

which do not belong to a special variety of dislocation, and which are found as well in the sub-coracoid as in the intra-coracoid and sub-clavicular, in the sub-scapular as in the sub-pectoral.

This is why I prefer the diagnosis, axillary or sub-coracoid dislocation. To this diagnosis is attached the indication of a reduction which must not be delayed, because it will be so much the easier as the lesion is more recent. I shall first try one of the gentle methods, and, if it does not succeed, I shall have recourse to one of the forcible ones.

III. *Application of the general principles to a dislocation of the elbow backwards.*—Here, gentlemen, is a woman, 48 years old, quite fat, who fell the day before yesterday, and does not know whether it was the hand or the elbow which received the blow. However that may be, since then she has suffered in the left elbow, and has not been able to move it. She consulted her physician, who could not determine what was the trouble, and sent her immediately to us. I made her undress in order to compare the two arms; and, after having satisfied myself that there is no fracture, either of the humerus or forearm, I shall now make with great care, and applying the general principles which I have formulated, the necessary explorations to discover if there is a dislocation of the elbow backwards. These explorations will take place before you all in the amphitheatre, and I remind you once more how important it is to establish a diagnosis at once, for if there is a recent luxation the reduction will be very easy if made at once; and it will offer greater difficulties the longer we delay.

1st. I first examine the shape of the two elbows; the only difference is that which proceeds from the increased size of the injured one. All the normal prominences and depressions are effaced; this is doubtless due to an infiltration of blood, although thus far there is no ecchymosis. There is nothing characteristic in the attitude. The forearm is in a position midway between flexion and extension, and cannot make any voluntary movement.

From the moment that we find there is no fracture we may presume that the swelling is the result of a dislocation, for it is not so marked in contusions and sprains. But the presumption is not sufficient to justify attempts at reduction. Let us seek then for more certain signs.

2d. I do not see any abnormal prominence, the swelling is too great, but I seek for it with my fingers. Grasping the elbow behind with my right hand, I bring my thumb upon the point where the head of the radius ought to be, and press back forcibly the soft parts in order to feel the bone. I feel something which is more prominent than the radius is when in its proper position. Carrying my finger upwards I think I feel its cup-like depression, but it is not very distinct. Leaving then my thumb upon this prominence, I take the forearm in the other hand, and pronate and supinate it; this time there is no doubt, my thumb is upon a prominence which turns, and I also feel the upper depression roll. I make the same manœuvre on the right side, which is uninjured, and do not get the same sensation. I feel the outer part of the radius turn, but I do not feel the whole of its upper extremity, and especially its cup, move as on the other side.

My diagnosis is already advanced. The upper extremity of the radius is dislocated backwards. But is it alone, or is the ulnar also dislocated? The latter is probable, because isolated dislocation of the radius is rare in adults, and is seen ordinarily in children. But this is only probable. Let us look for the prominence of the olecranon. I find it quite easily, and, comparing it with that of the other side, it seems to project backwards, so that the antero-posterior diameter of this elbow seems longer than that of the other. But we must know if this olecranon is higher than it should be, and for that I must discover its position with reference to the internal condyle. I seek the latter by pressing away the soft parts which mask it. Having found it, I leave one of my index-fingers upon it, and, placing the other upon the olecranon, I find that it is a little higher than the condyle. I make the same exploration on the uninjured side, and recognize that there the finger placed upon the olecranon is a quarter of an inch lower than the one upon the internal condyle. There is then no doubt: on the injured side the olecranon is higher and projects a little backwards. Finally, feeling for the inferior extremity of the humerus in front, I find that it is more appreciable by the fingers than the one on the opposite side.

3d. I feel below this inferior extremity of the humerus a depression, that is to say, that in pushing the soft parts backwards I feel a hollow, while on the healthy side the same manœuvre is prevented by a resistance which is nothing else than that of the bones of the forearm.

4th. By the preceding signs my diagnosis is far advanced, but for greater certainty I seek for the lateral mobility which belongs to dislocations of the ginglymoid joints. You see that, fixing the arm with one hand, I can carry the forearm outwards and inwards in a way that is entirely abnormal.

No doubt then is possible: the abnormal prominence of the radius, the olecranon, and the end of the humerus; the depression below the latter; all this, without crepitation, indicates a dislocation backwards of the two bones of the elbow; and you will see that I shall reduce it at once with great facility, by pressing the anterior portion of the humerus against my knee, and making extension and counter-extension with my two hands alone.

The manœuvre has been made. I felt a shock and a cracking which I attributed to the return of the articular surfaces. For greater certainty, and not to allow myself to be deceived by an apparent reduction, I repeat my former explorations, and find neither the abnormal prominences nor the depression. The abnormal lateral movements still exist, but are much less marked. It is then evident that the dislocation is reduced.

