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

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LECTURE XII.

I propose in this lecture to consider a class of accidents of rare occurrence, the first mention of which we find in a clinical lecture delivered by Mr. Guthrie, at the Westminster Hospital, November, 1833, and reported in the first volume of the *Lancet*, for 1834. He therein relates four cases that came under his own observation.

Mr. Guthrie has given a very clear account of the appearances presented, but as he had not the opportunity of verifying his opinions by dissection, his conclusions remained unconfirmed, until the publication, by Mr. R. W. Smith, in the twelfth volume of the *Dublin Journal*, of some similar cases, with an account of the dissection, confirming the views entertained by Mr. Guthrie, as to the true character of the mischief. I saw two of the patients myself, Louisa Chapman, and Mr. Perry; the child, Louisa Chapman, immediately upon the receipt of the injury, and Mr. Perry when he was brought to the hospital to have the pulleys applied, and they both presented the appearances described by Mr. Guthrie, to which I shall refer you presently.

The late Mr. Lynn differed from Mr. Guthrie as to the nature of Chapman's accident, and at the end of the published lecture, you will find Mr. Lynn's remarks, he, "deciding the case to be a separation of the epiphysis of the humerus from the main bone, the emancipated head of which was dislocated as far as its attachments would allow; that an angular or diagonal union had taken place between the shaft and the epiphysis; that the contact of the articulating surfaces had never been destroyed, nor the integrity of the joint invaded; and finally, that the embarrassment of the motions was due to the obliquity of the union."

Mr. Lynn's remarks must always be received with respect; but we should not overlook one very important point, which I think will tend much to diminish the reliance we might otherwise have placed upon his judgment. Mr. Lynn did not examine the patient for above a fortnight after the accident, for according to his own shewing, "when first he saw her, the tumefac-

tion was so great in the shoulder, that no accurate opinion could be formed, but in a fortnight the tumefaction subsided, and he distinctly felt two moveable heads under the deltoid." At this period, in so young a child, a certain degree of union might have taken place, as described by Mr. Lynn, but this union could not have followed directly after the accident, when the case presented the signs described by Mr. Guthrie, of both portions of the bone obeying the motions of the elbow.

M. Rognetta, in the *Gazette Médicale* for 1834, takes the same view of Chapman's case as Mr. Lynn, and in describing the symptoms, he observes at page 486, "En imprimant des mouvements de rotation au coude, la tumeur obeissait a ces impulsions," but he entirely omits the important fact, that there were in this case, two bodies which obeyed the impulses of the elbow, namely, that portion of the humerus which projected beneath the coracoid and acromion processes, and that portion of the humerus which remained in the glenoid cavity. The account given by M. Rognetta of the case, differs in some principal points from that published by Mr. Guthrie, and therefore is of no value. He says,— "This observation, so clear and characteristic to us, may serve as an example of the symptoms and diagnosis of the accident, separation of the epiphyses. I say so clear to us, as they were to Mr. Lynn, for they were not so clear to Mr. Guthrie, who manifests great doubts as to the nature of the accident, and has indulged in some strange conjectures."

Had M. Rognetta taken the trouble to transcribe the case correctly, as published by Mr. Guthrie, he could not have made this observation. He was engaged at the time upon his paper on the separation of the epiphyses, and was doubtless anxious to avail himself of so high an authority as the late Mr. Lynn, in support of his views; but this is not sufficient reason for omitting a sign, and that the principal sign in the accident, the nature of which, as given by Mr. Guthrie, who saw the case from the commencement, he who never saw it at all, denies; for after all, the "strange conjectures" indulged in by Mr. Guthrie, are supported and borne out by Mr. Smith's published dissection; and therefore, gentlemen, before we indulge in sarcastic remarks on any person's opinion or treatment, we should make ourselves thoroughly acquainted with the true nature of facts; at all events we should not lay down false premises, and then argue from them.

