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

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LECTURE XVII.

Gentlemen,—I propose to arrange reductions of the shoulder under three heads, the first embracing those measures by which the bone is reduced solely by the manipulations of the surgeon; the second, the several modes of extension and counter-extension by assistants; and the third, the various instruments which have from time to time been invented and employed. We will, in the first place, consider the various ways of reducing these accidents by the unaided efforts of the surgeon.

The late John Hunter justly observed, that muscles may be taken by surprise, and their force in that way eluded rather than overcome; he asserts, that before a muscle can put forth its full power, it must be in a state of preparation for action, in this way accounting for what is so often observed,—that joints, which in the ordinary business of life sustain most violent stress and shocks, are dislocated by very slight force if applied unexpectedly. The same thing holds good in reduction; let your patient see what you are doing, allow him to understand when you are about to make the trial, and his muscles will resist your efforts however he may imagine he is resigning himself passively into your hands. But keep his mind diverted, and suddenly make the endeavour, you will frequently succeed without any trouble.

In accordance with this principle, Sir P. Crampton recommends that before assistants are called in, or any apparatus applied, the surgeon, while he appears merely to be occupied in ascertaining the nature of the injury, should apply gentle extension at the wrist, and slowly raising the arm to nearly a horizontal position, suddenly pull it upwards and a little forwards, towards the patient's face, while, at the same time, he as suddenly pushes the body backwards, by pressing with the left hand below the axilla. In describing this method, Sir Philip remarks, "Success, however, will greatly depend upon the unexpectedness of the attempt; the surgeon should, therefore, endeavour to divert the patient's attention from the proceedings, and I know of no means so effectual for this purpose as inducing him to describe circumstantially every thing connected with the occurrence of the accident. This is a theme on which patients, who are at all able to express themselves, are sure to expatiate with the greatest satisfaction. Once engaged on so engrossing a topic, it will require but a small degree of tact on the part of the

surgeon to seize the favourable moment when he can apply his force to the greatest advantage."

Mr. James Cooke, of Warwick, who wrote in the year 1685, says, that Mr. Hales used to reduce dislocations downwards by placing the patient's hand on his neck, and holding it there; he then carried the elbow to the ribs, and forced the bone upwards by carrying the arm by a semi-circular motion backwards.

Boyer and Wiseman say they succeeded in reducing a dislocation manually, without exercising either extension or counter-extension; but they do not tell us how they proceeded.

Mr. Syme, of Edinburgh, relates a case reduced by suddenly abducting the arm, rotating it outwards, and thrusting the bone upwards.

M. Columbo, in the "*Revue Medicale*" for 1839, Vol. 2, describes the following plan:—He flexes the limb as much as possible, and afterwards sweeps it round on its long axis.

Another method consists in raising the arm perpendicularly as high as possible with one hand, and then pressing in the head of the bone with the other. This plan usually goes by the name of "White's Method," in this country, and there is, perhaps, no other which has met with such universal support, or of which so many authors have claimed to be considered, either as the inventors or resuscitators. Upon the continent it is known by the title of "Mothe's Method;" and in France it has been more recently claimed as a new and important invention by M. Malgaigne, who, we find, from the *Lancet*, 1832, introduced the practice to the notice of Dupuytren.

M. Malgaigne, in his address to his class, states, that the anatomy and pathology of this kind of dislocation had led him to adopt it before he was acquainted with the method of Mothe; but we shall presently find that neither of these gentlemen can, with any reason, lay claim to the originality of their discoveries. Mr. White published his plan in 1748, it was noticed by Henry Thomson in 1761, and again by Portal, in his "*Chirurgie*," in 1768. M. Mothe claimed it as his invention in 1775. It was subsequently resuscitated by T. Bell, in 1809; Delpech in 1816; Malgaigne in 1832; and Goss in 1833; so that however M. M. Mothe and Malgaigne may be entitled to the credit of reviving the method, and directing the attention of the profession in their own country to it, they are clearly not entitled to be considered as the originators of a new plan, however valuable it may be. But although it may not be generally known, if you take the trouble to investigate the matter for yourselves, you will ascertain that White had as little claim to

