

THE INSPECTIONAL VALUE OF PHRYNODERMA AND 'SORE MOUTH'

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MALNUTRITION may be considered to be due either to disease or to dietary deficiencies. When it is due to the former it may require a long and thorough inspection to find the cause. But the medical inspection of groups of persons such as school children, gangs of labourers constructing railways or other public works, employees in factories, or convicts in jail, is often required to decide the adequacy or otherwise of their diets.

Conclusions from these inspections have been based to a large extent on general appearances. When an individual shows adequate subcutaneous fat, firm muscles, a shining skin, clear eyes, a bright unworried expression and an alert gait, he has been well fed. But when an individual is very thin, or fat and flabby, without muscular tone, has a dry and rough skin, and an appearance of fatigue or hyperirritability, he is ill fed or diseased.

Not only are there many degrees between these extremes, but a well-fed and healthy person may be thin and not alert, and an improperly-fed person may have ample adipose tissue and retain muscular tone.

Consequently it is difficult to give sound judgment from general appearances, and the conclusions of one inspector may be at variance with those of another; and slack and casual inspection is likely to be the result where the conclusions are made from indefinite signs.

Attempts have been made to determine the state of nutrition of school children by measuring and weighing them, and comparing their heights and weights with those given in standard tables. This method has been far from successful because some children are naturally tall and thin and others are short and stout. It is much better to use the measure and the scales at frequent intervals, and judge from gains or losses, but this requires time and is not always practicable.

Therefore any definite signs, or even symptoms, which are due to dietary deficiencies, will be of great value for the inspections of groups of persons.

In two recent papers (1933 and 1934) I have discussed the prevalence of two signs of dietary

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distinction between individuals of different age groups; had the adult population only been taken into consideration in appraising the value of this measure it might have been acclaimed as a success. (But in the absence of any comparable controls even this would have been questionable.) As it is, it must be reported as a failure, but only a failure as far as the special circumstances are concerned, and these appear to have been such that failure was a foregone conclusion.—
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deficiency namely phrynodermia and 'sore mouth' among school children, prisoners, and others in Ceylon. The former sign is due undoubtedly to vitamin-A deficiency, and probably the latter also is due to this deficiency, although there may be other factors. It is not surprising that the poorest classes of the teeming East should fail to obtain a sufficient quantity of vitamin A in seasons when green vegetables are scarce, because they cannot afford comestibles of animal origin which contain this vitamin.

The great value of these two signs for medical inspections has become well established in Ceylon, and are of special importance to school-inspecting medical officers.

The following four examples, selected from among others, will serve to illustrate this:—

Example I.—In an inland town there is situated a well-built school run by missionaries, and they receive and teach four classes of children—(1) orphans who are boarded; (2) day scholars of the poorest classes who are taught in the vernacular; (3) boarders who pay fees and are educated in English; and (4) day scholars who pay fees.

The orphans live apart from the paying boarders and receive a much inferior diet.

Table I shows the results of the inspection:—

TABLE I

	Number examined	SHOWING PHRYNO- DERMA		SHOWING 'SORE MOUTH'	
		Number	Per cent	Number	Per cent
Day paying scholars	58	5	8.6	8	13.7
Paying boarders ..	54	6	11.1	3	5.5
'Vernacular' day scholars ..	43	20	46.5	16	37.2
Boarded orphans ..	52	43	82.6	20	38.4

The degree of phrynodermia and 'sore mouth' in those children who paid fees was very slight, with the exception of three girls who had advanced phrynodermia, and two who also had 'sore mouth'. On enquiry into their circumstances it was discovered that they were sisters, and had lost their mother and were being 'cared for' by a guardian.