If the case were in reality what M. Rognetta asserts,

one of separation of the epiphyses, how can we account for the two bodies, one under the coracoid process, the other in the glenoid cavity, obeying the impulse given to the elbow? Mr. Lynn, it is true, endeavours to account for it by the epiphysis having united obliquely to the shaft; but, as I have before observed, Mr. Lynn formed his opinion from an examination made a fortnight after the accident, and this certainly would not account for the same signs which, to my own knowledge, were present when the child was first brought to the hospital, immediately upon the receipt of the accident. I have no doubt myself, that the injury in this case, as in the other related by Mr. Guthrie, was a longitudinal split of the humerus, extending in the direction of the bicipital groove."

CASE 1st.—Louisa Chapman, aged 11, on the 8th Oct., 1833, fell out of a window upon her shoulder, and was brought to the Westminster Hospital. The limb presented the following appearances:—Considerable prominence anteriorly and internally beneath the coracoid and acromion processes, corresponding to the lesser tubercle of the humerus. This projection was so decided as to be seen at a distance, and when examined might be mistaken for the head of the humerus displaced into this situation, constituting a partial dislocation, were it not that it was not the whole head of the humerus which projected internally, neither was it round, but on the contrary a rough and irregular protuberance of bone; and also that a portion of the humerus might be felt in the glenoid cavity. When the thumb or fore-finger of the left hand was placed on the internal protuberance of bone, the elbow being rotated by the right, the humerus obeyed the impulse very clearly; and likewise, when the fore-finger was carried outwards, and placed on that part of the joint in which the external half of the head of the humerus ought to be, in a normal state, it rested upon that process, which moved most distinctly under the finger, when the elbow was rotated. The arm could be elevated, and the hand placed on the top of the head. There was nothing peculiar to be felt in the axilla; and the elbow, although tending a little backwards, could easily be brought to the side. The injured shoulder was much wider than the sound one. The parts could not be restored to their normal condition, and the child left the hospital at the end of two months, having recovered the motions of the arm to a great extent.

CASE 2nd.—Col. Yorke, aged 35, was thrown from his horse in Hyde Park. Mr. Guthrie saw him two hours after the accident. The symptoms coincided nearly with those of the last case, but in the present instance, the protuberance beneath the coracoid was greater, and crepitus on rotating the elbow was evident.

The treatment consisted of a padded backboard and two broad soft padded straps of chamois leather, which went under the arms, and were fastened to four brass pins on the backboard. The elbow was supported, carried forward, and fastened close to his side, and after a short time, passive exercise of the limb was resorted to. He recovered the use of his limb and left off his bandages at the end of ten weeks, and suffered no further inconvenience from the accident, than a degree of prominence, which remained,

CASE 3rd.—Mr. Perry the younger, of Perry's Place, Oxford Street, aged 18, was thrown from a pony at Amersham, and fell on the point of his shoulder. He was seen by Mr. Tennant, his surgeon, who considered that he had dislocated the head of the humerus, which he reduced; but it did not long remain in its situation, and at the end of three weeks he was brought up to London, and placed under Mr. Guthrie's care. At this time the elbow was considerably backwards, and the head of the humerus proportionably forwards, and apparently luxated in that direction, but the prominent part of the bone was not round, like the head, but appeared more as if that process had been split as well as displaced. Mr. Guthrie took him to the Westminster Hospital to have the pullies applied, and extension was kept up for nearly an hour. The bone moved considerably towards its natural position, but would not remain when the extending power was removed. At a subsequent period he was again placed in the pullies, having first been bled, and nauseated by tartar emetic. The whole head of bone was brought below the level of the glenoid cavity, but the prominence could not be entirely removed. When taken out of the pullies, the outer portion of the head of the humerus appeared to be in the glenoid cavity, but the inner and greater part of it was internal to it. The arm assumed more of its natural appearance; the elbow was in its proper direction, and could be readily pressed against the ribs. The patient was treated as in Col. Yorke's case. He recovered at the end of several weeks, and went into the country with a very useful arm. With respect to the latter case, Mr. Guthrie remarks:—"In this case, the capsular ligament of the shoulder joint, must have been torn, and I believe the whole of the head of the humerus was dislocated as well as split, which may be a reason why it so readily became displaced a second and a third time." Unfortunately we were deprived of the opportunity of removing the incertitude which attended this case, by dissection. Mr. Perry, Sen., promised, that should his son die in the life time of Mr. Guthrie, and some two or three others, myself among the rest, we should have the opportunity of examining the exact nature of the case. When the time arrived, however—for the young man died a few months after—he either forgot, or repented of his promise. I one day met him in the street, and, upon inquiring after his son, learnt that he had died rather suddenly of cholera, and been buried six months.

