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PART I.

ORIGINAL COMMUNICATIONS.

ART. XXII.—*Resection of the Humerus at the Shoulder-joint.*^a

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THE fact that in civil practice cases are comparatively so rarely encountered necessitating the operation of resection of the humerus at the scapulo-humeral joint, induces me to record the histories and results of the three most recent instances in which I performed this operation. The portions of bone removed in two of these cases have already been shown at meetings in the Royal College of Surgeons in Ireland. Now I exhibit both the patient upon whom I last operated and also the diseased structures removed by that operation. The records upon this subject in civil practice are indeed limited. In the fourth volume of the "National Encyclopædia of Surgery" the accomplished writer states that only in a single instance during his experience was he obliged to resort to this particular operation.

The first case whose treatment I shall detail was admitted under my care into the City of Dublin Hospital in October, 1881.

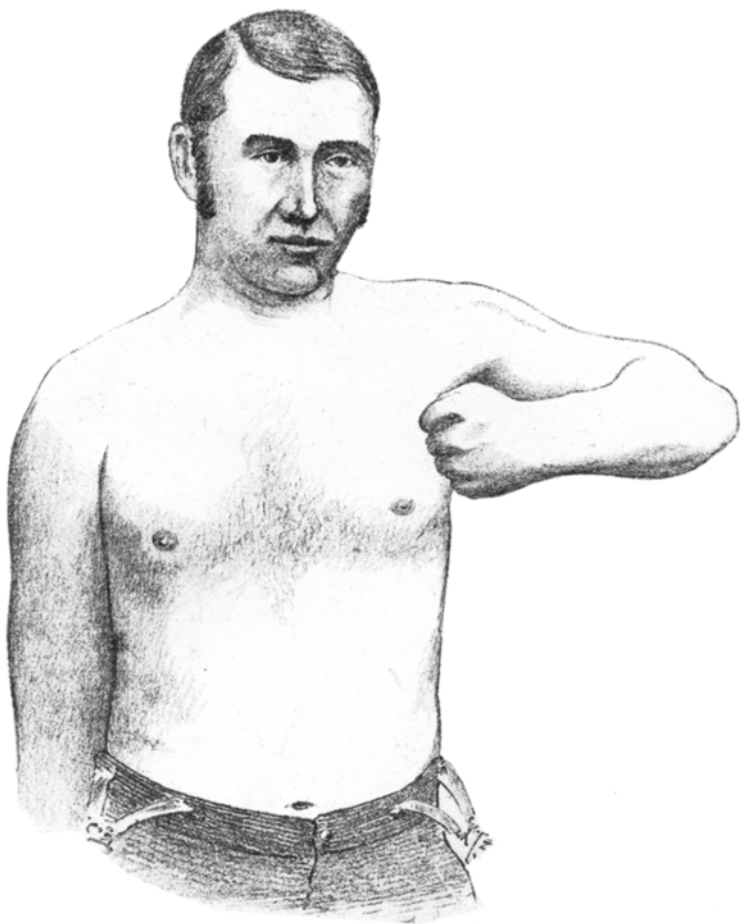
^a Read before the Surgical Section of the Academy of Medicine in Ireland, on Friday, March 20, 1885.

CASE I.—A female, aged thirty-seven years, having disease of her right shoulder-joint. The record of her case states that two years previously, when milking, she was knocked down by a kick, and her shoulder severely hurt; it was greatly swollen after the accident, and various remedies were applied to reduce existing inflammation and swelling, which, however, never completely disappeared; in about a year after the first injury she received a blow on the same shoulder, the swelling increased almost equally in extent to that resulting from the original injury, and within a year from this period an abscess formed, which, having broke, was discharging at the time of her admission to hospital.

