A CASE IN WHICH, AFTER ERASION OF A TUBERCULOUS ELBOW, A THIN GOLD PLATE WAS BURIED IN THE JOINT FOR TWO MONTHS.

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THE two photographs which illustrate this paper were taken recently from a young woman of 23, named Clara G., a patient of Dr. Curtis, of Orpington. Four years ago I removed all the cartilage, and most of, if not all, the synovial membrane of the elbow-joint, as well as the head of the radius and much of the olecranon, for tuberculous disease. I was desirous not to shorten the arm by a free excision, because such a shortening is, to my taste, repulsive in appearance, and, to a layman, almost more unpleasant than the result of an amputation, since it is more mysterious. I therefore proceeded, as described in the following report, which is from the notes of Drs. Seccombe and Poynder, house-surgeons:

Clara G., aged 17, was admitted into the West London Hospital, December 26th, 1896. She was tall, thin, and pale, and gave a tuberculous family history. The left elbow had been gradually getting larger, stiffer, and more painful for seven years. The arm had been useless for two months. The elbow was semiflexed and tender, and there was "considerable swelling with a pulpy feel." Movements were restricted.

Fig. 1.—Showing limit of extension. (Case of Clara G.)

First Operation, January 1st, 1897.—A longitudinal incision was made over the outer border of the olecranon and down to the bone. A second incision outwards, transversely, from the middle of the first. The olecranon was sawn through and turned up after the joint capsule had been freely divided. The joint was "full of a dryish mass of jelly-like matter, with masses of caseous material." The synovial membrane, and the ends of all three bones were diseased, especially the head and neck of the radius and the interior of the olecranon. The head of the radius was excised, and the joint surfaces of the other bones freely removed with sharp spoons, etc. The olecranon remained as an empty shell. The synovial membrane was cut away with scissors. After careful swabbing with cotton wool soaked in hot lotion (sublimite, 1 in 2000), iodoform crystals were put into the joint, which was also packed with iodoform gauze. The wound was partly closed and the elbow fixed at right angles. The gauze was removed in four days and the progress of the case was uneventful. I obtained some thin, soft, gold plate from Messrs. Welby, of Garrick Street, Covent Garden, and proceeded to the

Second Operation, February 2nd.—The old incisions were reopened. The joint looked healthy, but the shell of the olecranon contained granulations and a little caseous material. These were removed. A finger was now passed into the joint and, with it, the adhesions of the capsule were separated from the front of the humerus. Some sharp edges of bone at the lower part of the humerus were cut off with bone forceps. The joint was well sponged and washed out with warm solution of perchloride (1 in 2000). The gold plate, cut to a shape resembling a short-peaked bicycle saddle, as seen from above, was spread over the end of the humerus, the narrower portion going up in front. The remains of the olecranon were sutured to the ulna with silkworm gut, the wound closed,

and the limb fixed in plaster-of-paris, with the elbow nearly at a right angle. Except a rise of temperature on the second day, there was no reaction and the patient was sent home temporarily five days afterwards (February 2nd).

The gold plate was left *in situ*, with the elbow fixed, for exactly eight weeks, when the patient was readmitted.

Third Operation (removal of the Plate):

Preliminary Note.—"The elbow is still in plaster-of-paris. The elbow has been perfectly comfortable—in fact, she could hardly say anything was the matter with it." Thus, the gold caused no irritation.

March 30th.—The wound was reopened, the gold was found a little crumpled or waved, and gripped between the opposing joint surfaces. It had to be removed in several separate pieces. The wound was reclosed with silkworm gut.

April 3rd (fifth day).—The splint was removed and passive and active exercises used.

A week afterwards the patient was discharged with a great deal of smooth and painless mobility in the joint.

Four years afterwards the patient was sent for and examined. She had been all the time at work in a paper factory and using her elbow freely. She often, however, had pain in it, and a sinus was found, not opening into the joint but leading to a fistulous and almost superficial canal which completely perforated the olecranon near its outer border. This was slit up with a chisel and scraped out. It was barely wide enough to permit a probe to pass through it and may have been caused by a piece of silkworm gut which lay near it, more probably it was the remains of the large cavity caused by scraping out the interior of the olecranon.

The movements of the joint are smooth and painless. They are limited only in the direction of extension. (See Fig. 1).

