whilst the remaining 3 deaths were due to exhaustion on the fourth or fifth days.

Of the remaining 62 patients, 33 were not seen after they left hospital, 18 were seen with recurrence, and 11 free from disease. In 11 of the 18, disease recurred within the year. Of those seen free from disease, 2 were seen within the year, 1 after fifteen months, 1 after three years, 2 after four years, 2 after seven years, and 3 after eight years. The last 5 were all instances of the more advanced type, in which much skin and soft tissues had been removed with the jaw. One patient remained free for over seven years, and then the disease returned in the alveolar portion of the upper jaw, and that bone was excised by my successor.

Upper Jaw.

The upper jaw was only removed five times for epithelial cancer. In 2 of these the cheek was much involved, and a good deal of skin had to be taken. In 1 the disease ran back so far that the operation had to be left incomplete. There was no mortality, but 2 were seen with recurrence within six months. One remained free for nearly four years, when the disease recurred in the lower jaw, which bone was excised.

Tongue.

In 18 cases (17 men, 1 woman) the tongue was primarily affected. In 6 of these the whole organ, and in 12 a lateral half, was removed through the mouth by scissors. In each case the cheek was slit to give free access, and in the earlier cases a preliminary tracheotomy was performed. There was no mortality in this series. It was most difficult to get the patients to submit to a second operation for removal of glands. Their pain and distress were relieved, the glands if enlarged were at that stage painless, and pain is the great factor that brings the Indian patient to consent to operation. Five subsequently came begging for operation, when the glandular recurrence was too extensive to allow of interference; whilst 1 from whom glands on both sides were freely removed, was seen in good health eighteen months later. The other 12 patients were not seen again.

Lips.

In 21 patients the lips were the primary seat of the disease, 5 being women. In 1 the disease was limited to the upper lip, the only case of the kind that I saw. In 7 the disease was extensive, having spread to the upper lip, demanding extensive plastic repair of the mouth. In most of these cases the submaxillary and submental glands were cleared. There was no mortality.

CONCLUSION.

From a survey of the notes of the whole series, one or two points of interest appear.

Of preliminary measures for lessening haemorrhage, the administration of calcium chloride for two or three days before the operation was apparently of distinct value; in cases in which it was given there was certainly less blood lost by oozing from the large wounds made in extensive dissections than in others where the drug was not used. In two very extensive jaw cases the external carotid was first tied when removing glands, but with disappointing results.

Reference has already been made to the value of a preliminary tracheotomy, especially when one is short-handed for help. Certainly in no case did it cause any trouble. Probably in the moist, warm air of the tropics tracheotomy is a less dangerous proceeding than in colder climates.

The large raw surfaces left in the mouth were sometimes painted with Whitehead's varnish, sometimes with zinc chloride solution. If a large cavity was left, it was usually plugged with iodoform gauze, which was kept in position for twenty-four or forty-eight hours and not reintroduced. From the second day onwards the mouth was well sluiced out with weak antiseptic lotion. Patients were encouraged to take water by the mouth from the evening of the day of operation and liquid nourishment next morning, when they were usually able to do so. The feeding was often augmented during the first day or two by normal saline solution given per rectum.

There were no subsequent lung complications in any of the cases, nor was there any serious septic trouble. This was the more surprising because in many cases the mouth

from carious teeth and pyorrhoea alveolaris was in a most septic state at the time of operation.

It was impossible to do much beforehand to improve the state of the mouth, for if many preliminary measures were attempted the patient became timid and ran away. If the operation was to be done at all it had in most cases to be done as soon as possible after the patient was first seen.

There was a mortality of 6 in the whole series of 209 operations.

My experience in Southern India agreed with that of most surgeons in other parts of the country in the slight susceptibility of patients to shock. In one case of excision of the tongue, about twelve hours after operation the patient, hearing that some one was meddling with his property, got out of bed, went into the next room, secured his belongings, and got back to bed without mishap. In another case, in which the whole tongue was removed with more than the average loss of blood, the patient walked off to his village some miles distant on the fourth day, without asking leave. In an extensive lower jaw excision, in which all the soft tissues of the cheek, except skin, were removed with the jaw, and a mass dissected out from the pterygoid region, the patient was found the same evening sitting up in bed drinking rice-water freely.

ON THE TREATMENT OF FRACTURE OF THE FEMUR IN THE NEWLY-BORN.

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I HAVE treated over twenty cases of fracture of the femora which have occurred during delivery, and many cases some weeks older where malunion had resulted from one or other cause. In some of the cases which had not ended well the treatment had been conducted by very excellent surgeons, with appliances, however, which they admitted were not suitable. A newly-born baby with a broken thigh requires a great deal of management, and a splint is all but useless, which is not easily and surely retained, or which does not allow the child to be moved, fed, and washed without in any way affecting the fracture. Surgical textbooks are singularly silent about this injury, and the splints recommended for older children are hopeless for small babies. The fact that surgeons experienced difficulty in dealing with this fracture was further impressed upon me by a radiograph I saw the other day, where a simple fracture had been operated upon and the fragments fixed by metal. A short time ago Dr. Robins, of Richmond, Virginia, wrote an article on this subject,¹ and described a splint which he had moulded to the body, thigh, and leg, and which gave him an admirable result. The splint, however, seemed to me unnecessarily cumbersome, as it fixed the hip and did not allow of very effective traction. I venture, therefore, to describe a very simple method which I have employed in all my cases, and which completely governs the fractured ends, and allows of free movement of the hip.