originality as either M. Mothe or M. Malgaigne, for, in fact, the proceeding is described by Hippocrates as one of those in vogue in his days. He recommends that the arm be raised vertically as high as possible with one hand, then to press in the head of the bone with the other. White sometimes used pullies to extend the arm in this direction, as we shall subsequently find, but he as frequently did not. Nevertheless, the plan appears to have been overlooked or neglected by the various writers before his time, and although we may not be disposed to consider him in the light of an inventor, we ought fairly to give him the credit of being the first writer, subsequent to the time of Hippocrates, who noticed the method in a systematic and proper manner. This plan, which has been strongly recommended by Hey, Filugelli, Goss, &c., has been modified by various surgeons. In the *Medical Gazette*, we read a paragraph headed "Langenbeck's Surgical Practice in Göttingen:"—"An old woman being placed on a low chair, a stout student mounted a table, and pulled her arm horizontally, and then upwards. Immense force was exercised unsuccessfully, and I began to fear for the patient's arm. The stout student walked off the table, and M. Langenbeck on, and he quickly reduced the shoulder."

M. Malgaigne relates two cases of reduction, one after twenty-three, the other after twenty-one days:—"An assistant stood upon a table, close to the seat of the patient; he then placed his foot upon the shoulder to make counter-extension, whilst he pulled up the arm with both his hands nearly to a vertical direction; the reduction took place immediately, almost without effort, and with but little pain."

M. Armann, makes his patient lie down on his back upon the ground, and sitting on the ground behind him, places his foot upon his shoulder, and seizing the patient's wrist draws up the arm in a vertical direction.

M. Benoit placed his patient in bed, with his body supported; he then took hold of his wrist with one hand and made extension so as to raise it gradually, and bring it near his head; having so done, he brought it down and reduction immediately took place.

M. Latta laid his patient on the floor, whilst two or three stout men, mounting on a table, took hold of his arm and raised him up by it from the ground.

M. Velpeau employs vertical extension in different ways. When he first adopted it in 1834, he made the patient, a female, lie down on her back, very near the side of the bed; he trusted the limb to an assistant, who applied his foot to the edge of the shoulder to make counter-extension, whilst with both hands on her wrist, he made extension, M. Velpeau favouring the return of the head of the bone into the glenoid cavity. In another case the patient was seated on a chair near a table, upon which an assistant mounted and proceeded as in M. Langenbeck's case.

In some instances, observes M. Velpeau, it is quite sufficient to mount a stool and draw or elevate the arm, whilst another assistant fixes the shoulder with his knee, the hand, or a napkin. The surgeon pushes the head of the bone upwards with his hands, the inferior angle of the scapula being fixed against the thorax.

The success of this plan has commonly been attributed to the relaxation of the capsular muscles, espe-

cially the supra-spinatus and deltoid, but it is equally due to another circumstance. When the humerus is raised in this manner it presses against the acromion process, which now acting as a fulcrum, dislodges the head of the bone from under the neck of the scapula; thus not only are the muscles relaxed, but the head of the bone is freed from the chief obstacle to reduction for the higher the arm is raised, the more is the head of the bone thrown out from its abnormal situation, and placed in a favourable position for reduction. This method is not the less valuable that it is so simple and so readily put in practice; it requires no preparation either on your part or the patient's.

Mr. Goss, of Dawlish, who frequently had recourse to this method, says, that out of between forty and fifty cases, only one required more than one assistant. It is particularly adapted to dislocations downwards or forwards, but not so much so to dislocations backwards; in the two former instances we can scarcely wish for a more favourable position than that in which the head of the bone is placed when the arm is raised vertically by the side of the head, and for the reasons to which I have already adverted.

You will find this a very efficacious mode of reduction; I frequently employ it and have commonly found it successful. Where it has not appeared to answer simply by itself, I have combined it either with my fist or knee in the axilla, and have rarely failed. I do not mean to say that it is infallible, but I consider it a very useful and efficient proceeding in recent cases, and not the less so, that it is attended with but little pain.

FIST IN THE AXILLA.

Not unfrequently luxations of the humerus are reduced with the greatest ease immediately after the accident, by the surgeon seizing the arm and raising it at right angles with the body, while at the same time he introduces his left hand, clenched, into the axilla, placing it as high as possible. Diverting the patient's attention he suddenly pulls down the arm, at the same moment making as much extension as possible, until he brings the patient's elbow to his side.

