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Reprinted from Vol. XXI of the 'Clinical Society's Transactions.']

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A Case of Acromegaly. By W. B. Hadden, M.D., and C. A. Ballance, M.S. *Read April* 13, 1888.

THE following case was described by card before this Society on January 23, 1885 (see *Transactions*, vol. xviii, p. 325, "A Case of Hypertrophy of the Subcutaneous Tissues of the Face, Hands, and Feet"). About fifteen months later a brief paragraph appeared in the *Lancet* (April, 1886), headed "Acromegaly," and under this name we found that M. Marie had described a morbid state which tallied very closely with our case (*Revue de Médecine*, April, 1886). In view of the importance of our observation, as it now appears, we deemed it advisable to exhibit our patient once again to the Society, to reproduce our original account, and to put forward briefly the salient points of a condition which, in all probability, has a clinical and pathological history of its own.

The patient is a married woman, and is now 37 years of age. She has had three children in ten years, but no miscarriages. There is nothing noteworthy in her family history.

Up to four and a half years ago she had had no illness, and was a strong, hale woman. Scarlet fever then broke out in the house; one of her children died, and the patient herself had sore-throat, but no rash. Following on this attack she had swelling and pain in both knees, and, from her description, the affection seems to have been rheumatic. A little later the hands began to swell, but the face was not involved.

The patient naturally enough ascribes her present condition to the scarlet fever, though it must be mentioned (and the fact, as will be seen later, is of significance) that she had previously suffered from tingling sensations in the hands, and that the catamenia had ceased a few months before the attack of scarlet fever, and have never reappeared.

On comparison with a photograph taken a few months before the scarlatinal attack, the face is seen to be markedly changed. In striking contrast with her former condition, she is now a big-featured person, with a broad nose, prominent cheek bones, square, massive, and protruding lower jaw, and thick, everted lower lip. The condition of the nose is dependent

on hypertrophy of the nasal cartilages and of the tissues over them, the nasal bones being unaffected. The enlargement of the upper and lower jaw-bones is uniform, and seems to be due to simple hypertrophy. The skin of the face, though pale, presents no obvious alteration. Beneath the eyes there is distinct fulness, but no unusual pallor or translucency, and the circumscribed redness, so commonly seen in myxœdema, is absent. The cranium is natural, and the woman asserts that she has not been obliged to alter the size of her bonnets. The neck is full and short, the subcutaneous tissue over-abundant, and beneath the chin there is a pendulous, soft mass, probably fatty. No enlargement of the submaxillary glands can be detected. The thyroid gland is not to be felt; but it cannot be said with certainty that it is atrophied, since palpation is difficult in consequence of the fulness of the neck. There is slight fulness above the clavicles, and these bones are much curved, and distinctly larger and thicker than normal.

We shall now proceed to describe the most striking clinical characters of this condition, and we may here remark that the name "Acromégalie" (*ακρον*, extremity; *μεγαλη*, large) was suggested by Marie in consequence of the remarkable enlargement of the hands and feet. In our patient the hands are gigantic, though in no way deformed. The hypertrophy appears to be general, but the subcutaneous fatty tissue is probably disproportionately thickened, especially along the inner border of the hand. This overgrowth of fatty tissue is noted in one of Marie's cases. The metacarpal and phalangeal bones are large; their outlines natural. The skin of the hands is moist and in every respect natural; the wrinkles are present on the backs of the fingers. The nails are large and broad, not otherwise affected. Formerly the patient used to wear No. 7 gloves. The measurements are now as follows:— Circumference at metacarpo-phalangeal joints: right hand, $9\frac{3}{8}$ inches; left hand, $9\frac{1}{4}$ inches. Circumference at centre of metacarpal bones: right hand, $9\frac{3}{4}$ inches; left hand, $9\frac{1}{2}$ inches. The right middle finger is $4\frac{1}{4}$ inches long; the left $4\frac{1}{8}$ inches. Broadly put, we may say that the increase in the circumference of the hand is $2\frac{1}{2}$ inches. There is no enfeeblement of the grasp, and the woman says that she can use the hands, even for threading a needle, as well as ever she did.

The enlargement of the feet is in proportion even greater than that of the hands. She used previously to wear large 4 boots, afterwards large 6, and now she wears large 8. At the root of the toes the right foot is $10\frac{1}{2}$ inches in circumfer-

ence, and across the centre of the sole 11½ inches. There is much subcutaneous fatty tissue along the outer border of the foot on the plantar surface, and below the internal malleolus, but very little over the dorsum. The thickened parts form pads, which can be readily taken up by the finger and thumb. As in the case of the hands, there is no deformity of the feet; they are simply gigantic, and nothing more. In marked contrast with the enlarged hands and feet, the forearms and legs exhibit no increase in size.

