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compliments*

CASES OF SHORTENING
OF THE
NECK OF THE THIGH-BONE,
WITH REMARKS.



By GEORGE GULLIVER,

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to the Forces. Communicated by Sir James M'Grigor, Bart.
Director-General of the Army Medical Department.

(From the Edin. Med. and Surg. Journal, No. 128.)

SINCE the publication of Sir Astley Cooper's work on fractures, the profession have become familiar with the changes incident to the neck of the thigh-bone in old subjects. But, notwithstanding the memoir of Mr Benjamin Bell, and the more recent observations of Mr Liston and others, there is yet some uncertainty how far interstitial absorption and shortening of this part may be the effect of disease at an earlier period of life.

The examples of shortening of the neck of the thigh bone preserved in our collections, have been generally found in the dissecting-room, from which they have sometimes been produced as instances of reunion of fractures within the joint, and still more frequently attributed to the natural effect of old age. Morgagni expresses a doubt whether he was not deceived in the two cases described by him. Those of Sandifort and Dr Knox were probably original malformations; and of the few examples supposed to have occurred in middle-aged subjects, we have either an inconclusive history, or the case, as described in the living body, has not been completed by an account of the appearances disclosed by dissection after death.

Hence the disease has hardly found a place in the systematic works of pathology, and we require instances of which the history is unequivocal. Of those which I present, one appears to be of this nature, and in connection with this, the others may perhaps not be considered as entirely devoid of interest.

CASE. I. A country boy, aged 15, of healthy appearance, but weak intellect, was brought to me for advice under the following circumstances. About nine weeks before, he had received an injury to the right hip by a fall into a gravel pit, in consequence of which he complained of much pain about the joint, but continued his work without intermission for a month after the accident, when he became so lame that he was obliged to desist. The

pain gradually diminished, but the lameness remained; and in this state he was accustomed to wander about his home up to the period of his visit to me, on which occasion he walked at least a mile.

I had him stript, and made him pace up and down the room as in the examination of a recruit, when I observed, that he inclined his body a little forwards and to the affected side. He limped, but apparently more from diminution of length in the affected limb, than pain; for he planted the foot firmly, and could support the weight of his body on it with but slight uneasiness. There was considerable abduction of the member; it was somewhat everted, and presented a little in front of the other, and the thigh and buttock were rather diminished in circumference. When put on his back, and the bones of the *pelvis* placed exactly opposite, and the extremities parallel to each other, it was plain that the affected limb was at least half an inch shorter than the other, which was verified by comparative measurement between the upper anterior processes of the haunch bones and the *malleoli*. The distance between the centre of the *pubis* and the summit of the great trochanter was also found to be lessened, and a similar diminution appeared between the latter part and the commissure of the nates. No disease could be detected in the coxofemoral articulation; its motions were easy and natural, and when its surfaces were brought into contact by striking the trochanter or pushing up the limb, he complained but little, and not at all when firm pressure was made on the trochanter while the thigh was freely moved, although he experienced considerable pain when forcible extension was practised.

Some months after this description was drawn up, I again saw this boy, when the limb had become considerably shorter, and the lameness had consequently increased. His mother informed me that he had suffered more or less from nocturnal pains about the joint and thigh ever since the receipt of the injury; but his general health is not impaired, and he continues to loiter about the village, although incapable of work or much exercise.

CASE II. Edward M'Guth, aged 45, a man whose constitution had been somewhat debilitated by service in India, received a contusion on the right hip by a fall down the hatchway of the ship on his passage home. I saw him nineteen days after the accident, when there was much inflammation, swelling, and discoloration of the soft parts around the seat of injury; the position of the limb was natural; he was unable to walk, but could stand on it, although the effort was painful, as was also that of bending the thigh on the *pelvis*, which, however, he could perform slowly without assistance. When the limb was rotated he also complained of pain, but the arch described by the great trochanter was similar to that of the sound limb, and no fracture

was perceptible, or indeed the ordinary symptoms of such an injury. The case was therefore regarded as a simple contusion,—an opinion in accordance with that of the medical man who saw the patient at the time the accident occurred. M'Guth informed me, that he managed to get up and support himself on his legs immediately after the fall; but the pain was so great that he was immediately taken to his bed, where he remained till I saw him immediately after his disembarkation.

On the thirty-first day from the receipt of the hurt he was out of bed, and walked across the room with the assistance of a stick; and in three weeks more he was walking about the hospital with tolerable ease.

Previous to his dismissal it was observed that the injured limb was shorter than natural, and on measurement, as in the first case, the shortening was found to amount to about half an inch. There was also marked diminution in the extent between the *pubis* and trochanter of the affected side.

CASE III. John M'Grath, aged 30, 2d Battalion Rifle Brigade, was admitted into regimental hospital at Malta on the 30th June 1828, with a severe contusion of the right hip, from a fall over a wall twelve feet high, when drunk. No symptoms of fracture presented. He was discharged on the 7th of August following with very slight lameness, but continued to do the active duty required by his regiment, although he occasionally complained of weakness in the injured part. There was manifest protuberance of the right hip, and appearance of shortening of the limb, with an awkwardness in marching. On the 1st August 1830, he committed suicide.

