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CLINICAL LECTURES ON DISLOCATIONS, DELIVERED AT THE CHARING - CROSS HOSPITAL.

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LECTURE XI.

Among infants and young children the epiphysis at the surgical neck of the humerus is sometimes disunited; in infants, during parturition, in consequence of the inadvertence or want of skill of the midwife or medical attendant. M. Rognetta, in the *Gazette Medicale* for the year 1824, has published a series of very interesting papers on the separation of the epiphyses in general, and I would recommend you to read them, as they contain more information upon this subject than any other work written.

Dissections of cases of congenital luxation have not been recorded in sufficient numbers to afford any certain data upon which we can come to any satisfactory conclusion upon the subject; but it appears to me not at all improbable that some of the cases recorded as congenital dislocations, may, in reality, have been displacements of the epiphyses from violence inflicted at the hour of birth. At all events, the cases which I will here relate to you, and for which I am indebted to M. Rognetta's paper, would certainly lay the foundation for such an opinion.

CASE I.

Bertrandi, in his "Opere Anatomiche e Chiruriche," vol. 5, p. 164, observes, I have had occasion to open the body of an infant, still-born; the case had been one of arm presentation, and the midwife had pulled upon it in her endeavours to deliver the child. The head of the bone was detached from the shaft.

CASE II.

M. Dubroca, in the *Bulletin Medical de Bordeaux*, relates the case of a child in whom the head of the humerus was separated at the epiphysis, through the malpractice of the midwife, who, after the child's head was born, endeavoured to disengage the shoulders by pressing upon them with her thumb. M. Dubroca treated the case, and the infant was cured in eight days, but the bandage was not removed for fifteen, at which time the callus was so abundant that the humerus was three times its natural size at the seat of separation, but it gradually disappeared.

CASES III. AND IV.

M. Delamotte, in the third edition of his "Surgical Observations," p. 350, gives the account of two women whom he attended about the same time. In both cases

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the arm presented, and he turned the children in utero by laying hold of the feet, and in both instances the upper epiphysis of the humerus was separated from the shaft of the bone.

For the first few years after birth, in fact until the epiphyses have become incorporated with the shaft of the bone, separation may occur. Reichel, in his "De Epiphysium ab Ossibus," gives the drawing of two humeri which had been subjected to this accident; the bones were in Ludwig's collection, but unfortunately there are no histories attached. Paletta, also, in his "Exercitationes Anatomicæ," gives the account of a young man, who died at the age of 15, having had the upper epiphysis of the humerus separated during the earlier period of his life, without any subsequent union. In regard to its occurrence during infancy, Reichel, at the twelfth page of his thesis, observes, "Huic quoque apparet ratio cur pessimos scapius affectus afferet pessima et admodum detestanda consuetudo, dum puerorum corpora manibus aut brachiis apprehensis in altum tollunt." We cannot too strongly deprecate the pernicious habit of swinging infants and very young children, and suddenly snatching them up by one arm. Nothing can be more prejudicial than the practice of idle and irritable nurses in this particular. How often do we observe mothers and nurses in the streets, who have neglected their children and allowed them to wander off the pavement, upon the approach of danger, or in a moment of irritation, suddenly snatch them up by one arm, and swing them on to the path again, without bestowing a thought upon the suffering and mischief they are thus inflicting. The result of this imprudence is sometimes a separation of the epiphysis at the surgical neck. A child thus treated screams violently at the moment, drops its arm, and will not allow its being moved without crying; it may not be brought to you perhaps for two or three days after the accident, but by careful examination you will usually be able to detect the nature of the mischief.

Diagnosis.—Fractures of the surgical neck of the humerus simulate dislocation into the axilla, in the loss of motion of the limb, the separation of the elbow from the side, the flattening of the shoulder, and sometimes in the tingling and pain of the fingers. But you will be able to distinguish the former by the situation of the depression of the deltoid, the absence of projection of the acromion process, the head of the bone remaining in the glenoid cavity, and not obeying the motions of the shaft when the latter is rotated, the crepitus, the ease with which you are enabled to move the arm in various directions, although the patient cannot, also

by your being able, with a little extension, to restore the bones to their relative positions, and the ease with which they again become displaced when your extension ceases.

Treatment.—Apply the angular and other splints as in fracture of the anatomical neck; fix a pad in the axilla by the clavicle bandage, and another between the elbow and thorax, or one long enough to answer both purposes, which may be sustained by tapes carried round the patient's neck; support the patient's hand in a sling, but not his elbow, and if you think proper, keep the whole steady by a roller carried round the arm and body. With very young children, the splints may be made of leather or thin paste-board. With infants, a bandage saturated with a solution of starch or strong gum-water, will sometimes suffice when applied as a spica bandage; but I do not recommend this plan to you in comparison with splints, as it cannot be relied upon with so much certainty, and, moreover, you are kept in ignorance of the exact state of the parts, unless the whole be removed; whereas, when you employ the splints, by merely removing the outside one, you can, from time to time, examine the condition of the limb without disturbing the rest of the apparatus.