There was no difficulty in diagnosticating the nature and extent of the disease. A probe could, with facility, be passed through the opening before referred to, whereby the extent of the carious condition was ascertainable, engaging both the head of the bone and the rim of the glenoid cavity. The operation of resection having been decided upon, I made an incision, commencing a little to the outer side of the coracoid process, and cut downwards and outwards for about five inches between the fibres of the deltoid muscle, and in the line of the bicipital groove. The long head of the biceps muscle was held to one side by an assistant. The capsular ligament was freely divided; the tuberosities of the humerus were rotated into the wound, the muscles attached to the greater divided, and the subscapularis, inserted into the smaller, severed; the head of the bone was next protruded, and the diseased portion, which extended to a little below the anatomical neck, was removed by means of Mr. Butcher's saw. The diseased rim of the glenoid cavity was cut off with a cutting forceps suitable to the purpose. After hæmorrhage had been arrested, which was very trivial, a drainage tube was inserted, one end passing through an opening made at the posterior and inner side of the arm. The wound was brought together by points of interrupted suture. The arm was supported on a pad somewhat resembling Stromeyer's cushion, and water-dressing was applied over the wound.

This treatment resulted in a rapid cure, the patient leaving the hospital completely recovered in December, 1881, five weeks after the operation had been performed, the wound having healed nine days previous to her discharge. I had an opportunity of seeing this woman five months after she left hospital. She had a most useful arm, and the overhand motions were not very deficient, considering the short time that elapsed since she had been operated on. I am since informed that all the motions have steadily improved.

CASE II.—A male, aged forty, admitted in March, 1882, suffering from caries of his left shoulder joint. The record of his case attributes the disease to the swing bar of a plough falling on his shoulder, which



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**MR. WHEELER ON EXCISION OF THE HUMERUS AT THE
SHOULDER JOINT.**

T. D. three months after operation, showing amount of over-hand motion.



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**MR. WHEELER ON EXCISION OF THE HUMERUS AT THE
SHOULDER JOINT.**

T. D. after Excision of Shoulder Joint.

produced acute synovitis, chronic thickening of the synovial capsule, degeneration of the cartilage covering the head of the humerus and the glenoid cavity, and, subsequently, carious disease. On examining this patient a slight fulness was perceptible around the articulation, and on manipulation a distinct crepitus was easily perceivable both by touch and sound. On passing the humerus towards the glenoid cavity there was grating, plainly showing that the cartilages had been destroyed. I operated on this patient in a similar manner to that already described, except that the long tendon of the biceps muscle did not remain intact; it appears to have given way at its origin before the operation; in this case only one side of the glenoid cavity required to be gouged. A portion of the head of the humerus was separated from the shaft of the bone, and was quite loose. The disease extended to about an inch below the tuberosities, which were removed. This patient did not heal rapidly; a sinus remained in the site of the incision which led down to a small portion of the humerus, which was denuded and carious. I enlarged this opening and removed the very small, but diseased, piece of bone; he now rapidly healed, and was discharged from hospital in September, 1882. A month after the wound had completely closed. I have not had an opportunity of seeing this patient since, but my friend, Mr. Pratt, informs me that he has a useful arm, that he is earning his livelihood as a labourer, and that his overhand motions are not defective.

The third case to record is that of the patient brought before this meeting. Not three months since he was discharged from hospital; his history is as follows:—

CASE III.—T. D., aged thirty, a strong and, apparently, healthy farmer, was admitted into the city of Dublin Hospital suffering from disease of his left shoulder-joint in September, 1884, recommended by my friend, Dr. Charles Stoney.

In August, 1883, this patient had hurt his shoulder by raising with it the wheel of his cart, which had stuck in a bog. Shortly afterwards his shoulder got stiff, so that he was unable to raise his hand to his head; it was also greatly swollen, but without being painful. Before admission his shoulder-joint had been twice aspirated, with an interval of five days.

On the first occasion about five fluid ounces were removed; on the second occasion about a pint. On his admission the effusion was considerable, and the head of the bone was pushed downwards.

