

Child Wastage, due to Malnutrition in Sekhukuniland

BY

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Anyone working in this area cannot fail to be struck by the prevalence of kwashiorkor in a part of South Africa which has in another connection been described as a "picture postcard land" (*The Star*, Johannesburg, May, 1958).

As there is no reliable register of births and deaths, it is impossible to obtain any statistics on infant mortality and morbidity. The only method of assessing the incidence of any particular disease lies in the study of hospital records. This does not, of course, give the full extent of child wastage, as there is a percentage of patients who never reach hospital.

It was thought worth while to analyse the disease pattern of all children under twelve years admitted to this hospital to gain an impression of the incidence of malnutrition. The year 1956 was chosen at random. Where "malnutrition" was the primary diagnosis on discharge, cases were presumably proven free of parasitic infestation or tuberculosis, as laboratory and X-ray facilities are available at the hospital. Cases in which malnutrition complicated other diseases were not classed as such, except where gastro-enteritis was associated. As expected, malnutrition emerged as a very prominent cause of childhood disease and death.

Malaria has been virtually absent for the past ten years in this part of the Transvaal; the incidence of bilharzia is negligible, and there is a remarkably low incidence of ascariasis and tapeworm infestation, although giardiasis appears to be prevalent. The virtual absence of the major parasitic diseases in our cases of malnutrition affords an interesting comparison with cases occurring in other parts of the world where kwashiorkor is prevalent.

THE HOSPITAL AND THE PATIENTS

The Jane Furse Memorial Hospital is a well-equipped 230-bed Anglican Mission hospital which serves the African reserve of Sekhukuniland in the North Eastern Transvaal, lying in a triangle formed by Pietersburg in the north, Middelburg in the south and Lydenburg in the east. The altitude varies between 4,000 and 4,500 feet; the average rainfall is 23 inches,

which in a bad year might all fall in a short period of the summer. Scrubby middle-velde vegetation, eroded soil, empty river beds and clusters of mud huts are set against a backdrop of the Lulu Mountain range.

The population of 200,000 lives under very primitive conditions, mostly under the old tribal system. Women, children and old people form the bulk of the community, as almost all able-bodied men have migrated to the towns to find work and provide cash for the family's needs. Very often the mealie crop is barely sufficient to sustain the family. Husbands usually come home on visits at intervals, and with regular road motor traffic between the Reef towns and the reserve there is a ready inroad for tuberculosis and other infections.

The women have, or desire, large families, and their main interest appears to centre on the baby at the breast. These are brought to the hospital or one of the ten district clinics in large numbers for complaints varying from "noises in the stomach" to complete and prolonged failure to thrive. Breast-feeding usually continues for two years, often accompanied by forced feeding with hard porridge from the early weeks. Weaning means a diet solely consisting of mealie porridge or kaffir corn, usually cooked to a stiff cake. Sometimes wild spinach is added. Occasionally infants are given cows' or goats' milk, usually well diluted with water. Eggs, though often available, are not used as a food because of local superstition, and meat is saved for weddings and special occasions. Money is spent at the stores on sugar, white bread, sweets and sometimes tea, jam and the odd tin of condensed milk.

This monotonous diet forms such an integral part of existence among the bulk of the population that the concept of disease caused by deficiency in the diet is not easily accepted by the mother, although many of them, being admitted to the hospital with their babies, are perhaps convinced by the "proof of the pudding." Although mother-lodger accommodation is only provided for breast-fed babies, cases of kwashiorkor are admitted with the mother or grandmother in the hope that, on discharge, they will persevere in adding dried skimmed milk (available at the clinics at a subsidised price) to the diet.

Many mothers volunteer their impression that they have insufficient breast milk and perhaps have a vague feeling that this may be the cause of failure to thrive, but usually a respiratory infection or a bout of diarrhoea is blamed.

Very often a marasmic toddler will continuously suck at the mother's empty breasts, while the occasional case of overt kwashiorkor occurring in a breast-fed infant has been shown by test-weighs to obtain a total of only 3-5 oz. of breast milk in 24 hours. Where tribal custom of family spacing has broken down and a mother prematurely weans an infant due to a new pregnancy, an attempt may be made to add milk to the diet, but the powdered milk from the shop is made up in such weak dilutions that the inevitable onset of kwashiorkor may be only slightly delayed.

Mothers who have lost several babies in infancy sometimes withhold breast milk from birth, convinced that "bad milk" was the cause of death. It is not unusual to find an infant being reared on only one breast; the opposite breast appears normal on examination, though not producing much milk; the mother complains of "sores inside the breast and the baby refuses to suck from it."