This plan, recommended by Hippocrates, Duverney, and most subsequent writers, combines a two-fold action; the extension downwards separates the humerus from the neck of the scapula, whilst the fulcrum afforded by the fist in the axilla, forces the head of the bone outwards and places it within the sphere of the capsular muscles which draw it up into the cavity. The heel, knee, pads, and balls in the axilla, act upon the same principle as the first.

Petit says, "Place your hand in the axilla, and your elbow on your patient's thigh or chair, and then with your other hand depress the elbow."

Desault placed his left hand in the patient's axilla, and with his right, applied to the lower and external part of the arm, he raised the humerus to the trunk and pushed it upwards, by which double movement the head of the bone was replaced without the slightest difficulty.

Dr. David Bell relates the case of a man, aged 33, who drank largely, fell upon the pavement, and dislocated his arm. Having placed the patient on a chair, and seizing him by his wrist, he introduced his hand into the axilla, and pushing out the head of the bone, reduced it immediately.

In the Dublin Medical Press is the following method, published by Mr. Canes, of Kilkenny:—"The surgeon places his left hand in the patient's axilla, and his right on the elbow of the dislocated arm, the wrist of which he fixes under his own right arm, by pressing his elbow to his side. He then steadily inclines his body backwards." Mr. Canes, who relates four cases, treated after this plan, in one of which the luxation had existed twenty-four hours, says, that he has succeeded after two minutes extension.

I do not think, employed as here related, that this mode is so perfect as it might be. The fist in the axilla answers very well as a fulcrum, but you do not place the humerus in the most advantageous position when you merely raise the arm at right angles with the body. The head of the humerus is not then separated from the neck of the scapula, and consequently, when you depress the patient's arm over your fist, the latter presses and fixes the head of the humerus more firmly in its accidental situation; whereas if you, in the first instance, place the arm in the vertical position, and then fixing your fist well up in the axilla, bring the patient's elbow suddenly and firmly to his side, you, by these means, press the head of the bone outwards, and will frequently succeed without much difficulty.

HEEL IN THE AXILLA.

Reduction by means of the surgeon's heel in the axilla has been much commended by Sir Astley Cooper, who says, that it is the best method in three-fourths of the recent cases.

Like every thing else in surgery it has its supporters and opponents, the latter of whom have advanced objections, which, however weighty they may seem in theory, do not appear to be so valid in practice. This is one of the plans which have been handed down to us by Hippocrates, although, from the favourable light in which it was regarded by the late Sir A. Cooper, it is frequently described in this country as emanating from him. Albucasis recommends the interposition of a round ball of some substance between the heel and the axilla, "*deinde medicus calcaneum suum super sphæram et elevet caput humeri cum viriuti*," but this is rarely required. Sir A. Cooper recommends its employment in the following manner: "The patient lying near the edge of a sofa or table, the surgeon binds a wet roller immediately above the elbow, upon which he ties a handkerchief; then, with one foot resting on the floor, he sits down on the bed and places his other heel in the axilla against the head of the bone; three or four minutes will usually suffice, but if any more force is required, a long towel may be employed, and several persons pull." Sir A. Cooper goes on to observe, that he generally bent the forearm nearly at right angles to relax the biceps muscle, but he had, in many instances, extended from the wrist by tying the handkerchief just above the hand; but more force was required in this than in the former mode, though it has this advantage, that the bandage is less liable to slip.

Mr. Bransby Cooper, in the last edition of Sir Astley's work, adds, "It is better for the surgeon to make the extension from the patient's wrist, which he should grasp with one hand;" and the grounds upon which he rests this opinion, are, that the surgeon, at

the long end of the lever as well as at the fulcrum, has his sense of touch to appreciate the effect of the force upon the resistance, and therefore is able at once to modify its application as circumstances may require. Whilst extending the patient's wrist, and counter-extending by his heel, he immediately perceives the slightest change in the position of the head of the bone, and he can simultaneously by the lever direct it towards the glenoid cavity. This was also the opinion of the late Mr. Howship.

Verduc, who says, "This method is indeed very good," directs, that while it is proceeding an assistant should keep up the arm with a handkerchief, a fine napkin, or a piece of list, and, with the sole of his foot, press the shoulder downwards and facilitate the re-entrance of the head of the bone into its cavity. This recommendation, however, is not original, as it is more fully described in the writings of Ambrose Paré.