Fig. 2.—Showing limit of flexion. (Case of Clara G.)

Supination and pronation are free. I was led to use the gold by the following observation. I had frequently buried small discs and plates of silver and of aluminium in operating for radical cure of hernia. These caused no irritation. But several which were buried in very thin patients lay inconveniently superficial so that the skin over them was liable to be injured by pressure upon them. I removed some of these superficially-placed discs. Each lay in a little closely fitting bed of connective tissue with a surface as smooth and glistening as that of a mirror. I thought "that is what one would like to see the surface of a joint look like."

I resolved to bury the gold plate only temporarily, because it could not be expected to remain unirritating when once the joint began to work. For a buried foreign body to remain quiescent, it should be left at rest as regards the surface touching it.

On September 15th, 1900 (that is, last year), in the *Centralblatt für Chirurgie*, p. 921, Chlumsky, assistant to von Mikulicz of Breslau, described some experiments on animals, in which he studied the effects of burying metal in joints. As a result of these he came to the conclusion that the burial should not

be permanent. He tried also magnesium, which is absorbed by the tissues.¹

I myself should think an objection to the use of any absorbable metal is that it would not be everywhere removed simultaneously. If, therefore, movements were commenced too soon, a part of the magnesium would be still present, and would be a foreign body, possibly worked up into a lumpy one in the joint. If, on the other hand, movements were postponed, adhesions would form in those parts of the joint where the magnesium was first absorbed. Moreover, the precise time when absorption of the magnesium would be finished would be uncertain.

The slight crumpling of my gold plate was, of course, due to the cicatricial contraction in the size of the joint cavity during the two months the gold was buried and the elbow fixed in plaster-of-paris. I think one month's fixation would have sufficed.

In order to facilitate the removal of the plate I would recommend the use of a rather thicker sheet. The technical description of that used is "fine gold plate, gauge 0.50." I would recommend the use of gauge 0.75, and that the gold plate used should be carefully weighed before and after removal. I should add that Messrs. Wellby, to whose assistance and courtesy, given to me through Mr. Evans of that firm, I am greatly indebted, take back and allow for all the gold plate not required by the surgeon.

I am convinced that the procedure I here describe is practicable and useful. Unfortunately its value is limited by the fact that, in tuberculosis, which causes so large a proportion of stiff joints, it is often best, for weighty reasons, not even to try to get a movable joint.

REFERENCE.

- ¹ An admirable abstract of Chlumsky's paper is given in the *EPITOME* of the *BRITISH MEDICAL JOURNAL*, January 14th, 1901, par. 24.

AN OBLIQUE PELVIS ASSOCIATED WITH A CONGENITAL DISLOCATION OF THE HIP-JOINT.

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THE specimen described and figured is of interest, as it shews the changes in the articular surfaces, the result of congenital dislocation of the hip, of a higher grade than are usually encountered, together with concomitant pelvic changes.

It was obtained from the body of a female of very short stature sent for dissection to St. Bartholomew's Hospital.

Her back showed well marked scoliosis and kyphosis. She was an elderly subject, and her hymen was intact.

Fig. 1.

The right hip joint is quite normal. The left acetabulum is

flattened (Fig. 1) and can be divided into three parts, a lower, abutting on the obturator foramen and corresponding to the non-articular portion of the normal bone, is rather depressed and extends upwards in a cave-like manner beneath the upper articular portion. Above this first part there is an area which articulated with the remains of the neck of the femur; it is eburnated in part. Below and behind is another area which was in contact with the remains of the small trochanter; it is neither eburnated nor covered with cartilage. These two latter surfaces have been formed by the flattening of the margin of the acetabulum. At the seat of the upper articular surface the bone is thicker than on the other side, but the non-articular is thinner.

The upper extremity of the femur (Fig. 2) has lost all trace

Fig. 2.

of the head, but there is a portion of the neck remaining, which slightly overhangs and is eburnated where it was in contact with the os innominatum. The small trochanter is almost unrecognisable, being flattened and elongated from above down.

The surfaces of the two bones shew that the thigh was flexed, adducted and slightly internally rotated, as well as shortened.

There was a joint capsule, and the lower and anterior acetabular surface was covered by fibrous tissue, but the other two portions were in direct contact with the femur.

Fig. 3.

The pelvis is markedly asymmetrical, the right half being better developed than the left. The asymmetry is especially