The skin everywhere is soft, supple, moist, and in every respect natural. The hair on the scalp is soft and glossy, and has no tendency to become brittle or to fall out. The speech is not slow, but it is distinctly guttural. She articulates every word perfectly.

It may be mentioned here that the patient first came under the notice of Mr. Ballance for enlargement of the tonsils, which was of such unusual extent that there was interference with speech, deglutition, and respiration. Though the tonsils were removed the speech still remains affected.

The tongue is large, probably hypertrophied. The soft palate is normal. The heart and lungs are natural. There is no reason to believe that the thymus gland is enlarged, the percussion note over the upper part of the sternum being natural. The abdomen was not examined. No albumen has been found in the urine.

So far as we can ascertain there exists nothing abnormal in the size or distribution of the large arteries of the upper extremities. Briefly, the enlargement of the hands is not accompanied by any appreciable change in the vascular supply. The patient was unwilling to allow anything but a cursory examination of the lower extremities; but so far as we could make out there was no abnormality in the size of vessels, and there were no varicose veins. (Plate VI.)

We have recently discovered that the patient is almost completely blind with the right eye. The date of failure is uncertain, but she believes the sight has been dim since she had what she called diphtheria three years ago. Four months since she discovered that the sight was nearly gone.

There is no history of right-sided headache. Mr. Nettleship kindly made an ophthalmoscopic examination, and reported as follows:—"There is very little direct action to light of the right pupil, but the indirect action is good. There is blue-white atrophy of the right optic disc; the veins are very tortuous, and there is a little tissue at centre of the disc.

There is a single pigment spot on choroid a little above disc. The arteries are normal. There are no other appearances like neuritis. The left optic disc is natural." Mr. Nettleship was of opinion that there had probably been neuritis of the right optic nerve.

In concluding our description we must note that common sensation is intact, that the muscular power is good, that there is no wasting of the interossei or other muscles, that the intellectual processes are unimpaired. In our patient there is no tendency to free perspiration, no excessive thirst, no falling forwards of the head on the sternum, no headache, no general pains, conditions observed by Marie in one or other of his cases.

The clinical state which we have just given accords in all essential points with the two cases described by Marie. We must observe, however, that, assuming the affection to be a distinct morbid entity, there is no reason to believe that it is a "new disease." Marie has collected five instances published by various authors. One was described by Saucerotte in 1772, and another by Alibert in 1822. In Fagge's *Principles and Practice of Medicine,* under the head of sporadic cretinism and the cretinoid state of Sir Wm. Gull (vol. i, p. 757), allusion is made to a case under the care of Dr. Wilks, which was probably an instance of acromegaly. "Her features underwent a most remarkable change, and she became so hideous that the boys shouted at her when she showed herself in the streets. Her face became elongated, and her nose, lips and mouth were enormous. There was not the slightest infiltration or hardening of the skin or subcutaneous tissue. She also had amaurosis, but this was perhaps an independent affection." In a footnote it is further stated that the patient was a young lady of 28, that she had suffered from neuralgia, and that she had gradually become blind. Her features were swollen, and her hands could not be fitted with ordinary gloves. The urine did not contain albumen. After six years, she died comatose. There was no post-mortem examination.* The main clinical

* Dr. Wilks has kindly furnished us with a few particulars regarding this patient. She was very reluctant to be examined, and therefore her body was not looked at, but her mother said the skin was thickened in other parts besides the hands, feet, and face. Dr. Wilks writes, "She was amaurotic from, I believe, optic neuritis, and had constant headache, for the relief of which she came to me. I saw her several times during the year, and nearly all this time she took arseniate of soda. The headache was much relieved, and the mother thought the skin and general condition were better. I saw her last on April 30, 1870, when she went to live in the country, and I heard afterwards she had died in a state of coma. My belief at the time was she had a tumour of the brain."

features of acromegaly have already been sketched out in the foregoing description. It now remains for us to emphasise the main characteristics of the affection, and to discuss briefly its nature.

It would appear that both sexes are liable to be attacked, and that the disease may arise between the ages of fifteen and sixty. As regards antecedents, rheumatism was noted in one of Marie's cases, and our patient describes a swelling of both knees, probably of rheumatic nature. It is interesting to observe (though at present it is impossible to determine the significance of the fact) that in both of Marie's cases, and in our own case, the catamenia disappeared at the onset of the symptoms. Clinically, the disease is characterised by a general enlargement of the hands and feet, the hypertrophy being uniform and without deformity. The physiognomy becomes altered chiefly from hypertrophy of the bones of the face, of the nasal cartilages, and sometimes of those of the eyelids.* The clavicles, the ribs, the patellæ, and the iliac bones may also undergo hypertrophy; but it is important to bear in mind that the long bones, which are mainly involved in osteitis deformans usually remain unaffected in acromegaly.

