

depend upon future operations performed in pathological cases, and for the traumatism which surgery allows us to observe in time of peace. Until then I confine myself to the two principal prophylactic measures of which I have spoken: favourable atmospherical conditions, and M. Alphonse Guérin's infrequent and occlusive dressing.

Simple and painless daily dressings, etc.—Remember, gentlemen, that the cotton dressing has not yet been often used for compound fractures, especially for those due to gunshot injuries. I should hesitate to recommend it for the latter on account of the need of watching for, and treating the diffuse phlegmons which are always so likely to occur during the first few days. Remember, too, that this kind of treatment, although it has been used, especially after amputations, is not suitable for all of them. If then for any reason you are led to use daily dressings, I advise you to make them so simple that their application and renewal can be made without movement, and especially without pain. In case of a fracture the limb should be placed in a wire splint; after an amputation the stump should be placed upon a slightly raised cushion covered with oil silk. Without seeking immediate union, you should yet place the edges of the wound in the most favourable position possible, and should cover them with two or three compresses wet with a mixture of alcohol and carbolic acid solution, which can be removed and renewed without giving any shock to the limb, and without causing pain and exciting the fear of its daily renewal. I have spoken elsewhere¹ of these simple and painless dressings, and I believe that under favourable atmospherical conditions very good results could be obtained with them.

¹ Mémoire read before the Congrès Médical, 1867.

PART V.

DISEASES OF THE ARTICULATIONS.

LECTURE XXXIII.

DIAGNOSIS OF TRAUMATIC DISLOCATIONS.

- I. Generalities upon this diagnosis—Search for deformity and abnormal prominences and depressions. II. Application of these generalities to a dislocation of the shoulder—Search for the subacromial depression and the prominence formed by the head of the humerus. III. Application to a dislocation of the elbow backwards—Depression below the humerus—Search for the olecranon, internal epitrochlear, and radial prominences—Lateral mobility. IV. Application to an iliac dislocation of the hip—Search for the head of the femur and the great trochanter.

GENTLEMEN: I. You see from time to time in the wards patients affected with traumatic dislocations which have remained unrecognized for a longer or shorter time.

In the course of the year two men have been admitted with dislocations of the shoulder; dating in one from twenty-two days, in the other from two months before. I was able to make the reduction in the first, but it was impossible in the other.

Last year I made with the Jarvis apparatus, modified by Robert & Colin, an unsuccessful attempt to reduce a dislocation five weeks old of the right elbow. The patient had been attended by two physicians who had not recognized the lesion, and who contented themselves with putting on leeches and poultices.

I have told you of a consultation to which I was called several years ago in a provincial town, for a supposed non-consolidated fracture of the neck of the femur, which was a supra-pubic dislocation unrecognized for more than six months. Errors of this kind are always prejudicial to the patient, for of two things one: either the dislocation is afterwards recognized and reduced—but only after having occasioned useless pain, and, furthermore, associated with the slower and less complete re-establishment of function always found in articulations which have long remained displaced; or else reduction has become impossible; the patient has only the resource of a more or less imperfect pseudarthrosis, and finds himself in a condition of impotence or infirmity which he would have escaped if his surgeon had recognized and treated the dislocation.

The error is sometimes due to insufficient practical instruction,

because the physician during the period of his studies has not sufficiently attended the hospitals, or, if he has attended them, has not properly noticed what passed, or listened to what was said.

But, it is also due to this, that the subject is more difficult than it seems to be; and to this, that the precepts of our authors relating to diagnosis are imperfect, and, as it were, lost amid historical and anatomo-pathological details.

It is to protect you in the future from these errors that I wish to-day to speak exclusively of diagnosis; and to give you in a few short generalities the means, applicable to all regions, of recognizing articular displacements.

For the diagnosis of dislocations, as for that of many other diseases, one must look for *rational* and for *absolute* signs. I pass rapidly over the first, because they do not constitute pathognomonic means. For pain and difficulty of movement are found as well in contusions, sprains, and articular fractures as in dislocations.

It is by seeking for *absolute* signs that you must try to make your diagnosis. Now there are only three for the orbicular articulations: deformity, abnormal prominences, and abnormal depressions. There are four for the ginglymoid articulations: the three preceding ones, and, in addition, abnormal lateral motion. Let us examine a moment each of these signs and the means of discovering them.