Mr. Tyrrel has observed, that he found in a case which occurred in his practice, that the bone was best maintained in its natural position by being raised and supported at a right angle with the side, by a rectangular splint, part of which rested against the side, whilst the arm reposed upon the other part, and until he had made use of this plan he could not succeed in removing the deformity, or in keeping the bone in its place.

When called to treat a case of fracture of the humerus at its surgical neck, do not omit to point out to the patient, or to his friends, the probability or risk of contraction of one or more of his fingers taking place, especially if he complains of much pain or tingling in these parts. If you point out this liability at the onset, you remove all chance of the patient or his friends attributing the evil to any want of skill or knowledge on your part, which they might otherwise be inclined to do.

FRACTURE AT THE GREATER TUBERCLE OF THE HUMERUS.

This accident also ensues from falls or blows upon the shoulder. The patient loses the use of the limb, the acromion projects, the deltoid is flattened, the subscapularis draws the head of the bone somewhat upwards and forwards, and the signs to a certain degree resemble those of dislocation. The elbow, however, does not project, and the arm may be moved in various directions, though with great pain to the patient. The following case occurred in Mr. Mayo's practice, and is related in the last edition of Sir Astley Cooper's work on dislocations. A gentleman aged 60, fell in going upstairs, and on attempting to recover himself fell again. The arm was useless, and the shoulder in pain. The acromion process projected, and the deltoid was flat below it. The elbow did not project from the side, and although motion was painful, it could be more easily moved than in dislocation. The neck of the humerus was not broken, for when the arm was raised at right angles with the scapula, and pulled outwards from the elbow, the head of the bone seemed to be restored to its place. On lowering the elbow the appearance of the shoulder was as at

first, and Mr. Mayo, upon a close examination, found the greater tubercle fractured and separated from the shaft of the bone.

The treatment consisted of a figure of eight bandage to fix the scapula and steady the shoulder, a sling to support the arm, a lath splint on the outside of the humerus, the upper part being made to bear upon the separated bone, by uniting the top of the circular roller to the figure of eight bandage. The forearm was supported by a sling, and the fracture united favourably, but for a long time the patient had difficulty in carrying the arm backwards.

Mr. Guthrie, in December, 1837, delivered a clinical lecture on the following remarkable injury of the shoulder, which previous to that period had not, I believe, been noticed by any writer. The lecture has been published in the first volume of the *Lancet* for the year 1838:—

John Cadman, a plasterer, whilst employed at work, felt the ladder on which he stood, turn, and after some effort to save himself, he fell, his left elbow striking the ground, whilst his shoulders rested against one of the steps of the ladder, in a way he could not distinctly explain. He felt he had sustained a severe injury to the shoulder, and the elbow was much grazed. He was taken to the Westminster Hospital, but the swelling being great, the house-surgeon could not detect the nature of the injury, and Mr. Guthrie saw the patient three hours after the accident. At that time there was a peculiar pucker or fold of the skin, about the size of a half-crown, situated over the middle of the pectoralis major muscle, where it forms the anterior wall of the axilla. A hard substance could be felt below this, extending above it, towards the coracoid process, which could not be distinguished in consequence of the swelling; and it had been supposed that this substance was the coracoid process broken off. The head of the humerus, or something like it, could be very indistinctly felt on the outer part of the glenoid cavity. The arm was very moveable in every direction, and the elbow could be brought close to the side, and made to strike the ribs without difficulty. Mr. Guthrie decided the case to be fracture and not dislocation, but could not at that time make out the exact character. Accordingly the forearm was bent, the arm brought close to the side in a splint, and leeches and cold lotion applied, until the swelling very slowly subsided. Mr. Guthrie again made an examination and decided that the humerus had been broken at its anatomical neck, and forced through the pectoral muscle, the fascia and skin of which offered sufficient resistance to prevent it passing through them, but caused the bone to pass upwards and pucker the skin by carrying it along with it. The arm was shorter, and the retraction of the pectoralis major, and probably of the subscapularis, had drawn the bone more into the situation the head of the humerus usually occupies, when dislocated under the pectoral muscle. The shape of the broken end of the bone was satisfactory as to its being a broken bone, but as Mr. Guthrie did not like its situation, and as no common ordinary extension moved it downwards, he had the patient largely bled, gave him tartar-emetic in different doses to twelve grains, and placed him under gentle, but gradually increasing, extension in the pullies, during an hour and a quarter. Under this treatment the bone

was gradually brought down to its natural situation as to length, but it would not remain there, and consequently the case was left to nature.

At this time, December 2nd, 1837, the man suffered from one inconvenience only, being unable to touch the ceiling with the hand of the injured side, at the same distance he did with the other; he was obliged to be five or six inches nearer to it, from the arm making a greater angle with the head. In all other respects he did his work equally well, as before the accident.