I now ask myself if there has not been concomitant fracture of the coronoid process; in which case, if I did not put on a restraining apparatus, the dislocation might be reproduced. To inform myself on this point, I fix firmly the lower end of the humerus with one hand, and, seizing with the other the upper portion of the forearm, I seek to carry it backwards, that is, in the direction in which the dislocation occurred. But I do not produce any displacement, hence I con-

clude that the coronoid process is not broken, and that a special apparatus is not necessary. Poullices and, in a few days, the compressive cotton dressing will be sufficient to cause the swelling to disappear, and to bring about resolution of the arthritis, rendered inevitable by the ruptures which were caused by the displacement.

IV. *Application of the general principles to an iliac dislocation of the femur.*—The patient who was brought here yesterday evening, and who is lying in bed No. 33 of ward Sainte Vierge, is a labourer, 31 years old. He was caught yesterday afternoon by a slide of earth and rubbish, thrown down violently, and buried under the mass. When taken out he found that he was unable to walk on account of a severe pain in the right hip.

This morning we found the patient unable to move the right limb, and the efforts which he made to do so renewed his pain. Consequently he could not raise his heel from the bed, and, in this respect, resembled patients with fracture of the neck of the femur. As this latter lesion is much more frequent than dislocation, we thought of it at first, but serious doubts were awakened by the fact that the limb, instead of being rotated outwards, was rotated inwards and adducted. Therefore I had to look for a dislocation.

1st. I first called your attention to the shape and attitude of the limb. While at rest in his bed the patient cannot make his two legs perfectly parallel; the leg on the injured side remains slightly flexed upon the thigh, and the thigh upon the pelvis. The foot and the whole limb are turned inwards, and when I tried to turn them outwards with my hands I did not succeed, but only made the patient suffer.

Notice particularly this first symptom. In certain exceptional cases fracture of the neck of the femur is accompanied by rotation inwards; but then you are able easily, with one hand, to turn the limb outwards. Here, on the contrary, that was impossible. I then examined the shape of the hip and of the buttocks, and found them rounder and more prominent than on the other side.

I then measured the length of the two limbs from the anterior superior spine of the ilium to the tuberosity of the inner condyle of the femur, and I found nearly an inch of shortening.

2d. Examining then the great trochanter, I found it more prominent under the skin than it is normally. I then examined its position with reference to the crest of the ilium. I placed one finger upon the most prominent point of the eminence and the other on the crest of the ilium, and I noticed the distance which separated my fingers; I made the same exploration on the unaffected side, and it seemed to me that the distance between my fingers was about half an inch greater on this side than upon the other. I then turned the patient upon the uninjured side, and stretched a string from the right antero-superior spine of the ilium to the most prominent part of the ischion. While an assistant held the string in this position, I placed my fingers upon the highest part of the great trochanter, and found that it was more than half an inch above the string. On the left, the uninjured side, the same investigation showed me that the great trochanter was, as it

ought to be in the normal condition, upon the ilio ischiatic line. This sign, which we owe to M. Nélaton, positively indicates an ascension of the great trochanter, and this ascension corresponded with the shortening which I had previously found.

I had then to seek the abnormal prominence which the head of the femur would form in case of dislocation. I sought this prominence in the groin and near the obturator foramen. I felt sure that I should not find it in these regions; for if there had been a supra-pubic dislocation, the rotation of the limb would have been outwards instead of inwards; and if the dislocation had been into the obturator foramen, there would have been, together with external rotation, considerable abduction of the limb, and not adduction.

I then placed my hand over the external iliac fossa and pressed back as much as possible the mass of the gluteal muscles, and it seemed to me that I felt under them a hard, round prominence. But the sensation was not very distinct on account of the thickness of the soft parts. Therefore, keeping my hand in place, I flexed the thigh upon the pelvis, and then felt the abnormal prominence a little more distinctly. I asked an aid to rotate the thigh a few times, and during these movements I felt very distinctly the round prominence roll under my hand, and could no longer have any doubt of its existence.

3d. It only remained for me to seek an abnormal depression. Theoretically, when the head of the femur is displaced outwards, a hollow ought to be formed in front, over the abandoned cotyloid cavity. I then pushed back with both hands the soft parts of the groin, and it certainly seemed to me that I did not find the same resistance as on the other side. But this sign was not very distinct, and had a certain value only by its coincidence with the abnormal prominence clearly felt in the gluteal region.

To recapitulate, gentlemen: deformity of the hip, adduction and rotation inwards of the limb, shortening, ascension of the great trochanter, abnormal round prominence under the gluteal muscles, abnormal depression in the groin,—all these symptoms, found in a patient who up to that moment had had no disease of the hip, are evident signs of an iliac dislocation, and oblige us to proceed at once to its reduction.

I shall first try, without anæsthesia, the gentle method recommended by Després, flexion of the thigh, and rotation of the limb outwards by the hands of an aid, who will get upon the bed in order that he may, without too much fatigue, combine a certain extension with the movements of flexion and rotation. One or more aids will fix the pelvis, while I myself, standing on the outer side of the limb, will press with the palm of my hand the great trochanter and the whole upper portion of the femur inwards.