1. *Deformity*.—It is hardly possible for orbicular surfaces to quit one another without the form of the region and the general attitude of the limb, which I consider as part of the form, being thereby sensibly modified. It is by the eyes especially that these modifications are appreciated. But remember this, your eyes may deceive you when you look only at the injured limb. To appreciate it exactly you ought to compare it with the other side, if, as is generally the case, that one is the seat of no lesion.

But a clearly ascertained deformity is only an aid in most cases, and it must not be depended upon blindly. For in many dislocations it resembles that which may be occasioned by a fracture. And then, it is sometimes inappreciable; for example, when the patients are very fat, or when, several hours having passed since the accident, a swelling, due either to the infiltration of blood or to inflammation, has appeared. Try, then, to estimate the deformity rightly, but do not depend upon it alone to make your diagnosis.

2. *Abnormal prominences*.—When you suspect a dislocation, think at once of the direction in which, according to the facts furnished by your authors, the displacement may have taken place, and seek the prominences formed by the articular extremities, especially by that one which, being the most movable, has abandoned the other. You may at first use your eyes; but, especially in the enarthroses, you will rarely be able to clearly see the prominences, the soft parts prevent it. You must then use your fingers, and carry them as deeply as possible into the regions towards which pathological anatomy teaches you that the displacement should have occurred. When you think you have reached an abnormal prominence, do not be satisfied with the resistance appreciated by the touch; keep your fingers upon

the prominent point and make with your other hand, or by the hands of an assistant, movements of rotation, adduction, and abduction, in order to see if the prominence moves under the hand which examines it. I have often seen this complementary exploration forgotten. It is, however, indispensable, in order to leave no doubt as to the existence of an abnormal prominence.

3. *Abnormal depressions*.—I do not here mean depressions belonging to that one of the articular surfaces which is more or less hollow, and which, in consequence of the displacement, might be felt through the soft parts. I refer to those which belong to the whole region, and which result from the void left by the abandonment of the articular surfaces. Here, again, you should not depend upon your eyes alone, for if the abnormal depressions are sometimes seen, very often they are not, on account of the volume of the soft parts. It is again to your hands that you must have recourse. Placing them upon the points under which, in the normal condition, you feel more or less deeply a bony resistance, you no longer feel this resistance when the dislocation exists, and you do feel a hollow in its place.

4. *Lateral movements*.—They have no diagnostic signification in enarthroses, since articulations of this kind possess normally all possible movements. But they have a very great one in a ginglymoid articulation, like that of the elbow and those of the fingers; if, then, by moving the limb outwards and inwards, you find free lateral movements which do not exist at all, or are very limited, normally, there is presumption of a displacement after rupture of the ligaments. It is true that a similar mobility exists in certain sprains, but it is less extensive, and, further, does not coincide with the abnormal prominences and depressions which must always have been found before a diagnosis of dislocation is made.

II. *Application of the general principles to the diagnosis of a dislocation of the shoulder*.—We have just admitted a man, 45 years old, who, having fallen from a ladder yesterday evening, upon his right elbow, felt severe pain in the shoulder, and since then has not been able to use the limb. Let us now consider the explorations which I have made and which are necessary in all cases of this kind.

I removed the patient's shirt in order to compare the two deltoid regions. I satisfied myself that the patient could not move the shoulder, but that he could voluntarily flex and extend the forearm, wrist, and fingers. This last examination is important, for certain dislocations are complicated by paralysis of the forearm and hand, the result of a concomitant lesion of the median, ulnar, and musculospiral nerves. It is important to have recognized this paralysis before reducing the dislocation, in order to be very sure that it has not been caused by manœuvres employed during this operation.

Furthermore, I made sure that there was no fracture of the clavicle or of the acromion. I then turned to the deformity and the abnormal prominences and depressions.

1st. *Deformity*.—I noticed and pointed out to you the following: Comparing the two upper limbs we saw that the left arm (the uninjured one) descended vertically along the body, touching it at all

points. The right arm, on the contrary, was abducted, and the elbow about three inches from the body. I told the patient to bring them together, but he was not able to do it. I then tried to bring them together myself, but felt a great resistance, and made the patient suffer. I could only make the elbow touch the body after an involuntary bending of the latter towards the side corresponding to the injury, and as soon as I let go the limb the position was reproduced. This forced position of the limb in abduction is a variety of deformity which does not exist to so great a degree in all cases of dislocation of the shoulder, but which has a certain value. For if it should be met with in a contusion or a fracture you would be able to correct it, and recognize that, once corrected, it was not reproduced. Here it was only apparently corrected, and reappeared as soon as I abandoned the limb to itself.