When the patient sat on a chair with the forearm bent, resting on his thigh, and the hand supine, the prominence of the broken end of the bone was very remarkable, and on placing a dried bone beside it, it appeared to correspond to the lesser tubercle or the inner side, and to a part of the greater tubercle on the outer side; there was a hollow between them, apparently for the biceps tendon, but whether that tendon ran in it or not, could not be ascertained. The tendon of the subscapularis appeared to be attached to the inner and back part of the small tuberosity, and to have drawn it inwards, whilst that of the pectoralis major, well defined, drew it inwards and forwards. The portion of the head of the bone remained attached in situ, with a portion of the great tuberosity, but Mr. Guthrie could not ascertain what portion of the muscles remained attached to the latter, although he supposed but little of the *teres minor*. The arm moved with perfect ease in every direction; when rotated outwards and backwards, the broken end of the humerus seemed as though it would project through the skin, it was so prominent, and when the arm was raised as high as it could be, the prominence of bone could be perceived above the shoulders, as it appeared, as high as the clavicle.

With respect to this case, Mr. Guthrie remarks, that Mr. White of the Westminster Hospital, thinks he has seen one resembling it, from there being puckering of the skin in front; and that Mr. Cusack, of Dublin, also considers he has met with a similar case; both did well, but with unseemly shoulders.

Mr. Guthrie also observes "that in a case of this kind in future, he would make extension, until the bone resumed its proper place, but that this must be done very carefully, for he is not sure it could be done effectually, without tearing the skin of the pucker or fold described, and certainly not without great risk of doing it, which would render the accident a very dangerous one."

I have related this case to you, as it is interesting from its rarity, and very instructive from the manner in which nature repaired the mischief, and the extent of motion recovered by the patient. I have never seen a case like it, and may not therefore be considered competent to offer an opinion upon the subject; but I would suggest that Mr. Guthrie was not quite correct in calling the accident a fracture of the anatomical neck, when from his own showing, the fracture extended through the greater tubercle; and I would also add my doubts as to Mr. Guthrie, in the event of his meeting with a second case of this peculiar accident, pursuing the line of conduct he intimates at the end of his observations, and which I have related to you.

Mr. Guthrie has pointed out the risk of such proceeding, and he is by far too good a surgeon, need-

lessly to endanger a patient's life when so little is to be gained by it; and comparatively how little inconvenience ensues, where Nature is allowed to work the cure in her own way. At all events, it is my duty to point out to you what appears to me the safest and best mode of proceeding, and, consequently, should you ever be consulted for an accident of this description, and find that you are unable to disengage the end of the bone by fair and moderate extension, it will be better and safer for you, knowing, as pointed out by Mr. Guthrie, the risks you would incur by having recourse to prolonged and more forcible extension, to adopt the plan of treatment he pursued, at the same time explaining the point to your patient.

A CRITICAL ANALYSIS OF THE PRINCIPAL FACTS OF DISEASE.

(Continued from page 610 of the former vol.)

INFLAMMATION—SUB-ACUTE.

It being determined that the circulation in the capillaries is susceptible of the influence of the sensitive nerves, especially as regards its momentum; that in fact an excited state of the sensitive fibres will give rise to an afflux of blood to the part; it remains to be considered what the effect of this excitement is on the capillaries of secreting organs.

The highly vascular structure of parts devoted to the purposes of secretion has not sufficiently attracted the notice of physiologists; nor has the fact which is daily obvious to the senses, been systematically noted, that an afflux of blood to a secreting organ is a constant condition of secretions. This fact is of such moment that it deserves to be briefly illustrated.

For instance:—an afflux of blood to the skin is observable during perspiration; to the mamma, during lactation, as manifest in the enlargement of the part; to the genital organs during the secretion of vaginal mucus, &c., probably to the mucous membrane of the stomach and intestines during the secretion of gastric juice, &c.; to the uterus during menstruation; and, by analogy, to other internal glandular structures.

Neither must the aspect of a blistered surface, nor of an ulcer secreting pus, be overlooked. The fact, however, that circulation may be carried on for a time after the influence of the spinal nerves is removed, but that a power to arrest it on the one hand, and increase its momentum on the other, is inherent in the nerves of the posterior roots, (in reality, to cause an afflux of blood to a part,) is one of the most significant that could be adduced in explanation of the influence which the nerves exercise on secretion. For the laws of capillary circulation are to a full extent the laws of secretion; the former are merged into the latter during the secreting process.

It is not to be wondered at, therefore, that the disturbance which is established during inflammation in the capillaries should materially affect the secretions of the organ inflamed.

The intimate relation which subsists between the two processes, renders it expedient to develop the normal phenomena of secretion, before entering upon the condition of the capillaries in an inflamed tissue.

The method which it is here intended to follow in unravelling the influence of the nerves on secreting