John de Vigo recommends a long piece of wood, having one end round; this is to be placed in the axilla of the patient lying on a bed. The surgeon then presses his foot against the wood, whilst he, at the same time, draws down the arm. This, which differs in no way from the ball in the axilla, possesses no superiority over the mere heel, which, after all, is as good a measure as can be employed in recent cases.

Among its supporters are, Wiseman, Sir A. Cooper, Messrs. Lawrence, Petit, Lanfranc, Syme, Le Clerc, Howship, B. Cooper, and, indeed, most of the best surgeons; but on the other hand it is opposed by men of equal reputation. The late Mr. Bromfield describes it, but not in the most favourable terms. Sir Philip Crampton says, "It is true, that in this method, which has the reputation of being very successful, the arm is drawn downwards in a direction nearly parallel with the body, but it by no means follows, because this method is often successful, that the force employed is most advantageously applied," and he seems to infer that this measure is attended with unnecessary injury to the soft parts, as he adds, "the desideratum is to effect reduction, with the least possible violence to the parts." Boyer objects to it, that there is always a direct impulse communicated to the head of the humerus, which has the double inconvenience of being higher than the extension, and of acting at the same time with it. However, he admits that the proceeding, as described by Hippocrates, perhaps contains the germ of the improvements in the various methods at present in vogue.

M. Latta, who has stated his objections at length, thus expresses himself, "This method of the heel is similar to the rolling pin. When attempted, the patient is laid on his back upon the floor, and the surgeon sitting on the same, puts his foot in the axilla, pressing the head of the bone strongly upwards, whilst he extends the arm strongly with both his hands, laying hold at the wrist, as he cannot grasp it above the elbow. Sometimes, when the head of the bone has been driven down directly into the axilla, we are directed to put some round hard body, such as a tennis ball, between the heel and the axilla. This makes the method still more similar to the rolling pin.

"In whatever way we proceed it must be objectionable:—

"1st. By laying hold of the arm below the elbow

joint, we stretch, and are in danger of hurting that joint.

"2nd. By the yielding of the ligaments of the elbow-joint, we lose a great deal of force which ought to have been spent on the humerus, and are thus obliged to use a much stronger extension than would otherwise have been necessary.

"3rd. By extending the forearm, we put a number of muscles upon the stretch, which ought always to be kept in a state of relaxation, and thus greatly impede the reduction of the bone.

"4th. It is evident, that by pushing with the heel, as well as with the rolling pin, we push the bone, not into the socket, but into the neck of the scapula, and thus, instead of forwarding the reduction of the joint, we hinder it as much as is in our power."

"I have been witness," adds this author, "to several cases when the heel had been used, and where the inflammation ran to such a height that it required the utmost care and attention to prevent mortification; and yet, for all the trouble the surgeon had been at, and the pain he had given the patient, the bone still remained dislocated. Indeed, although methods of this kind may succeed in relaxed habits, or, as many say, feminine constitutions, yet I will venture to affirm that in young and vigorous subjects, they will fail in nine cases out of ten."

More recently, Mr. Mayor, of Lausanne, in the *Gazette Médicale* for 1840, asserts, that this method, as practised in England, is open to the four following objections:—"It compresses the sub-axillary tendons of the pectoralis major and latissimus dorsi; it draws blindly on the wrist, and not from the elbow; it does not flex the forearm. It is, therefore, deprived of the governing force by which we may surely and easily guide the head of the bone into its proper place."

I have here given you the arguments for and against this mode of reduction, that you might have the whole question fairly before you. I have entered upon the subject very fully; but in these lectures I am not so anxious to govern you by any opinions of my own, as to lay before you what has been written by authors upon the point, that you may be enabled freely to draw your own deductions, and judge for yourselves, whether the opinions I express are based on sound grounds or not.

Let us now examine the validity of the objections urged by M. M. Boyer, Latta, and the rest, against this mode of proceeding. Boyer included reduction by the heel in the axilla in his class of coaptative measures, to which he was decidedly opposed.