It must be stressed, however, that these are exceptions, and one can only marvel at the facility with which African women, mostly in suboptimal health and many frankly malnourished, so successfully breast-feed their babies. The impression is that the babies thrive up to the age of about six months, after which

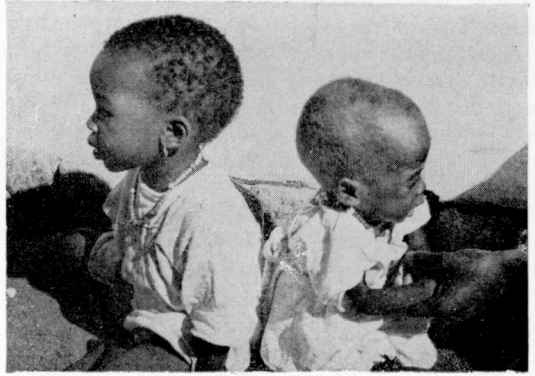


Fig. 2—The straight and fine hair of kwashiorkor is seen in contrast to the healthy, curly and black hair of a normal African.

there appears to be a definite falling off in weight gain and general development.

THE TYPES OF MALNUTRITION

Suboptimal nutrition is the rule rather than the exception in infants and children who attend the hospital and clinics. Scant, depigmented, soft hair, dry, scaly skin and stunted growth are so common that these features would not be classed as "malnutrition" in the final diagnosis of a case discharged from hospital.

Overt malnutrition, as seen here, can be roughly divided into five broad groups:

- (1) Kwashiorkor or malignant malnutrition.
- (2) Nutritional oedema.
- (3) Marasmus.
- (4) The "miniature" toddler.
- (5) Avitaminoses.

Kwashiorkor

This is the most malignant and florid form of malnutrition. The rapidity of onset of gross oedema is often striking; the same doctor may pass as "mild" a case of malnutrition at a clinic and then admit it as a full-blown case of kwashiorkor a week later. There is, in these patients, not always the usual "final straw" of a bout of diarrhoea or a bottle of vitamin syrup. It may be the packet of dried skimmed milk pressed on the mother and given in full strength without preliminary grading.

Infants with kwashiorkor in Sekhukuniland look very similar to their brethren in other parts of the world (Fig. 1). Pallor of the skin and hair, lack-lustre eyes, apathy and gross oedema are the most striking features; the cracked-paint dermatosis varies in extent and is most marked

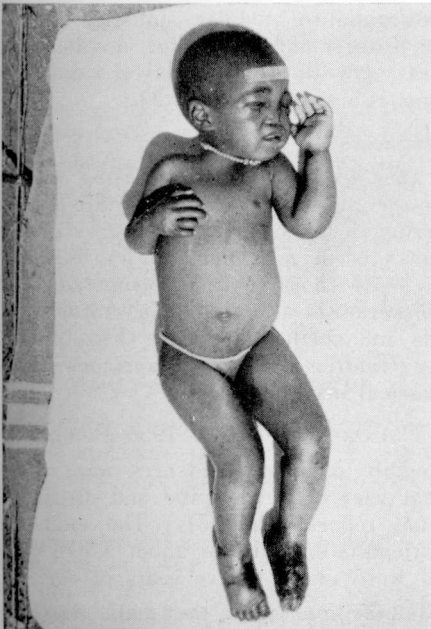


Fig. 1—An infant showing the classical features of kwashiorkor.

on the lower limbs and in the napkin area (Fig. 2). Other findings include petechial haemorrhages, angular stomatitis and a bright scarlet buccal mucosa. Occasional cases have deep linear ulcerations in the flexures, circular indolent ulcers on the scalp, cancrum oris and corneal softening which may rapidly perforate. All cases have diarrhoea with watery, yellow and sometimes frothy stools, which is often intractable and may continue for weeks, even while good progress is maintained.

The blood changes, being uncomplicated by malaria, hookworm or sickle cell anaemia, presumably reflect the effects of malnutrition alone; they consist of a mild to moderate dimorphic anaemia, a proportion of cases showing megaloblasts in the peripheral blood. It is hoped, in the near future, to examine the bone marrow in a consecutive series of cases of varying severity. Blood transfusion is only rarely required.

Nutritional Oedema

In these cases oedema, usually gross, occurs as an apparently isolated entity. The hair is black and crisply curled, the skin smooth and dark. The patients give a false impression of plumpness, only the "sugar-baby facies" with marked mental apathy being out of keeping with apparent well-being. When the oedema subsides these cases become almost unrecognisable, with dark-ringed hollow eyes and wasted limbs (Fig. 3).

