

the length of the forearm. The corresponding measurements in inches on the two sides are:—

	Right	Left
Circumference of wrist ..	11	6½
Circumference of forearm ..	12	9
Circumference of upper arm ..	11	9½
Length of forearm ..	12	11
Length of upper arm ..	14	14

Examination.—In the right extremity the colour and thickness of the skin and the distribution of hair appear normal, and it receives an undiminished blood supply. The nails however show trophic changes. The secretions, sweat and sebum are produced in normal quantities. All sensory impulses are carried normally. No active or passive movements of the thumb and forefinger are possible. There is slight movability of the middle finger. Motor function of the right little finger is unimpaired. The right forearm shows a subcutaneous lipoma. Due to the heavy weight of the right extremity and the desire to avoid unnecessary movements there is wasting of the biceps, infraspinatus and teres major muscles.

X-ray.—In the hand (figure 3) the first and second metacarpal bones are enlarged and thickened. There



Fig. 3.

is extensive proliferation of bone in the phalangeal joints. No joint spaces in between the phalanges are seen, as there is bony ankylosis. The phalanges are also enlarged and thickened. There is extra bone formation on the medial side of the first, second and third phalanx near the joint. In the wrist the carpal bones are not individually distinguished from one another, as there is proliferation of bones and bony ankylosis. In the forearm the radius shows thickening at its middle. Exostoses are seen in connection with the upper end of the radius.

General examination.—There is no other abnormality. Heart and lungs are normal, liver and spleen not palpable, reflexes present, genital organs normally developed, no changes in bones and joints, apart from his right arm. He does not even show any signs of senility (arcus senilis, atrophy of the skin, etc.), his mind is active and he takes a keen interest in various subjects. All his teeth except two are well preserved. The urine shows no albumin, sugar or urobilinogen. My first impression was that it might be a case of elephantiasis, but there was no evidence of filarial infection.

Discussion.—If we consider malformations such as congenital dislocation of the hip, club hand and club foot, webbed fingers and other congenital deformities, in most cases we are as ignorant of the ultimate cause as of the cause of tumour growth. The relations between tumours

and malformations are very intimate, and it is hard to draw a dividing line between them. The classification of tumours is based on the type of tissue and mode of growth rather than on their aetiology, if we define a tumour as a mass of tissue growing without any regard to the laws which govern and restrain the growth of normal tissue. Gigantism, partial or universal, falls in the same group.

We understand that the complicated structure of bone is extremely sensitive to disturbances of metabolism. We know the rôle of phosphorus, calcium and magnesium salts and vitamins in certain bony alterations. We have some knowledge of the influence of hormones on the growth of bone. We know about the disturbance in calcium metabolism through loss of the parathyroid. The chromaffin system, the ovaries and testes, the thymus and hypophysis also play an important part in bone formation and growth. In acromegaly we happen to know the cause of the excessive growth, namely hyperplasia or increased activity of the anterior lobe of the pituitary gland; the bones as well as the soft parts of the face, hands and feet become greatly thickened.

In hypertrophic pulmonary osteo-arthropathy, which results in elongation of the bones of the extremities, the new bone formation is supposed to be due to the absorption of some toxic substance, since it accompanies chronic lung diseases.

Apart from the malformation described above in detail, a lipoma and exostoses are present. Is the existence of three different kinds of tumours on the same extremity a mere coincidence? Exostoses are sharp outgrowths from the surface of a bone, usually recognized to be the results of fractures or of some inflammatory disease. But how are we to explain their frequent occurrence in one family and in cases where the history does not reveal injury or inflammation?

In the growth under discussion probably its cell structure is less abnormal than its excessive vigour of growth. The balance of growth between various tissues is maintained by a higher law which we cannot understand.

I am indebted to Dr. Jayaram, radiologist, Bowring and Lady Curzon Hospitals, for the x-ray examination and the report on it.

A CASE OF DYSTROPHIA ADIPOSO-GENITALIS

By BANSIBAT DUTTA, M.B.

Howrah

S. K. M., Bengalee, Hindu, male, aged 17 years, came under my treatment on the 11th March, 1938, with the following complaints:—

(i) Gradual increase in weight, (ii) deposition of excessive fat, (iii) somnolence, and (iv) mental deficiency.

All these complaints began to manifest themselves about three years ago.

Previous history.—Patient suffered from chronic tonsillitis about five years ago for which the tonsils were removed. He was having nocturnal enuresis since early boyhood.