In the 12th volume of the *Dublin Medical and Surgical Journal*, you will find an exceedingly good paper by Mr. R. W. Smith, in which he gives the account of a dissection, which removes much of our uncertainty upon the nature of these accidents. I will give you the case in Mr. Smith's own words:—

"In July, 1834, I was called upon to examine the body of Julia Darby, aged 80, who had died of chronic pulmonary disease. Upon entering the room, the appearance of the left shoulder immediately attracted my attention, and struck me as being different from that which usually attends the common injuries of the joint. The shoulder had lost, to a certain extent, its natural rounded form; the acromion process, though unnaturally prominent, did not project so much as in any of

the luxations of the head of the humerus. The breadth of the joint was doubled; upon pressing beneath the acromion I could plainly distinguish a portion of the head of the bone, occupying the inner point of the glenoid cavity, where it formed a tumour, perceptible through the soft parts, while the remainder, and by far the larger portion of the head of the bone, lay beneath the level and internal to the coracoid process; and beneath these two portions the finger sank into a deep depression or sulcus, placed immediately below the coracoid process; the elbow could be brought in contact with the side, and there was no appreciable change in the length of the arm. Such were the external characters of the injury, and from these alone, I was unable to pronounce positively as to its exact nature, but conjectured it was some variety of the luxation forwards. Upon removing the soft parts, the head of the bone presented itself, increased to nearly double its natural breadth; it lay beneath, and internal to, the coracoid process. The greater tubercle was completely broken off from the shaft of the humerus, and in situation corresponded to the inner part of the glenoid cavity. The fracture traversed the bicipital groove, which, in consequence of the displacement which the head of the bone had suffered, was situated below the coracoid process. The glenoid cavity was changed both in form and size; it was smaller than natural, nearly flat, and broader above than below. A new shallow socket was formed for the head of the bone upon the axillary margin of the scapula, and the bony matter was deposited in the capsule, which was greatly changed. The cartilage had been nearly or altogether removed from the head of the bone, which was covered by an ivory deposit. The injury was evidently of long standing, but of the exact time and mode of its occurrence, I could obtain no precise information."

Mr. Smith remarks that he had not read Mr. Guthrie's lecture when the case detailed above, came under his notice; but the appearance of the injuries in the cases detailed by that gentleman, were so very similar to those now described, that he was pretty sure the lesion was also similar. He also gives the particulars of one or two cases which came under his notice at the Richmond Hospital, which I here subjoin:—

CASE 5th.—John Morgan, aged 62, in January, 1836, while running, tripped over a stone, and fell with violence on his left shoulder. He was admitted into the hospital several months after the accident. The injured limb presented the following appearances:—The acromion was unnaturally prominent, but the fingers could not be sunk into the glenoid cavity, at the inner part of which, beneath the coracoid process, a larger prominent bony tumour could be felt, and underneath the acromion externally, a second osseous prominence was perceptible even to the eye. These two projections were separated by a deep and distinct vertical depression, corresponding to the line of the axilla. The breadth of the joint was nearly double that of the opposite one; the head of the bone was changed in form, and irregular; and the direction of the axis of the humerus altered; the muscles upon the dorsum

of the scapula were wasted; the arm was powerless; the elbow stiff, and the wrist and fingers permanently extended; the scapula moved with the arm.

