SEQUEL TO A CASE OF OSTEOPOROSIS OF THE CRANIAL VAULT.

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THIS skeleton (Fig. 2)—figured from a photograph—is that of a man whose portrait (Fig. 1) appeared in the *BRITISH MEDICAL JOURNAL* of June 2nd, 1894—under the title of osteoporosis of the cranial vault. He had a remarkably large head, measuring, above the ears 26 inches, and a long history of head enlargement confirmed by the hatters. There was some curvature and stiffness of the spine, and a sarcoma of the tibia for which an amputation by Stephen Smith's operation was performed. The long bones were only slightly affected by the disease, which was believed to be osteitis deformans.

The malignant growth destroyed a great portion of several bones, besides the tibia, which came to the museum with the amputated limb. Other long bones are riddled with holes; the skull is perforated completely in several places, the gaps being occupied by soft tumours. There is no evidence of repair in any of the pits or caverns caused by the growth.

Fig. 1.

The osteitis deformans affects chiefly the skull and vertebral column. The skull-cap is enormously thickened, measuring 25 to 30 mm. in the occipital region. The weight of the entire skull is 55 oz., and it is necessary in estimating this weight to consider the many great gaps where the bone is destroyed by new growth: the largest of these perforations would admit two or three fingers. The vault of the skull is the most diseased with osteitis, the bone being everywhere very solid, the diploë only faintly suggested here and there, and all the sutures entirely obliterated. The base of the skull is roughened, and its prominences exaggerated, and some ossification of fibrous structures can be noted where the tentorium cerebelli is attached to the petrous bone. There is no narrowing of the nerve foramina, unless perhaps of the optic nerve canals interiorly. The grooves for the meningeal vessels are much deepened. The sphenoid about the sella turcica is a good deal roughened. The bones of the face hardly affected.

The vertebral column is disordered in the dorsal region, where the bodies of the 8th, 9th, and 10th are ankylosed, and the spine is curved backwards, exaggerating the normal curve. The ligaments in front of the spine are ossified, and assist in

the ankylosis. There being no rotation of the spinal column the neural foramina are not seriously encroached upon.

In regard to the long bones, it is remarkable, considering the condition of the skull and spine, how very little these are affected. The left humerus is thickened, and measures 9 cm. in circumference, as against $7\frac{1}{2}$ cm. in the right; and the weight of the left is 1 ounce heavier than the right humerus, also it is decidedly longer than its fellow.

The osteitis deformans, though generally symmetrical, will sometimes single out one bone, and had it been the radius alone, a deformity would have been very obvious. The result may be a remarkable corkscrew condition of the forearm described and figured by Mr. Clutton,¹ where the radius was enlarged and lengthened, but not the ulna.

In reference to the malignant growths, these have selected

Fig. 2.

the bones, and grown in all cases from the centre, leaving hollows (which have perforated so many bones) occupied with spherical masses of new growth quite different in shape from the fusiform swellings of periosteal sarcoma. Except for a secondary growth in the right groin, the disease selected always the bony skeleton, and chiefly that part which is more affected by osteitis deformans. In the first five cases of the disease as described by Paget, three out of the five suffered from new growths, as also a large proportion of other recorded cases. The skeleton in St. Thomas's Museum has new

growths in the pelvis. If osteitis deformans be associated with any other disease, it is with sarcoma; and perhaps as no disease at present can be said to be associated with sarcoma, it would put the point more clearly to say that the tissue changes in the bones predisposed the skeleton to new growths. The predisposition is not so local as in the case of pigmented warts, or irritated mucous membrane of the lip; and the right tibia, the bone first affected in this case by tumour, was the least involved in osteitis. There must be a predisposition of bone tissue to sarcoma in every case of osteitis deformans.

The skeleton here figured is a great addition to our Cambridge Museum, and enables the sequel of an interesting case to be studied and recorded.

