals the ulcerating condition is more prolonged and extremely destructive. It makes the patient a cripple. The tertiary manifestations are gummatous in nature and gummatous periostitis is common.

Bow legs are one of the characteristic features of Yaws. The nasal septal cartilage can be affected, producing a depressed nose. The loss of the natural nasal prominence and a soft feeling at the bridge have many a time enabled me to diagnose a very early case of Yaws.

The most common late manifestation in adults is the Foot and Palm lesion. These heal with atrophy of skin leaving leucodermic patches and intervening areas of deep pigmentation.

Chronic synovitis with joint effusion is seen sometimes, commonly affecting the knee.

Neo-Salvarsan is a specific for the disease. But this treatment was found to be too costly when a large number of poor patients had to be treated. Sodium bismuth tartrate was found to be as effective as the Salvarsan group of drugs”.

The standard treatment for treponemal infections was the arsenic compound Salvarsan which was too costly for routine use. Govindan read about alternative drug treatments for yaws and hit upon bismuth. Different compounds of bismuth had been used for the treatment of syphilis since 1921.1

Govindan called on Professor Narayanan Potti, then head of the department of chemistry at University College in Trivandrum. Professor Potti synthesised and purified the sodium bismuth salt of tartaric acid for him in quantities sufficient for mass use. Dr Govindan and his assistants travelled from village to village by bullock cart and injected one dose each intramuscularly into each affected individual. The team treated 12,000 villagers over a period of three years with a high degree of success in all stages of disease. As a result of these efforts yaws was eradicated from Kadakkal and the surrounding villages.

A few photographs of patients before and after treatment still exist (a selection is reproduced above). They show near-complete resolution of the cutaneous lesions after treatment with sodium bismuth tartrate.

References