In addition to the fibro-cartilages of the nose and eyelids, those of the ears and possibly the thyroid cartilage become hypertrophied. It is probable that the optic-nerve affection which we have described is not accidental. In one of Marie's cases there was loss of vision, but unfortunately there were extensive opacities of the cornea which prevented an ophthalmoscopic examination. It will be remembered, too, that in Dr. Wilks's case, to which allusion has been made, complete blindness ensued.

It will naturally be asked, Is this condition a distinct morbid entity unrelated to either myxœdema or to osteitis deformans, to both of which it undoubtedly has certain points of resemblance?

In acromegaly, it is true, the extremities are hypertrophied, but there is not, as a rule, a general increase in bulk, as seen in myxœdema. Again, in acromegaly the skin usually presents no alteration, and its functions are unimpaired, except that perspiration may be excessive. The hair, like the skin, exhibits none of the changes so frequent in myxœdema. The features in our patients do not present the cretin-like aspect, pathognomonic of myxœdema. The bodily and mental torpor,

* Marie mentions hypertrophy of the vault of the skull, especially of the frontal eminences, but this is not present in our patient.

which are rarely if ever absent in this latter disease, even in the initial stages, are certainly not usually, and it may be not ever, a feature of acromegaly. We have been unable to obtain information as to the temperature in our patient, and Marie does not appear to have paid special attention to this point. It would clearly be of the greatest importance to acquire details on this matter in future observations.

Lastly, we must mention that in myxœdema the bones are not hypertrophied, and that disease of the optic nerves, such as we have described as occurring in our patient, is a rare, perhaps an unknown condition.*

But in acromegaly and in myxœdema there is an important common condition, to which as yet we have barely alluded. It appears that in every case of acromegaly in which special attention was directed to the point, the thyroid gland appeared abnormal. In our patient and in Marie's two cases it is not to be felt.

In 1877, Henrot, of Rheims, published a case† which is of the greatest interest and importance. This gentleman communicated his observation to the Myxœdema Committee appointed by this Society, and although it seemed to be of somewhat doubtful nature it was included in the tabulated returns. There is now little doubt that this was an instance of acromegaly.

The patient died, and the result of the autopsy was as follows. The thyroid gland was four or five times the normal size; unfortunately no microscopical examination seems to have been made. There was marked hypertrophy of the entire sympathetic system, both ganglia and nerves, of the brachial plexus, and of several cranial nerves. The skull was natural, except the sella Turcica, which was much enlarged, and the margins of which were considerably thickened. In the situation of the pituitary body there was an ovoid tumour, the size of a small hen's egg, which had pressed on the optic chiasma, flattening it out, and causing great atrophy. Laterally, the tumour had excavated the temporo-sphenoidal lobes. The infundibulum was much larger than normal, and the pineal body at least double its ordinary size. We must call attention in passing to the significance of the morbid change in the pituitary body

* See, however, *Boston Medical and Surgical Journal*, Jan. 1st, 1885, "A Case of Myxœdema with Atrophy of the Optic Nerves." It is possible the case was one of acromegaly.

† *Notes de Clinique médicale*, par le Dr. Henrot, 1877, Rheims; also *Notes de Clinique médicale; Des lésions anatomiques et de la nature du Myxœdème.*

in relation to the optic-nerve affection in our patient, and of the blindness in the cases observed by Dr. Wilks and by Marie. In Henrot's case the sight was affected, but he gives no particulars on this point, and there does not seem to have been an ophthalmoscopic examination. Microscopically, the enlargement of the cervical sympathetic was found to be due to hypertrophy, affecting the ganglionic cells to a greater degree than the nerve-fibres. The posterior part of the pituitary body contained large oval cells, with one or more nuclei. The various parts affected were sent to the Collège de France for complete examination.

In addition to the changes already mentioned, extensive alterations were found in connection with the bones. The small bones of the hands and feet had undergone general enlargement. Numerous osteophytes were found on the lower jaw, the hyoid bone, the tibia, the fibula, the ulna and the radius. These bony outgrowths were developed wherever there was normally any prominence; they were especially evident at the points of attachment of the ligaments and tendons; and they were more marked in the lower limbs than in the upper. Bony plates were found also on the surface of the pia-arachnoid of the spinal cord. Lastly, it may be mentioned that the cartilages of the larynx were ossified, and that the natural prominences were much more marked than normal.

The points of difference between acromegaly and osteitis deformans are numerous. It will be sufficient to mention that in the disease described by Sir James Paget, the bones are not simply enlarged, but also markedly deformed, and that the mode of invasion is not characterised by the symmetry seen in acromegaly. Although it would be premature to assert that the long bones of the extremities are not liable to undergo hypertrophy in acromegaly, there is little doubt that this is not usually the case. On this point more extended observations are wanted.