A NEW DEEP(?) SUTURE FOR LARGE OPERATION WOUNDS

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DURING the last few years surgical ingenuity has been greatly interested in the question of suturing, chiefly of intestine or of other tubes. It has been almost taken for granted that perfection has been reached in the methods of uniting ordinary wounds, and no alterations of any moment have been proposed in the latter. But the union of large wounds, especially such as are deep, with large flaps separated to some distance, as, for example, after the removal of a large breast with much skin, is scarcely ideal. Too often, although primary union may have been obtained, months afterwards a very unsightly scar is left, not a mere white line, but with numerous similar lines and scars outside and lying at right angles to the main one. The surgeon is usually inclined to look upon these with indifference, they are of such infinitesimal importance beside the difficulties and dangers which he has surmounted; but the patient often regards them from quite another point of view. She is not so keenly alive to the greater risks, since they have been so skilfully evaded that probably she has known nothing of their existence, but she is very wide awake to any disfigurement left, and if such disfigurement can be decreased with safety it is surely worth the surgeon's while to attend to it. This, however, is not the most important consideration. A broad space of raw tissue has to be covered, and by a little manoeuvring, aided possibly by additional incisions and gliding of flaps, this is done. The flaps are held in the place they are to occupy by deep sutures, the tension upon each of which is of a fair amount. Each of these deep sutures penetrates the skin and goes down into the wound, so that when closed, the potential cavity of the wound has passing through it certain linear foreign bodies which communicate with the external surface. Should the tension upon any of these be more than a certain rather indefinable amount, they will cut through the skin towards the wound until such tension is relieved. In any case, but especially if this takes place, there is a possibility of a stitch abscess forming at the point of exit of the thread. Any bacteria or resultant pus has, by way of the suture which penetrates the base of this abscess, a chance of entrance into the main cavity of the wound.

An ideal method of bringing together these deep flaps would, I think, combine the following advantages:

First, and of most importance. Any stitch abscess resulting from its use would have no connection with the deep raw surfaces, nor any chance of infecting them.

Secondly. The pull upon the flaps approximating them would act upon a large portion of the flap, so ensuring (a) accurate adaptation, not merely at the skin line of union, but deeply between the raw surfaces below; (b) decreased chance of any cutting through the skin.

The stitch which is here shown aims at accomplishing these indications, and has been tried sufficiently often and with such good results as I believe to warrant its being brought before the profession for more extended trial.

The drawings show the method of application. A fold of skin is pinched up on one side of the wound at about the line through which an ordinary deep suture would have been passed. A needle, armed with a long thread, is passed

through this, then over the wound, and through a similar fold of skin on the opposite side; it is then brought back again in a reverse manner through the last fold, over the wound again, and through the first fold, leaving a loop on the far side and two free threads on that nearest. Two or

Fig. 1.

Fig. 2.

Fig. 3.

more of these loops are placed (Fig. 1). Then a small glass rod, with slightly bulbous and rounded ends, is placed in the loops, which may either simply encircle it or be taken round it once, as in Fig. 2. By drawing upon the four or more threads, the rod will force the further flap bodily towards the centre of the wound. If now a second rod is placed between each of the pairs of loose threads on the near side, and each of these pairs are looped together over it, by pulling on these free ends, the near rod, and by it the near flap is made to approximate the far one, and when these are in apposition, they are kept so by knotting the threads. Fig. 3 shows a wound thus closed by a rod on either side kept in position by five loops so placed. The edges of the wound are then neatly applied to one another, and united by points of suture as may be required. It will be seen that the deep threads, or as they should now rather be called the tension threads, lie entirely outside the wound, which will contain no foreign bodies at all, except the few catgut ligatures which may have been required. Care must be taken not to twist the sutures beneath the rods, otherwise the main advantage of this suture will be lost. This advantage is that no narrow line of suture grips the skin, so as to cut out, inasmuch as the whole thickness of the rod interposes between the point of entrance and exit of the thread, and the pull of the suture is thus no longer upon a thin line of yielding skin, but upon the glass rod, and its force is distributed along the whole length of the rod between any one suture and those on either side of it.

It may be objected that the pressure of these rods will so interfere with the nutrition of the flap that instead of primary union sloughing will occur. Experience of the method does not, however, show that this objection has any practical force, but in any case in which this was to be feared it is well to use several small rods, each acted upon by two sutures only, leaving small spaces between. It will be seen that it is necessary to use two, otherwise the rod may become displaced, and half of its advantage lost, but the rods can be made in all sizes. I usually prefer rods of $1\frac{1}{2}$ to 2 inches in length.

Care should be taken to make the distance between the points of entrance and exit of each of the threads equal to or very slightly greater than the diameter of the rods, so as to