Marasmus

Marasmus in the early months may occur in



Fig. 3—After the oedema has cleared the child is left with sunken eyes and wasted limbs.



Fig. 4—Two marasmic infants.

one or both of twins, and others, where breast milk is grossly inadequate for prolonged periods and no complementary feeds have been attempted (Fig. 4). These wizened babies with cold, flexed limbs rarely show any of the stigmata of kwashiorkor. Whereas rickets is rarely encountered, it is not uncommon in these marasmic infants. They have a bad prognosis, despite careful feeding, and many have reached the "point of no return."

Miniature Toddlers

The miniature toddler similarly shows few of the features of kwashiorkor, despite markedly stunted growth and delayed development. Oedema is also absent (Fig. 5).

Avitaminoses

In this group have been classed various recognisable vitamin deficiency syndromes usually occurring in older children. Scurvy is common and may occur as a more or less isolated deficiency; pyorrhoea is usually superadded. Follicular keratosis, xerophthalmia, enlarged parotid glands and cheilitis are seen (Fig. 6). A few young children show a pellagrinous dermatitis of classical distribution.

ANALYSIS OF THE 1956 FIGURES

Roughly 35,000 attendances were registered in that year at the hospital and district clinics (annual report, 1956-57). The total number of patients admitted was about 4,500, of whom 1,430 were under twelve years of age.

"Malnutrition" was the main diagnosis on discharge in 64 out of the 1,430 cases admitted, i.e., 4.5 per cent. of all admissions under twelve years. Thirteen of these cases died, including



Fig. 5—A miniature toddler being held by the nurse. Both children are three years old.

deaths in the first 48 hours following hospitalisation, giving a death rate of 20 per cent.

The average age of admission was two years (to the nearest quarter year). The total time spent in hospital by these 64 cases was 2,000 days, giving an average stay per patient of 31 days. The average stay per patient of all admissions for 1956 was 19.2 days.

Deaths from all causes in children under twelve numbered 64, giving a total death rate of 4.5 per cent.

ANALYSIS OF ALL DEATHS

Malnutrition accounted for 20 per cent. of all deaths and was second only to respiratory infection as a cause of death in children under twelve.

Respiratory infection (including pertussis and measles with bronchopneumonia)	14
Malnutrition	13
Gastro-enteritis	9
Tuberculosis	6
Tetanus neonatorum	4
Pyogenic infections (including meningitis)	3

Diphtheria	2
Prematurity	2
Miscellaneous (including nephritis, jaundice, cardiac deaths and accidents)	11
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	64

SUMMARY AND CONCLUSION

An attempt to assess the extent of child wastage due to malnutrition in Sekhukuniland is made by analysis of hospital admissions in the year 1956, which was chosen at random. Of the 1,430 children under 12 years admitted to Jane Furse Hospital, 4.5 per cent. had "malnutrition" as the primary diagnosis on discharge. Twenty per cent. of these cases died and malnutrition was the cause of death in 20 per cent. of all deaths under twelve years. Five groups of overt malnutrition are described and stress laid on the fact that suboptimal nutrition and development are the rule rather than the exception in infants over six months and young children. The absence of parasitic diseases in the area accentuates the role played by malnutrition in children as a cause of ill-health—often prolonged and sometimes fatal. While economic factors may be difficult to remedy, an appreciation of the ignorance, superstition and apathy prevalent in matters of infant care serves as a constant reminder of the vital importance of health education. Great importance is attached by the mother to the youngest child, and it is most encouraging to find how willing many mothers are to carry out simple health measures once confidence and trust in the doctor and the hospital have been established.

Acknowledgment

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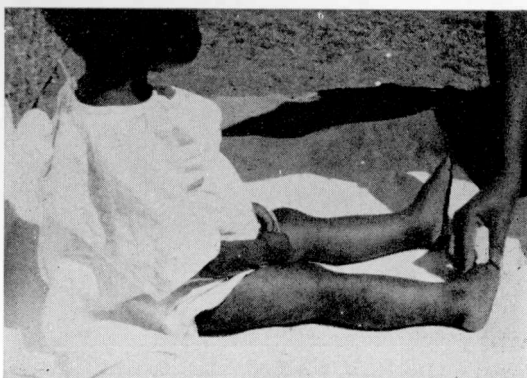


Fig. 6—Follicular keratosis. Note the follicles on the right thigh and leg.