It appears to me that both he and Latta mistook the principles upon which the heel acts, more particularly the latter, when he affirms that it pushes the head of the bone into the neck of the scapula. If the arm were placed at right angles with the body, and we pushed in the direction he states, this might be the result; but we do neither the one nor the other. The arm is drawn downwards in a direction nearly parallel to the body, and we must also recollect that the arm is not merely placed in this position and left passive, but that actual extending force is applied to it, equal, if not superior in power to that exerted by the heel; so that even if we pushed in the direction described by Latta, the bad effects would be neutralised, so far as the approximation of the head of the bone to the neck of

the scapula is concerned. But in the position in which the arm is placed, and the direction in which the extension is made, it is exceedingly doubtful whether, if we desired so to do, we could succeed in forcing the head of the bone from below upwards; for the heel being inserted internal to the neck of the bone, acts as a fulcrum, the direct tendency of which is, to throw the head of the bone outwards, and not upwards; indeed, this is the object of those who employ this force. The arm is drawn downwards and inwards; the surgeon pushes the upper end of the bone from within, outwards, with his heel, thus assisting the leverage exerted by the arm upon itself, whilst, at the same time, it acts upon the anterior edge of the scapula.

I should advise you to adopt the following mode:—Suppose the case to be a dislocation of the right shoulder. Having applied the wet bandage and a pocket handkerchief, or towel, above the patient's elbow, make him lie down on the carpet on his side, then lay a thick napkin or pocket handkerchief across the sole of your right foot, next place that foot as a soft cushion in the axilla; after which you should commence a steady and gradual extension, neither attempting nor desiring to pull it in all at once, but keeping the muscles upon a moderate state of tension, until at length from fatigue you will find them gradually give way. The head of the bone soon begins to move with a vibration which will be sufficiently evident to you. You now steadily increase your extension and bring the arm at once towards the body, when the upper part of the humerus, moving round the firm pad in the axilla, the head of that bone is set at liberty, slips over the edge of the glenoid cavity, and springs into its place, usually with so audible a snap that neither you nor your patient can fail to know it.

This plan is at once simple and effectual; it is attended, when properly applied, with very slight violence to the soft parts, or fatigue to the patient, while it admits of success in most instances, which have not been so long neglected as to render success under ordinary measures impossible.

With respect to the other objections urged by Latta and Mayor against the plan in consequence of the extension being made from the wrist, admitting them to be valid, they can only apply to the instances in which the extension is so employed, and not where the force is applied above the elbow. Before we can agree with M. Mayor, we must first ascertain whether the extension is made so universally from the wrist in this country, as he has asserted. I think you will find it is not. However, we have already described the matter so fully that I will not again open the question further than to observe, that if any advantage is derived from the increased length of lever afforded by applying the power to the wrist instead of to the elbow, it is more likely to be experienced in this method than perhaps in any other which we shall have to consider.

I have often seen luxations reduced by the heel in the axilla, and I have frequently reduced them myself by this method, but I must confess I never, in a single instance, met with the alarming consequences mentioned by M. Latta; neither do I believe they can occur, unless the surgeon is guilty of unnecessary violence, and is ignorant of the principles which ought to govern him. As to the assertion that the plan fails among young and athletic subjects in "nine cases out

of ten," the experience of Sir Astley Cooper, as well as of most other surgeons, proves that it is erroneous and without foundation.

M. Vergneis publishes the following mode of proceeding in the *Bulletin Therapeutique*:—"The patient being seated on a chair, the surgeon takes the luxated limb and holds it perpendicularly; he applies one hand to the middle of the arm, the other towards the wrist; he next raises his foot and placing it under the luxated head of the bone, he fixes it on the chest and draws the arm slightly towards him, whilst he depresses it in drawing it forwards; he increases the force, at first proceeding quickly." He says he has succeeded where others have failed.

The knee in the axilla acts upon the same principle as the fist, serving as a fulcrum for the arm. Sir Astley Cooper mentions it, and says, that even in persons of powerful muscles, he has known it succeed when the patient remained in a state of intoxication. Mr. Kirby mentions several cases in which he employed it with perfect success, but the method is not considered so good as that of the heel in the axilla. However, I have often succeeded with my knee, without any difficulty.