CASE 6th.—A man, aged about 30 years, fell from a house three stories high, and received a severe injury of the left shoulder joint. Upon his being conveyed to the Richmond Hospital, the pupil in attendance, finding the head of the bone placed more forwards than natural, the acromion process more prominent, the deltoid muscle to a certain degree flattened, the elbow separated from the side, and all motion painful, especially rotation outwards, while the hand was in a state of pronation, conceived that the case was one of dislocation of the head of the humerus forwards, under the pectoral muscle. The mode of reduction by the knee in the axilla was had recourse to, and the arm bandaged to the side. However, after a short time, the patient not having experienced any relief, the bandage was removed, when it was found the joint presented exactly the same appearance as at first, and upon more close examination, a crepitus was distinctly heard. The breadth of the joint was nearly double that of the opposite one, and two tumours were distinctly noticed; the inner one, the larger of the two, and placed under the coracoid process, was evidently constituted by the head of the humerus, while the external and smaller was apparently formed by the greater tuberosity; and the two were separated by a deep and well marked sulcus, corresponding to the line of the bicipital groove.

From a perusal of these cases, there can, I think, be very little doubt, that the nature of the accident was the same in all the instances; in those related by Mr. Guthrie, as well as those described by Mr. Smith. The uncertainty in which they were involved, prior to Mr. Smith's paper, and the degree of resemblance they bear to luxation, has induced me to detail them at length.

The principle diagnostic features are the great increase of breadth in the joint; the glenoid cavity being partly occupied, the two bodies superiorly, the one under the coracoid process, the other in the glenoid cavity; the prominence of the acromion not being so great as in luxation, and the facility with which the displacement recurs after the parts have been restored to their natural position.

With respect to the prognosis, Mr. Smith remarks, that these cases must be exceedingly difficult of cure, and that most probably ligamentous union is the utmost we can expect, as in this respect they somewhat resemble fracture of the neck of the femur within the capsule, in the difficulty of keeping the joint motionless. There are also other circumstances which militate against the process of union by bone, depending upon the difficulty of keeping the parts in contact. The shaft of the bone is drawn inwards by the axillary muscles, while the portion remaining in the glenoid cavity is rotated in the contrary direction, obeying the action of the muscles attached thereto; added to which, the shaft of the bone is liable to be drawn upwards by the coraco-brachialis, and biceps muscles, as in the cases dissected by Mr. Smith, where the lesser tubercle was carried above the greater, the very reverse of

the natural relation of parts. Shortening of the limb, ligamentous union, and consequent interference with the motions of the parts, are the results to be apprehended from this accident.

Treatment.—I have already given you the treatment pursued by Mr. Guthrie in these cases. Mr. Smith has not recorded the measures adopted in the two instances which fell under his notice. We have seen, that the principal difficulties against which we have to contend are, the antagonizing, or rather the directly opposite, actions of the muscles, and the shortening of the limb. Mr. Guthrie, in Col. Yorke's case, employed a modification of Brasdor's apparatus, and supported the elbow, which he carried forwards, and fastened to the patient's side; but this plan does not appear to me to fulfil the objects which we require in such cases. Brasdor's apparatus merely supplies a pad for the axilla, and the power of extending or drawing back the shoulders, whereas we have to prevent the pectoralis major, and latissimus dorsi and teres minor, drawing the shaft inwards; the biceps, coraco-brachialis, subscapularis, and anterior fibres of the deltoid, drawing it upwards and forwards; and as much as possible to counteract the muscles attached to the greater tubercle, in their efforts to rotate the outer fragment outwards.

The most efficient method to effect these objects is to pad the axilla, and apply an angular splint, as for fracture of the anatomical or surgical necks of the humerus. Also apply a splint on the front and back of the arm, and one on the outside, but previously to doing so, place a pad or thick compress between the upper end of the splint and the head and neck of the humerus, fixing the whole firmly with a bandage, carried from the fingers to the axilla. Support the hand in a sling, but take great care that the elbow is not at any time pushed up.

