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PART I.

ORIGINAL COMMUNICATIONS.

ART. IV.—*Intra-Capsular Fractures of the Neck of the Femur.*^a
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IF we carefully compare the statements usually promulgated by surgical writers with those which may be deduced from a good collection of fractures, whether intra- or extra-capsular, it will be at once apparent that much information is still wanting to bring them into perfect accord. The object I have in view in bringing forward the present communication is to show that we have still something to learn regarding these common accidents.

I shall first take up the *Intra-Capsular*.

The specimens which I now exhibit clearly demonstrate that we have three forms of this accident, and I might add a fourth, but it might be justly regarded as a variety of the ordinary *Intra-Capsular Fracture*, in which the compact tissue of the inner surface of the outer fragment has been driven into the inner fragment, forming an impacted intra-capsular fracture.

FIRST SPECIES.

Transverse Fracture of the Neck of the Femur through its junction with the Head, without Laceration of the Periosteum—Osseous Union.—I met with my first specimen of this rare form of accident in 1848, and after careful examination I came to regard it then,

^a Read before the Ulster Medical Society, January 4, 1881.

as I do now, as an example of a species of fracture hitherto overlooked, or at least not recognised as a special form. The head is displaced or rotated backwards, and is slightly penetrated by the neck behind, whilst in front the margin or corona of the head and the anterior surface of the neck are on the same plane. In one of the specimens the neck is two or three lines in advance of the head.

The extent to which the head is rotated backwards ranges in the different specimens from 25° to 35° , as is shown by the altered aspect of the depression for the attachment of the ligamentum teres. There is osseous union in all of them.

In 1871 I obtained a similar specimen, in which there was also firm osseous union. During the following session I met with a recent example in the anatomical rooms. In this specimen the head could be moved slightly in any direction, the sole bond of union between it and the neck being the untorn periosteum. These three specimens are deposited in the Queen's College Museum, and, when carefully considered, show clearly that an aged female, probably bedridden, may sustain fracture of the neck of the femur from some slight motion, which may be unattended by any shortening or other evidence of the accident, except perhaps inability to move the limb, with pain on pressure in the groin below the margin of the acetabulum. When a limb dangles uselessly from the pelvis, owing to any cause, such as paralysis or scrofulous disease of the knee-joint, the neck and head of the femur become more vertical—*i.e.*, the angle between them and the shaft becomes more obtuse, and the head becomes displaced upwards and outwards, so as to project over the upper surface of the neck. In such a condition the compact tissue is unusually bent as it passes from the upper border of the neck to the head. This form of displacement can be easily recognised by the continuity of the upper surface of the neck with that of the head. The displacement noticed in these cases differs in direction from that which occurs in these fractures, as in the latter the fossa of the ligamentum teres looks unnaturally backwards, in the former upwards. In point of fact, I do not know of any cause that would produce displacement backwards of the head except fracture, and that this view of the matter is the correct one, a specimen recently produced leaves no room for doubt. The three specimens are similar in size, they are in a state of atrophy, and the deformity in each case is doubtless the result of fracture. In cases of this kind

the periosteum is untorn, the fragments, if the patient remains quiet, are held closely in apposition, and an ample supply of blood is afforded by vessels of the periosteum and ligamentum teres, so that the conditions which prevent osseous union in the ordinary intra-capsular fractures do not exist here.

Treatment.—In the treatment of these, as of other fractures of the neck of the femur, I am opposed to the use of splints. If a splint be applied, it loads the limb unnaturally, and compels the patient to maintain the supine position. The back becoming painful, the patient tries to procure relief, but the limb being loaded by the weight of the splints, more than usual exertion is necessary to alter the position, which acts chiefly on the broken surfaces; whereas, if the limb is free, the patient changes the position slowly, without disturbing the fragments or causing them to grate forcibly upon each other. In addition to this may be noticed the injurious effects on aged persons of prolonged maintenance of the supine position. I have no doubt that the mortality is much greater in cases where splints are used than in those where they are not.

SECOND SPECIES.

Transverse Fracture in the Middle of the Neck of the Femur, with Osseous Union.—There are six specimens of this fracture in the Museum of the Queen's College. They are all so much alike that the description of one would apply equally to all the others. When force is applied from before backwards, the neck being in a state of extreme senile atrophy, it bends and breaks, forming a salient angle in front, and an acute concavity behind. The periosteum being untorn, osseous union takes place, resembling the Greenstick fracture which occurs in young persons, and it might not be inappropriately styled the Greenstick fracture of old age.