If I do not succeed, I shall try, still without anæsthesia, a forcible method, extension and counter-extension by means of straps, and by at least six aids to make extension, and four to make counter-extension. In case a first attempt should not succeed, I would try again after having anæsthetized the patient with chloroform. You know that I have reason to fear the effects of anæsthesia in dislocations.

That is why I do not employ it at first, and why I only use it after one or two unsuccessful attempts at reduction without it.

(The reduction was easily obtained by Després's method.)

LECTURE XXXIV.

TRAUMATIC ARTHRITIS OF THE KNEE.

- I. Penetrating wound by a piece of glass—Imminent suppuration avoided by the oclusive and compressive cotton dressing—Two varieties of traumatic arthritis: one after wounds, the other without wound. II. Subacute traumatic arthritis after a contusion. III. Subacute traumatic arthritis after a sprain—Reasons for not fearing an articular suppuration—Congestive form—Possible termination by simple chronic arthritis or dry arthritis—Therapeutical indications.

GENTLEMEN: I. *Penetrating wound*.—A young man, nineteen years old, was admitted into the wards two weeks ago, after having been wounded by falling on a piece of glass. He had on the inner side of the right knee a wound about half an inch long, with edges quite smooth and gaping. The accident was quite recent when the patient was brought here during the morning visit. We found upon the skin about the wound a reddish liquid which had the viscid consistency of synovia, and, like it, was sticky. We had to think that this was synovia mixed with a certain quantity of blood. Further, passing a probe very carefully into the wound, I made it enter deeply enough to leave no doubt about its being in the articular cavity. The penetrating wound being recognized, what was there to be done? Exactly the same thing as for fractures complicated with a small wound: close the wound, bringing the edges together as well as possible. You remember that I made this occlusion by means of strips of muslin soaked in collodion and overlapping one another, and I completed the dressing with a thick layer of cotton and a roller bandage drawn tightly over it, extending from the lower third of the leg to the upper third of the thigh. Then the limb was placed in a wire splint.

You have doubtless not forgotten what I then said of the fears which I had for this patient, and of the object proposed in treating him in this way.

I feared articular suppuration, and I sought to avoid it. 1st. Why did I have this fear? Because experience has taught me, as it has taught all other surgeons, that suppuration comes in such a case after a very feverish, acute, or hyper-acute arthritis which greatly affects the health, and when once established it may be complicated by a purulent infection which may carry off the patient, or by a hecticcy which may lead to amputation. It has taught me, on the other hand,

that, when suppuration does not take place, the consecutive arthritis remains subacute, is accompanied by a moderate fever, or may even remain without fever, does not expose the patient to any fatal accident, and only threatens him with a more or less complete ankylosis.

2d. How did I seek to avoid this acute suppuration which is almost as much to be feared as that of the large, long bones? By the same means and with the same intentions as in compound fractures (see page 105) I wished, by keeping the edges of the wounds together, to favour their immediate reunion or organization, and to protect them from suppurative inflammation which would be very likely to extend to the synovial membrane. I wished also to avoid the entrance of air into the articulation, for this air might have favoured, during the first few days, primitive septicaemia or traumatic fever, by the decomposition of the effused blood and synovia, and a formation by them of septic materials; and it might afterwards have favoured the decomposition of the pus itself, decomposition rendered easy by its retention in a large anfractuous cavity with rigid walls which cannot expel the contents by retraction.

You remember what took place. Our patient suffered very little. His pulse did not rise above 90, nor the temperature above $100\frac{1}{2}^{\circ}$. The very moderate fever which he had may be considered as a slight traumatic fever by reaction, while, if the arthritis had suppurated, the traumatic fever would have been intense, and probably septicæmic. Twelve days afterwards, I unrolled the band and removed the wadding as well as the strips soaked in collodion. The wound was entirely cicatrized. The articulation was but slightly swollen, and showed neither heat nor fluctuation. Nevertheless, I reapplied a roller bandage.

To-day we have reached the sixteenth day. The general health continues good. The local condition improves. The patient will begin to make voluntary movements while remaining in bed; we shall also communicate some to him every morning and evening, and if he can support this little exercise without a return of acute inflammation, he will get well, and will preserve neither rigidity nor prolonged pains. His age, as I have often told you, singularly aids this favourable termination.

Observe, gentlemen, that if this young man has not had articular suppuration, he has, nevertheless, had an arthritis, and, as this has occurred after a penetrating wound, I am justified in adding that he has had a traumatic arthritis. I shall presently show you other examples of arthritis which deserve this name, but beforehand, I wish to put you on your guard against the signification of this word, which, in the language of some authors, has become the synonym of suppurating arthritis. You have here seen that the arthritis has been neither acute nor suppurating, and yet it is impossible not to recognize that its origin was exclusively traumatic. That simply means that traumatic arthritis may be either suppurating or non-suppurating. Now, as articular inflammations, after the occurrence of external violence, are much oftener suppurating than non-suppurating; this is a reason for not continuing to give the word traumatic