Example II.—An orphanage situated in a country district was inspected. When the inspection was finished, a visit was paid to a free vernacular school in the same district to enable a comparison to be made between the children

of the orphanage and those of the poorer classes living at home. Table II gives the results :—

TABLE II

	Number examined	SHOWING PHRYNO- DERMA		SHOWING 'SORE MOUTH'	
		Number	Per cent	Number	Per cent
Orphanage ..	130	83	63.8	33	26.0
Vernacular school ..	75	16	21.3	5	6.6

An enquiry was made concerning the morbidity and mortality at the orphanage, and it was obvious that both were very high but exact figures could not be obtained because it was customary to send sick children to their relatives or to hospitals and to avoid deaths taking place on the premises. Despite this it was found that among 313 children between the ages of 6 and 14 who had entered the orphanage there had been 18 deaths.

This is a death rate of 57 per 1,000 which is ten times as high as among children between these ages of the general population, where the death rate is 5.8.

Example III.—A drought affected the greater part of Ceylon during this year (1934), and this was particularly severe in the Northern provinces.

Mannar is a small town situated on a northern island, which is connected by a long causeway with the mainland. Here there had been no rain for seven months and it was reported that the inhabitants were unable to obtain sufficient food.

Before examining the children of this town, a village school twelve miles away on the mainland was visited. This village was situated between two large tanks and water was still available from one of them for the irrigation of gardens, and vegetables were procurable by the poorest classes. The diets of the children consisted of unpolished rice, fresh tank fish or dried fish, vegetables, and a small amount of fruit.

The vernacular children of Mannar were inspected on the following day. Their diets consisted of unpolished rice, dried or fresh sea fish, and the saccharine juice of the fruit of the palmyra palm, and a few children occasionally obtained a small amount of vegetables.

The country was parched and no leafy or ground vegetables were to be seen growing anywhere. In the compounds of the better classes there were seen shrubs and trees bearing 'vegetables' or fruits, such as drumsticks, pomegranates, limes and bananas, which were being irrigated with small amounts of water from wells.

The following table (table III) shows the comparison between the vernacular children of Mannar and those of the school in the village 12 miles distant.

TABLE III

	Number examined	SHOWING PHRYNO- DERMA		SHOWING 'SORE , MOUTH'	
		Number	Per cent	Number	Per cent
Mannar ..	150	33	22	23	15.3
Village ..	70	4	5.7	6	8.6

Example IV.—In conversation with Dr. Crawford, the Government Veterinary Surgeon, I mentioned that milk or eggs quickly cured phrynodermia and 'sore mouth'. He remarked jokingly that the children of the coolies who milked the cows at the Government Dairy should be free from those conditions. An inspection was arranged and the next morning 46 children of the workers at the dairy were lined up. I picked out six children from different places in the line, four of them had marked phrynodermia two also showing 'sore mouth', the other two had slight phrynodermia. The rest of the children were not only free from these signs but also had unusually good teeth for this class of child in whom decay following hypoplasia is very common.

Dr. Crawford called for the fathers of the children I had picked out, one coolie claimed the four of them that had the most marked signs, and another coolie claimed the other two. The first coolie was in charge of the stud bull, he had nothing to do with the milking of the cows, and was of a different caste to the other coolies. The second coolie was a cleaner, who did not milk the cows.

Discussion

Other orphanages in Ceylon have been inspected and the results have been much the same as those given in examples I and II.

The children of these institutes usually are supplied with ample rice, and in the ordinarily accepted sense of the term they are not being starved. Undoubtedly those in charge of them would resent such a suggestion. The type of diet the poorer classes obtain in their own homes consists of rice, a small quantity of dried or fresh fish, vegetables, and the usual condiments for curry, also *dal* or green gram may or may not be added to the curries.

Now there is a considerable difference when such diets are prepared by housewives, and when they are prepared in institutions. The

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THROMBO-ANGIITIS OBLITERANS

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THIS condition was recognized first by Von Winiwarter in 1879 and described by him as endarteritis obliterans. It has been fully described by Buerger recently, and it was he who gave it the name of thrombo-angiitis obliterans.