Physical examination.—The patient had a round face with double chin (see figure 1). There was no hair in the axillæ, pubic region and on the face. There

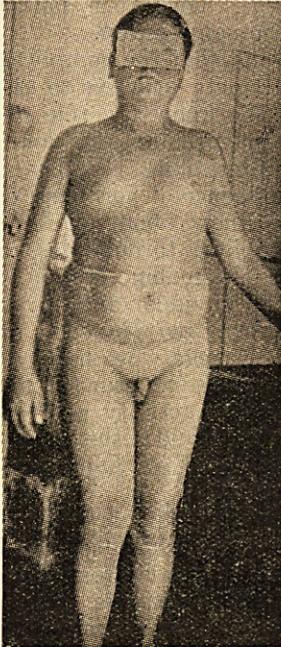


Fig. 1.—Before treatment.

was deposit of excessive fat on the breasts, anterior abdominal wall and the buttocks, which made his appearance rather feminine. The external genitals were rudimentary. The penis measured 3 cm. in length and was about the girth of the tip of the little finger. On the left side there was a small soft testis in the scrotum about the size of a pea with testicular sensation. On the right side, however, there was no testis and no sensation. The subcutaneous inguinal ring on the right side was smaller than that on the left. The height of the boy was 58½ inches. The chest and abdomen measured 33 and 34 inches, respectively, and the weight was 120 pounds.

Provisional diagnosis.—Dystrophia adiposo-genitalis.

Treatment.—The patient was given extract thyroid siccum, half a grain twice a day on empty stomach and Lugol's iodine solution, five minims twice daily, and he was kept on a diet with restriction of fat and carbohydrates. He had also milk and banana diet once a week and complete fasting once a week. Parenteral administration of the gonadotropic hormone from the anterior pituitary given every other day with increasing doses of the thyroid extract for a month and a half produced the following improvements:—The right testis descended into the right side of the scrotum, the latter becoming more roomy. Testicular sensation was present but the gland was very soft. The left one became bigger; the size was nearing that of an adult. The penis was enlarged and resembled that of an adult in shape. The hairs in the pubic region started developing. The height increased to sixty-one inches (gain in height—2½ inches), but the weight of the patient was reduced by three pounds.

The same treatment was continued, only the dose of thyroid extract was increased gradually till 4th May. It was now that the patient developed polyuria (12 to 15 times daily), the total quantity amounting to 85/90 ounces a day. The urine was examined and a

skiagram of the base of the skull was taken. The urine did not contain any sugar and the skiagram showed no abnormality of the sella turcica and the anterior and posterior clinoid processes, so that any congenital tumour of the pituitary body could be excluded.

The patient was given whole pituitrin—0.5 to 1 c.cm. every other day in place of the anterior pituitary hormone for three weeks. The polyuria disappeared.

From the 10th July an intensive course of treatment followed—anterior pituitary hormone 2 c.cm. every other day with thyroid extract, two grains twice a day for a fortnight with milk and banana diet only. There was further improvement as shown in figure 2.

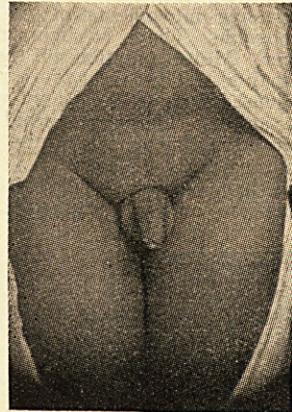


Fig. 2.—After treatment.

19th July. The dose of thyroid was increased up to seven grains daily and anterior pituitary hormone 2 c.cm. on alternate days was continued up to 11th September. The following results were noted:—Height 62½ inches (total increase 3½ inches), weight—106 pounds (total loss 14 pounds); penis—adult shape, partial retraction of foreskin, 4½ inches long. Testis—both descended, adult size and consistency, the right being smaller than the left. Face—masculine; voice—peculiarly masculine with marked personality. Hairs developed on face, axillæ and pubic region; mental condition improved. On prostatic massage and milking the urethra a little prostatic fluid was obtained.

The patient was not willing to undergo any further treatment. However, he was advised to report bi-weekly. On 5th July, 1939, the seminal fluid showed a few motile sperm cells on microscopic examination. Thereafter, the patient underwent no further treatment. The height was 64½ inches.

Points of interest in this case are:—

1. A case of this type is rarely encountered in this country.

2. It is very difficult to increase the dose of thyroid extract without estimation of basal metabolism rate. I had to stop or lessen the dose owing to the appearance of toxic symptoms, e.g., tremor, tachycardia, etc. However, it is an interesting fact that the patient could tolerate seven grains daily.

3. According to some reports the treatment is very likely to be unsuccessful in patients aged more than 10½ years owing to the fact that the testes lose the function of spermatogenesis if they are retained inside the abdomen for a long time. But this particular case has more than proved the efficacy of treatment even after this age.