On examination of the body, the neck of the thigh-bone appeared somewhat shortened, and forming nearly a right angle with its shaft, the upper part of the head being just level with the summit of the great trochanter. There was some adventitious bony matter near the trochanter at the basis of the neck, and an increase of density and thickness of the upper part of the shaft. The capsule of the joint appeared uninjured; but the round ligament had apparently been detached from the head of the bone, to which it had acquired a new connection near to its original site.

I am indebted to the kindness of Dr Davy for the account of the *post mortem* appearances observed in this case, which were noted down by him at the time, and for the abstract of its previous history, which he received from Dr Scott, Surgeon of the regiment.

CASE IV. J. Fox, aged 32, after a service of eight years in the West Indies, died of *phthisis*, for which disease he had been two years under treatment in hospital. A long time after

his confinement it was observed that his right inferior extremity was emaciated, but there was no note of any affection of the limb previous to his admission into hospital.

At the *post mortem* examination, the right inferior extremity was found, by measurement as in the preceding cases, to be at least an inch and a-half shorter than the other, and the extent between the *pubis* and trochanter of the affected side was diminished in a corresponding manner. The limb was much emaciated, but its position was natural, and the motions of the coxo-femoral articulation were not impaired.

Having removed the upper part of the *femur*, I found its neck absent. The head was flattened and expanded considerably ; it was approximated to the shaft so as to be situated much below the great trochanter. A section of the part was made, when the upper and lower shell of what remained of the neck, was seen to be formed of compact bone, quite equal to the ordinary thickness in this situation, and the reticular texture of the bone was more dense for some distance from the edges, so as to form an indistinct line on either side of the most contracted part towards the centre. The *cancelli* were filled with caseous matter, in some places nearly colourless, in others tinged with dark grumous blood. The acetabulum was diminished in depth, but enlarged laterally, so as to correspond with the altered shape of the head of the thigh-bone. The cartilage of the articulation presented throughout its usual thickness and consistency, and was generally smooth and lubricated with synovia. I examined the other thigh-bone, and found its form and condition in every respect natural.

I now sought information respecting the history of the case from some of Fox's comrades who had served and come home with him. From them it appeared, that Fox had received a fall about three years before at the island of Nevis, in consequence of which he often complained of pain about the hip, but continued to do his military duty many months after, never having been confined on account of the accident.

The morbid parts described in this and the preceding case, are preserved in the museum of the Army Medical Department, to which the profession have free access through the liberal arrangements of the Director-General.

The case of Fox appears to afford a well-marked instance of gradual removal of the neck of the thigh-bone in consequence of action induced in that part by injury. From the history of the case it is impossible to suppose that fracture had occurred ; and it is improbable that any considerable shortening had taken place previous to his admission into hospital for the thoracic affection, since he performed the duties of a soldier long after the

accident, without any lameness apparent to his comrades. We are, therefore, constrained to suppose, that the removal of the neck of the bone had been effected during his very long confinement in hospital for the pectoral disease,—a circumstance not very favourable to the recommendation by Dr Hawkins of the horizontal posture as a remedy in such cases, and equally adverse to the opinion of those continental pathologists, who attribute this alteration in the neck of the thigh-bone to the gradual operation of the superincumbent weight of the body. But Dr Knox has long since remarked, that it is unnecessary to have recourse to such an explanation of the cause of interstitial absorption of bone; and in the museum at Chatham this phenomenon is exhibited in the spine of a young man, in which the change took place in the recumbent posture.

The case observed by Dr Davy is not without its value in connection with the history. But he is aware that it is difficult to deduce a conclusion from an apparent alteration in the extent and direction of the neck of the *femur*, without an opportunity of comparison with that of the corresponding limb. In a recent dislocation of the hip-joint of a young soldier, which I dissected some years ago with Sir George Ballingall, the neck of the thigh-bone appeared more horizontal than usual.

I intended to have described various preparations illustrative of the subject of this paper; but the observations of Mr B. Bell and Mr Liston render this unnecessary. Besides, a somewhat familiar acquaintance with some of the anatomical collections of this country, induces me to believe, that specimens equally explicit with that of Fox must be very rare, if we have any of which the history is unexceptionable; and it is not to be supposed that the profession will attach much importance to examples described in the living body, without the complete elucidation of the case by dissection.

For this reason it is needless to enter at length into an examination of the two first cases described in this paper. But I may observe, that if the case of M'Guth be considered one of fracture of the neck of the bone, that of the boy was certainly not so. And if it should be said, that the latter was an example of disease of the hip-joint, it can hardly be supposed that the shortening of the limb has been the effect of the usual process of destruction of the head of the bone by ulceration, since such a change would be incompatible with the mobility of the joint, the impunity with which the surfaces are pressed and moved on each other,—the absence of disease of the neighbouring soft parts, and of constitutional derangement.

There seems to be a disposition in some parts of the body to take on an action in consequence of disease or injury, which

brings them to a condition, which, at a more advanced period of life is rather a physiological than a pathological phenomenon. What is premature old age, from the exhausting effects of disease, but a general fact, of which the affection described in the neck of the *femur* is perhaps a particular illustration?

But I would venture to suggest, that those who have an opportunity should examine the state of this part in relation to the later periods of life, so as to enable us to distinguish between what has been considered as connatural with old age, and that which may be regarded as the effect of disease.

Chatham Barracks, 1836.

SUPPLEMENT

OF PHYSIOLOGY.



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