A CRITICAL ANALYSIS OF THE PRINCIPAL FACTS OF DISEASE.

(Continued from page 5.)

INFLAMMATION—SUB-ACUTE.

There are certain subsidiary ganglia, formed by branches of sensitive nerves, of which the spheno-palatine is an instance. It occurs in the superior maxillary division of the trifacial nerve, below the orbital branch. The nerves which this ganglion gives off are dispatched to the hard and soft palate; mucous glands and membrane of the neighbourhood; tonsils; arches of the palate; upper part of the pharynx; concave surface of the middle turbinate bones, and septum; posterior ethmoidal cells. (Cycl. of Anat. and Physiol. art. Fifth Pair of Nerves, by Dr. Alcock.)

Another instance occurs in the submaxillary ganglion, the formation of which is due to twigs given off by the chorda tympani nerve, and lingual branch of the submaxillary division of the fifth. A difference of opinion exists, still, respecting the origin of the chorda tympani. It is known, however, that its main branch, and that of the lingual, are sent to the tongue, while the twigs which they give off, after forming the submaxillary ganglion, are distributed to the gland of that name.

A glance at the parts supplied by the spheno-palatine ganglion with nerves, is sufficient to indicate that they are devoted to sensation and secretion; nor can it be doubted that the submaxillary gland is also a sensitive and secreting organ.

If it be allowed that the principle laid down for the analysis of the Casserian and spinal ganglia is a correct one, it ought to apply equally to the study of the spheno-palatine and submaxillary ganglia; indeed, considering the structure of all the ganglia to be analogous in essential points, the principle should be extensible to the ganglionic system generally.

In reference to the submaxillary ganglion, let the origin, distribution, and functions of the orbital and lingual nerves be compared. Both acknowledge the same source, the ganglion of Casserius; their distribution is strictly analogous, inasmuch as the orbital affords filaments to the lachrymal gland, the lingual to the submaxillary gland,—excito-capillary filaments,—the orbital to the upper eyelid, &c., and the lingual to the tongue—sensory filaments. But the excito-capillary filaments of the orbital nerve, when irritated at the upper eyelid near its external angle, have their action reflected at the ganglion of Casserius upon the lachrymal gland, as is evident from the occurrence of lachrymation; while the excito-capillary filaments of the lingual nerve, when acted upon by sapid matters, have their action reflected upon the submaxillary ganglion, as is evident from the occurrence of salivation. But why in this last instance was not the action reflected by the Casserian ganglion upon the lachrymal gland; indeed why are not tears excited whenever food is taken? There is an obvious explanation afforded by the fact that the filaments of the lingual nerve, which are distributed to the submaxillary gland, are cut off from their connection with the ganglion of Casserius by passage through the submaxillary ganglion, which isolates their function, and reflects their action upon the capillaries which it is their office to excite.

The spheno-palatine ganglion exerts the same isolating action upon the nerves which connect it with glandular structure, that is, with mucous membrane and glands. The task of distinguishing its functions from those of the Casserian ganglion is somewhat difficult, owing to the supply of nerves which both these ganglia afford to the olfactory organs; still the distinction is possible. The mucous secretion of the nose may be excited by a mild stimulus without a secretion of tears, or the slightest effect on the lachrymal organs. These facts urge the necessity of studying the functions of ganglionic nerves distributed to capillaries, in relation to their nearest ganglion; and of considering that ganglion as the reflex centre of its excito-capillary nerves.

In this preliminary stage of the study of inflammation, it would be premature to pursue this subject in detail throughout the entire ganglionic system; it is enough to have stated the broad principle, and to have illustrated it by a sufficient number of familiar examples.

Before it can be admitted that nervous currents, of which the effect on the capillaries is demonstrable, are reflected from sensory upon organic fibres by the ganglia, it will be necessary to inquire:—1st, Whether sensory and organic nervous fibres coexist to the requisite extent in the ganglionic nerves of sensation to account