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former have learnt to produce variety, especially with the vegetables. A number of different plants having edible leaves or fruits grow in the gardens and jungles, and these are obtained by the women of the indigent classes. There is a Sinhalese proverb which points out the necessity of a daily addition of green leaves to the diet. Also there are many varieties of dried fish. Therefore the housewives are able to mitigate the monotony of the daily curry.

The managers of orphanages obtain their supplies from the cheapest vendors. Only vegetables which are obtainable in bulk and are easily handled are supplied: and pumpkins, gourds, coarse cucumber, drumsticks and bread fruit in season are the main vegetables supplied. The dried fish is the cheapest obtainable. The diet may be varied by giving a *dāl* curry once or twice a week, and occasionally a meat curry. Fruit is seldom given.

It is this lack of variety which plays a great part in producing the signs of food deficiencies among the orphans.

A similar state of affairs has existed in the prisons (Nicholls, 1933). Many of the convicts come from the indigent classes, and in their normal lives they obtain only the barest of dietary necessities. The punishment factor in jail life has been accentuated in the past, and it has been judged unreasonable to supply convicts with a diet as good or better than that obtainable by them when at liberty.

The law has declared a penal diet, whereby a convict, during the first fortnight or month of incarceration, is supplied with a diet deficient in proteins and vitamins; and it is not astonishing that a large number of prisoners have shown phrynodermia, 'sore mouth' and other signs of vitamin deficiencies.

The diets of the indigent classes being on the threshold of deficiency cannot be further reduced without affecting the health of those who consume them.

It is probable that in other tropical countries these two signs will be found of great value in checking up the adequacy of diet.

REFERENCES

- Nicholls, L. (1933). *Indian Med. Gaz.*, Vol. LXVIII, p. 681.
Nicholls, L. (1934). *Ibid.*, Vol. LXIX, p. 241.

It is characterized by the following:—

(a) It is a disease of the larger blood vessels showing the histological characters of an inflammatory lesion. The larger arteries of the limbs are generally affected. Veins are also affected to a certain extent. Thrombosis occurs and is followed by organization of the clot. This produces embarrassment of the circulation.

(b) It usually occurs in males, generally between the 30th and 40th years.

(c) The lower limbs are more commonly affected than the upper.

(d) It is said to occur mostly amongst the Jews, but is found in other races.

(e) Its origin is not known. Michel in 1909 noted the importance of smoking as a factor in causing it, but it is not known if the bad effects are due to the vasoconstricting action of nicotine, or tobacco sensitization of endothelium of arteries and veins.

Symptomatology.—The patient's first complaint is intermittent claudication with the sensation of severe pain, rigidity or constriction about the calf of leg. The pain is produced and increased by exertion, e.g., walking. The ability to walk any distance gradually diminishes.

The cases are all bilateral but as a rule the symptoms are noticeable on one side more than on the other. Some cases also complain of vascular disturbance in the hands. These disturbances are of the nature of spasmodic Raynaud's type.

The feet are cold; their colour is dusky owing to cyanosis. Dependent position of the limb produces some degree of rubor in nearly all cases. It is marked by absence of pulse in the dorsalis pedis, posterior tibial, popliteal and even in the femoral arteries. Later on a peculiar rubor, oedema and trophic lesions appear, and, in more severe forms, gangrene develops calling for amputation. A common mode of onset of these grave troubles is by an onychia, usually of the great toe, the nail-bed being ultimately transformed into an intractable, callous and painful ulcer with no tendency to heal.

Superficial thrombo-phlebitis is occasionally found in association with it. Many of these cases suffer from intolerable rest pain which causes a rapid deterioration of health.

Pathological changes.—Telford and Stopford (1924) noticed the following changes in the vessels:—

'There is lymphocytic invasion of the coats of the arteries and veins. Cells are replaced by fibrous tissue and new vessels may be seen extending through the adventitia to the media. Along with these changes parts of the lumen become occupied by a clot which is gradually organized. In this obliterating connective tissue a number of small channels are found which have a lining of endothelium surrounding this; some possess a thin coat of smooth