On October 23rd, the patient being anæsthetised, I proceeded to resect his shoulder-joint by a single straight incision, as in the other cases. The capsule was greatly thickened, and on opening it there was a gush of synovial fluid, mixed with blood, and considerably over a pint in quantity. I dissected away the entire capsule, which was very adherent. I removed the head of the bone and a portion of the inferior and external

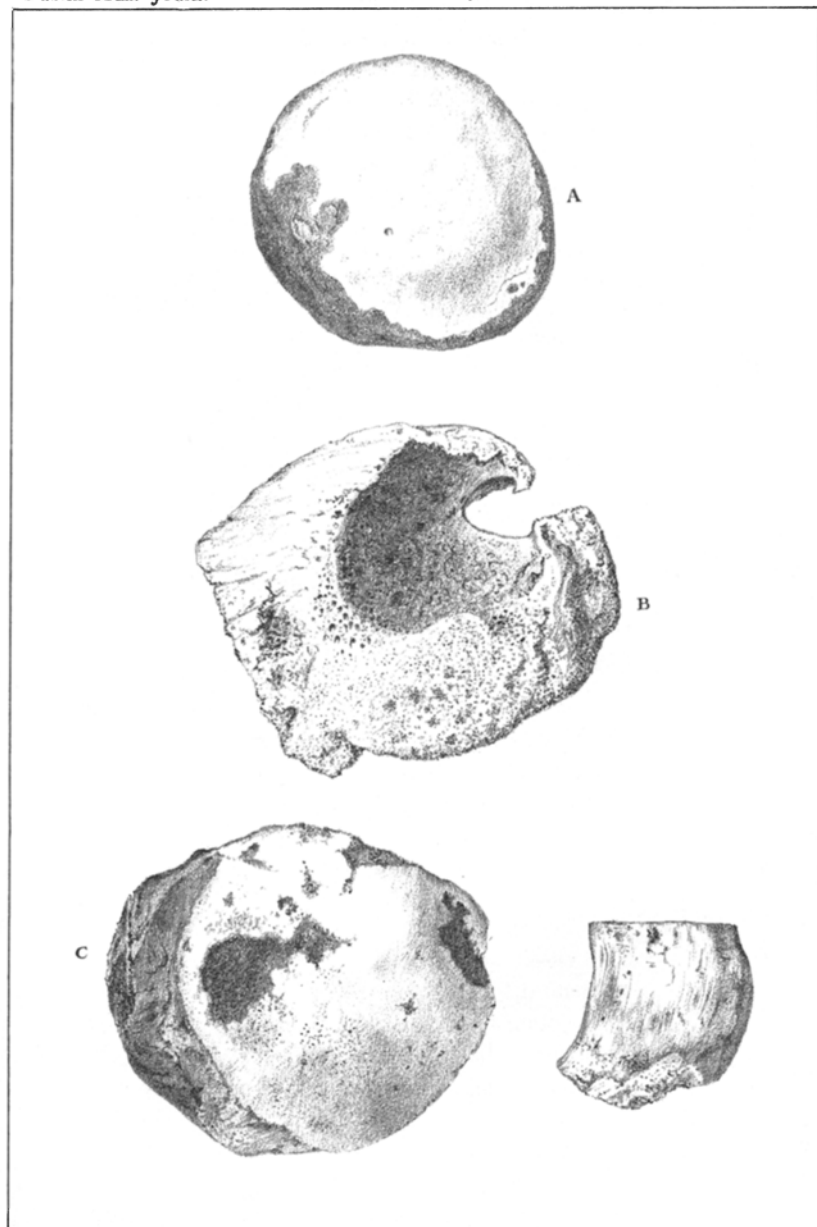
part of the glenoid cavity, also the tip of the acromian process which had been fractured and was carious. The long tendon of the biceps was preserved; all hæmorrhage was controlled; the wound was brought together by means of interrupted suture, a drainage tube having been previously introduced. The arm was placed on a Stromeier's cushion, and the patient replaced in bed. A few hours after the operation a slight oozing of blood took place, which increased, thereby rendering it necessary to re-open the incision. The hæmorrhage came from a small vessel situated on the posterior and external surface of the bone, and bound down so tightly to the latter as to make it impossible satisfactorily to secure it by ligature; I therefore arrested this bleeding by a compress steeped in Ruspini's styptic.