Let your patient sit on a low chair or stool. If it is the right arm stand behind him, if his left stand before him; raise his arm perpendicularly by the side of his head, and then place the ball of your foot upon the chair or stool, and your knee in the axilla as close as you can against the head of the bone. Now depress the arm forcibly and bring the elbow down towards the patient's side, at the same time raising your heel and pressing with your knee upwards and outwards. You will not succeed so well if you do not in the first instance raise the arm perpendicularly, for the reasons which I have given in treating of "White's Method."

ON TRAUMATIC TETANUS AND ITS TREATMENT, WITH SOME REMARKS ON THE EXTRACT OF CANNABIS INDICA OF COMMERCE.

By JAMES INGLIS, M.D., Halifax.

(Concluded from page 147.)

In the Journal of March 5th, my remarks bore especially upon traumatic tetanus, but they equally apply to the idiopathic form of the disease. In the one case, the immediate exciting cause is apparent; in the other, it is more obscure. The proximate cause, however, in both is similar, and any plan of treatment which may be found to be successful in traumatic tetanus, will, doubtless, be no less efficacious in idiopathic, inasmuch as the latter is the less fatal form of the disease.

In traumatic tetanus, the first care of every medical man is evidently, at the invasion of the disease, to cut off from the membranes of the brain and spine the exciting or primary irritation, by isolating or removing immediately the injured member. His next care, if he see the case early enough, is to attempt to reduce the secondary, but more serious irritation in the spinal theca, by the usual remedies for the reduction of local inflammatory action, viz., by the application of cold (ice if it can be obtained) to the spine, as Professor

Miller recommends; or, by cupping or leeching, immediately succeeded by counter-irritation of an active character. A more soothing treatment has been recommended in the application of direct sedatives to the spine, as of morphia, belladonna, hyoscyamus, and the like, but any ultimate benefit arising therefrom, seems questionable. The warm bath, the cold bath, and cold affusion, have all in succession had their supporters, and have as often again fallen into disuse.

The internal remedies which have been exhibited in this disease, are, from the very intractability of tetanus, exceedingly numerous; and, in proof of the uncertainty of their action, I may quote, as Dr. Symonds has done, the language of Sir James M'Gregor, who has thus written—"The remedies which have been chiefly trusted to for the cure of this formidable disease, are opium, mercury, wine, warm and cold baths, venesection, ipecacuanha, and digitalis, in large doses, enlargement of the original wound, and amputation of the limb. These have been tried alone, and in various combinations, and I am obliged to confess that the whole failed in almost every acute case of tetanus which occurred. The three first have been administered in unlimited doses without effect; the cold bath is worse than useless."

There are, however, other internal remedies, not enumerated in the above list, which appear to be entitled to our more favourable consideration; of such are, the sulphate of quinine, carbonate of iron, tartrate of antimony, turpentine, assafoetida, and, perhaps, the cannabis indica.

I am induced to place the sulphate of quinine at the head of these remedies, from the decided sedative effects which I have found to arise from its exhibition in large doses, in a class of disease, less intense, it is true, but nearly allied to the one under consideration; I mean epilepsy and hysteria. I have seen epilepsy simulate tetanus so closely, that for a time the one was not to be distinguished from the other, except by the temporary nature of the spasmodic contraction of the muscles in the former. But to return to what is of greater import than a mere general statement, as to the sedative effect of large doses of sulphate of quinine, in cases which are not now before us, we have direct testimony as to its decided utility in traumatic tetanus itself. In the *Provincial Medical Journal* for December 30, 1843, we find a very interesting case given, from the practice of Dr. Malone, of Florida, in which blood-letting, purgatives, turpentine, and opium, had been had recourse to, but with so little effect, that upon the third day of the disease we find the report to run as follows:—"The case appears to be hopeless; the pulse ranges from 130 to 140; * * * epigastrium firm and unyielding; * * * frequent spasms extend from the foot to the stomach, and from thence to the throat; pain in the region of the epigastrium upon pressure, and frequent hiccups." It was at this extreme, this "hopeless" period of the disease, that the quinine treatment was commenced; it was administered at first in five-grain doses every two hours, combined with a quarter of a grain of morphia. Symptoms of amendment soon after appeared; the treatment was persevered in, and the patient was dismissed convalescent on the fourteenth day of the disease.

It would extend these remarks to too great a length