You also saw that the shoulder was sensibly lowered, and that the patient supported his forearm with the other hand. This sign has no great diagnostic value, for you find it in all traumatic lesions of this region.

Finally, comparing the two shoulders, you saw that the injured one appeared a little less round than the other.

2d. Carrying then my right hand into the armpit, I felt for the hard *abnormal prominence* which the displaced head of the humerus would form. I at once felt a prominence; the better to appreciate it, I examined the left armpit, and recognized that to feel a bony resistance I had to carry the hand more than an inch higher than on the right side, and further, the resistance which I felt at this depth was that of a much smaller surface. Then again, placing my fingers in the armpit of the affected side, I grasped the right elbow with my other hand, and, rotating the arm, felt distinctly the axillary prominence roll under my fingers; I even discovered that this prominence was regularly rounded. For additional security, and to show you all the useful means of exploration, I asked an assistant to execute these movements of rotation with two hands, and I felt still more distinctly the head of the humerus roll under my fingers. I further looked to see if there was a prominence under the clavicle, behind the pectoralis magnus, as there is sometimes in the so called sub-pectoral dislocations, but I found none.

3d. *Abnormal depressions*.—I had only one to seek, the sub-acromial depression resulting from the removal of the head of the humerus inwards. I have already told you that among the deformities recognized by the eye is a slight flattening of the outer side of the shoulder. I pressed firmly with the fingers of my left hand below the acromion, and recognized, especially by comparing it with the other side, that I had to press very deeply before feeling the bone; the sub-acromial depression, which was scarcely appreciable by the eye, was then very evident to the touch. To be still more certain, I carried the elbow further outwards, so as to relax the deltoid, and then felt the depression still more distinctly. I took care also to make the same manoeuvre, comparatively, on both sides.

I admit that in this patient so minute an exploration was not abso-

lutely indispensable for the diagnosis. But in patients who are fatter or more muscular, or in whom the inflammatory swelling is greater, all these explorations, made comparatively on both sides, are necessary, and you should form the habit of not neglecting any of them, so as not to be at fault when you find yourself in the presence of a difficult case.

Enlightened by these symptoms, I did not hesitate; for they are not found all together either in contusion or fracture of the upper extremity of the humerus. I therefore admitted the existence of a sub-coracoid dislocation, and reduced it by the method of the heel.

But, as the authors have described quite a large number of varieties of dislocation, you may have been surprised that I did not carry my diagnosis further. On this point, gentlemen, I have a firm conviction: the only important practical distinction among dislocations of the shoulder is that which is founded upon the displacement of the head of the humerus in front of or behind the glenoid cavity. The displacement backward is very rare, it is so exceptional that when dislocation of the shoulder is spoken of, without specifying anything more, it is always understood to mean anterior, or, if you prefer, antero-internal dislocation. As to the distinctions established between the latter, they are perhaps justified by pathological anatomy, but they have no clinical interest, because, on the one hand, they can never be rigorously recognized; and, on the other, the diagnosis would in no way modify the prognosis and treatment.

An antero-internal dislocation having been recognized, it should be immediately reduced. Now, with reference to this, there are two categories of dislocations: 1st. Those, and they are the most numerous, which are reduced by simple means, the so-called gentle methods of Malgaigne; for example, the method of the heel; that of Mothe, by elevation; that of Lacour, by outward rotation followed by adduction; 2d. Those which resist the gentle methods, and for which we are obliged to use, after manoeuvres of rotation and circumduction, intended either to bring the head of the humerus into a more favourable position or to enlarge the hole in the capsule, forcible methods, such as horizontal traction with ordinary bands and from six to ten assistants, or with India-rubber bands, or with Jarvis's instrument, which, however, is better adapted to old dislocations than to recent ones.

Certainly, if the precise diagnosis of such or such a variety could enable us to foresee a difficulty in reduction, and consequently the urgency of a forcible method, we should have to try to make the diagnosis in spite of the difficulties which it presents. But it is not so. It is not the position of the head a little further outside or a little further inside of the coracoid process, or a little nearer to or a little further from the clavicle, it is not that it is capped in its abnormal position by the subscapularis or by the pectoralis magnus, after a more or less considerable rupture of the latter, which make reduction difficult. This is caused rather by the narrowness and the disposition of the tear in the capsule, or by a peculiar resistance of the muscles, that is to say, by conditions absolutely inappreciable by us