In osteitis deformans the bones of the cranium frequently undergo remarkable increase, whereas the bones of the face, if enlarged, are but slightly so. In acromegaly the exact contrary holds good. Marie points out that in osteitis deformans the face is triangular with the base upwards; in acromegaly it has the form of an elongated ellipse, whereas in myxœdema it is round like the full moon (see Fig. 9).

It is unnecessary, in our opinion, to dwell on the various points of difference between acromegaly and such conditions

as Virchow's leontiasis ossea and various kinds of local hypertrophy, bony or otherwise.

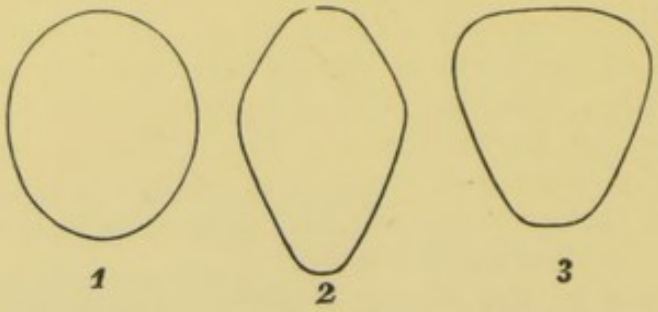

FIG. 9.—Outline of face in—1. Myxœdema; 2. Acromegaly; 3. Osteitis deformans (after Marie).

We venture to express the opinion, based chiefly on clinical considerations, that what has been called acromegaly is a distinct disease, having no real affinity with either myxœdema or osteitis deformans.

As regards pathology we have nothing definite to add, but Henrot's case indicates the line of inquiry to be adopted. At present it cannot be said with any certainty that the disease is dependent on morbid change in the thyroid gland, pituitary body, or sympathetic nervous system.

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DESCRIPTION OF PLATE VI.

Dr. Hadden's and Mr. Ballance's Case of Acromegaly.

FIG. 1 shows the enlargement of the nose, the prominence of the cheek bones, the thickened and everted lower lip, and the hypertrophied lower jaw. The figure also shows the enlargement of the hands as seen on the dorsal aspect.

FIG. 2.—Palmar aspect of hands.

FIG. 3 shows the hypertrophy of the feet.

Fig. 1.

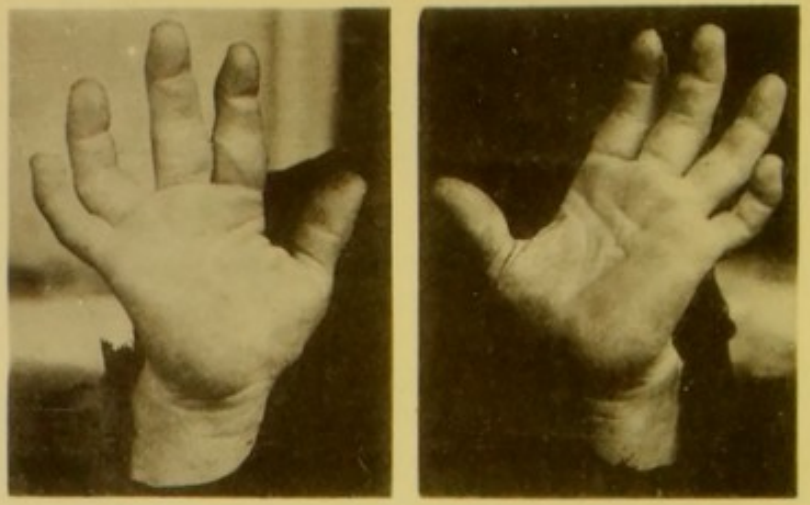

Fig. 2.

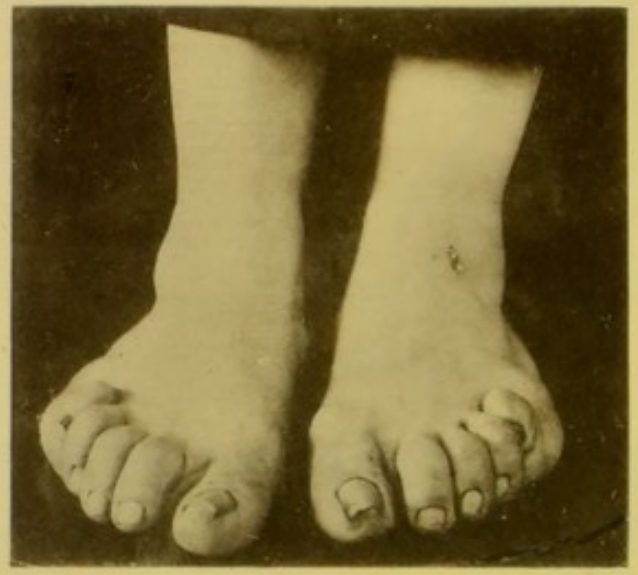

Fig. 3.

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