The diagnosis in this, as in the former fracture, can only be made out by a careful examination in front of the capsule in the groin. The salient angle of each in front, although detected with difficulty, will be acutely painful on pressure, and if to this we add the history, which is that of the pelvis having fallen backwards, whilst the extremity was fixed, or the extremity being rotated outwards, the pelvis being fixed, or indeed any force which would bend the neck from before backwards. That this is not an uncommon form of accident may be assumed from the fact that in the session 1879-80 I got three specimens of it. In one of these the fracture, instead of passing directly transverse through the whole thickness

of the bone, passed obliquely upwards. The compact tissue in front is firmly united, whilst behind there is no union, there being an interspace between the fragments behind.

Diagnosis.—In some cases there will be no shortening; in others it may be to the extent of one-half or three-quarters of an inch, or even more. There will be slight eversion, but this will be so trifling that it could scarcely be regarded as diagnostic. But if we associate the history, the age of the patient, and the pain on pressure over the middle of the neck, with that instinctive dread of movement which usually attends fractures without displacement, a correct diagnosis may be formed.

Treatment.—The treatment is the same as in the former variety. In these, as in all other fractures of the upper end of the femur, all attempts at rotation or forcible extension of the limb should be most carefully avoided. It may be very satisfactory to the surgeon to make out the existence of a fracture by these means, but it is not at all for the advantage of the patient that a fracture which would unite by bone and form a useful limb should be converted into an ununited fracture, and leave the limb a dangling and useless appendage to the body.

THIRD SPECIES.

The Ordinary Intra-capsular Fracture.—In the two forms of intra-capsular fracture just described there is osseous union, whereas in the ordinary intra-capsular fracture osseous union is indeed of extremely rare occurrence. The question may be asked—In what circumstances do they differ? The ordinary intra-capsular fracture is caused by the weight of the body suddenly falling upon the neck whilst the extremity is more or less abducted. It usually breaks about half an inch from the head, just at the part where it changes from the quadrilateral to the circular form, and is usually oblique from above downwards, with extensive laceration of the periosteum, and this laceration of the periosteum is the main element of the want of union.

In the former specimens the fragments are firmly held in apposition, whereas in the last, owing to the extensive laceration of the periosteum and direction of the fracture, there is a constantly recurring grating of the fragments upon each other whenever the patient makes the slightest movement, and this grating breaks the contiguous compact tissue of both fragments.

If we examine carefully a comparatively recent specimen of the

ordinary intra-capsular fracture, we will find portions of the compact tissue of the outer fragment overlying its cancellated tissue, as shown in one of the specimens which I now exhibit. The disappearance of the neck is usually attributed to absorption. No doubt it is absorbed and disappears, but the main agent preparatory to absorption is movement of the fragments upon each other, which produces a constantly recurring breakage of the neck into small fragments until it ultimately disappears, and whilst this is taking place the same movement strips or tears off the periosteum from the neck. In the numerous examples of intra-capsular fracture which I have dissected there were always several bands of the untorn periosteum extending from the head to the base of the neck, and these were the only bonds of union which existed between the two fragments.

ART. V.—*A Case of Secondary Mitral Incompetency in Aortic Patency, with Cheyne-Stokes' Respiration.*^a By C. J. NIXON, M.B., Univ. Dubl.; Physician to the Mater Misericordiæ Hospital, and Physician-in-Ordinary to the Lord Lieutenant.

THERE are some points of interest in the case which I have the honour of bringing before the Society that, I trust, may redeem its somewhat trite character. Its history and symptoms are briefly these:—

CASE.—The patient, a gunner in the Royal Artillery, aged forty-five, was accustomed to make severe muscular efforts. Six months before his admission to hospital he complained of short breathing when ascending a hill or stairs, and that when he took food of any kind which disagreed with him he suffered from attacks of giddiness and occasional fainting seizures. He had had a bad attack of syphilis some sixteen years ago, with a recurrence of constitutional symptoms principally affecting the throat and skin. The conditions noted when seen in hospital were as follows:—

The radial pulse was so distinctly collapsing that attention was at once directed to the heart. A loud *bruit de scie* was heard over the aortic area, the murmurs following the usual rule as regards the direction of their transmission. The aortic second sound was entirely replaced by the diastolic murmur. At the apex of the heart the first sound could be

^a Communicated to the Medical Society of the King and Queen's College of Physicians, Wednesday, January 5, 1881. [For the discussion on this paper, see p. 171.]