For the first four days succeeding the operation this man suffered from retention of urine. The shoulder wound healed kindly, and he was ordered to be up on the 8th of November; but on the evening of the 7th he got an attack of inflammation in the veins of his right leg (phlebitis), from which he was not convalescent until the 10th of December. He was discharged from hospital on the 24th. He has excellent use of his arm, including some overhand motion, which he tells me has been daily improving since he left the hospital, not quite three months ago.

Excision of the shoulder-joint for disease is not so commonly performed as is excision of other articulations, for the simple reason that disease of the articular structures of this joint is not frequent, and when it does occur it often terminates in ankylosis. Again, it is not very uncommon to find that supposed disease of the shoulder-joint is merely caries of the coracoid or acromian process, and that the osseous structures forming the joint are unimpaired; consequently, the removal of such diseased parts will be sufficient; indeed, small sequestra, even in the articulation, may be successfully removed without resecting this joint. But there are other causes, apart from disease, which may demand resection of the scapulo-humeral joint, such as gunshot wounds, old and painful as well as compound dislocations, tumours of the head of the bone not cancerous, compound and comminuted fracture of the articulation.

It makes, however, very little difference for what cause we may have to perform excision of this joint, so long as the treatment be adopted which will prove most beneficial to the patient, and which will endow the hand (to which the other joints of the upper extremity are secondary) with the widest range of usefulness.

With regard to the incisions for this operation several have



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MR. WHEELER ON EXCISION OF THE HUMERUS AT THE
SHOULDER JOINT.

C. Bones Removed in Case No. 3.
Showing Portion of Acromion Process.

A. Bone removed in Case No. 1.
B. Bone removed in Case No. 2.

been advocated—the T, the V, the inverted 7, as well as the longitudinal incision through the deltoid muscle, which, in my opinion, is the one calculated to afford the best results, and which is therefore the one I practise. There are several movements in the shoulder-joint—as rotation, abduction, elevation, adduction, and antero-posterior movements—and if the deltoid be cut across, the power of abduction and elevation must be lost, but if its fibres are merely divided the probability is that their movements may be retained with regard to the saving of the long tendon of the biceps. I strongly advocate that, when possible, this should be preserved. I am aware that in many cases of disease it is destroyed and good results have ensued, but I have seen more useful arms and more extensive motion follow when it has remained intact. I have not found it necessary to continue making the counter-openings for drainage. The position of the arm is undoubtedly away from the side and somewhat forward; this favours the contraction of the wound, and the bonds effecting repair are shorter.

Excision of the shoulder-joint is a favourable operation, but for comprehensive statistics we are limited to the operations performed for gunshot injuries.

Hodges collected 50 cases of excision of the head of the humerus for disease; 8 died and 42 recovered. In 17 out of the 50 the glenoid cavity was operated on, but in 7 out of the 8 fatal cases this cavity required operative procedure.

Out of 115 excisions for disease in civil practice but 21 deaths are recorded—a mortality of 18·2 per cent.; and in military surgery 35·4 per cent.; but there being many circumstances in a campaign which would tend to increase this mortality, it behoves the surgeon to select that period which is most favourable for the operation—the first stage, or that within twenty-four hours, being more favourable than the second stage, which is from the second day until suppuration is established; and the third stage, which is after the occurrence of suppuration, being the next most favourable time to the first.

Plates I. and II. accurately show the condition of Case III. Since the photographs were taken, from which the lithographs have been copied, he has even more overhand motion, and says he works as efficiently at farm work as before he received the injury to his arm.

Plate III. shows the portions of bone removed in the three cases described. The small portion of bone which I mentioned lay loose in Case II. is not shown—it was lost. In Fig. 3 can be seen the acromian process, which was carious, and removed in the third case.