Of 26 cases of delivery fracture, 18 occurred in the upper third of the femur, 16 of them being at the junction with the middle third; 7 occurred in the middle third, and 3 in the lower third. Six cases being some weeks old, I rectified the deformity by manual osteoclasis.

FIG 1.

FIG 2.

FIG 3.

The treatment consisted in applying a Thomas's knee splint with extension as shown in the diagrams. Extension plasters are applied to the leg below the fracture, and the limb is passed through the ring, which encircles the thigh at the groin, and which is padded over with felt, leather, and impervious ollakin. The thigh is pulled, and the extension is maintained by the plasters which are affixed

FIG 4.

to the lower end of the splint (Figs. 3, 4). A bandage is placed round the limb, and no further treatment is needed than now and again to extend the limb by pulling at the plasters. The little patient can be carried, nursed, left to play on the floor, and no displacement of fragments is possible. It can be applied easily in five minutes, whether the child struggles or not, and an anaesthetic is never needed. (Figs. 1, 2, 3, 4.)

REFERENCE.

¹ Fracture in Forcible Delivery, with the Presentation of a Splint. *Surgery, Gynaecology, and Obstetrics*, February, 1908.

PLASTIC RESECTION OF THE BREAST AND ITS BEARING ON THE PRELIMINARY INCISION OF BREAST TUMOURS.*

By C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P.

TWENTY-FIVE years ago Thomas removed adenomata of the breast by enucleating the tumours through the deep surface of the mammary gland, which was exposed by turning up the breast by a curved incision along the line of junction of the lower edge of the breast and the chest wall. He made no attempt to suture the cavity left by the enucleation of the tumour, and in the case of a cavity in the upper part of the breast the distance from the skin incision would render suturing most difficult. Neither is it an easy matter to obliterate a more or less spherical cavity whose walls are composed of breast tissue. Consequently, after the removal of an adenoma of any size, Thomas's operation resulted in a considerable falling in of the skin over the site of the tumour.

Collins Warren has made a happy improvement on

Thomas's operation.¹ He found that an incision made along the outer edge of the breast, and where necessary prolonged along the under-surface of the anterior axillary fold, gave very complete access to the deep surface of the most remote regions of the breast and resulted in an inconspicuous scar. He does not enucleate the tumour, but excises the segment of breast in which the tumour lies and reconstructs the breast by suturing together the edges of the wedge-shaped gap.

At a recent meeting of the Plymouth Medical Society I demonstrated a patient in whom I had removed, in November, 1907, for persistent mastitis, from the upper and inner quadrant of the breast—the region which is least accessible, and which for the wearing of evening dress is most important—a wedge of breast tissue by Warren's method. The result, in spite of the formation of a retro-mammary haematoma which became infected, was really very fair. Four months after operation the breast was in its natural position, the skin over the resected area was normal, showed no depression and only a slight suspicion of flattening.

This method exposes all the deep surface of the breast and enables the surgeon to incise, on its deep surface, a tumour situated in any region of the mammary gland. If the tumour proves to be malignant, the cut surface of the tumour and adjacent breast tissue is cauterized, in order to minimize the risk of dissemination of cancer cells. A pad of gauze is packed between the breast and the greater pectoral muscle, and the breast, turned down into its natural position, is sutured to the greater pectoral muscle. A fresh set of gloves and instruments is taken, and the radical operation for cancer is performed in the usual manner. If the tumour prove to be innocent the procedure is as follows: The segment of breast tissue containing the tumour is excised. The wedge-shaped piece removed consists of the whole thickness of the breast, care being taken not to remove any of the subcutaneous fat. After ligature of every bleeding point, the contour of the breast is reconstructed by two layers of interrupted catgut sutures. The first layer, including the subcutaneous fat, but not the skin, approximates the superficial portions of the divided breast tissue. This layer produces wrinkling of the skin, which disappears when the sutures have been absorbed. The second layer approximates the sides of the deep portion of the wedge-shaped gap. The breast is then turned down into its natural position, and is attached by a third layer of sutures to the edge of the greater pectoral muscle. A fourth layer of sutures closes the connective tissue immediately beneath the skin incision, which is closed by sutures of either silk, linen thread, or silkworm gut. The breast is compressed by firm bandaging over the dressings.

Warren only employs drainage, which is made through the lowest part of the skin incision, in cases known to be infected, as in abscess. In the case referred to above Warren's advice as to omitting drainage was followed, and in spite of elaborate haemostasis by ligatures, followed by firm bandaging, a haematoma resulted.

In view of the extensive area involved in the dissection it is probably safer in every case to drain the retro-mammary tissues for twenty-four hours by a tube passed from the lowest part of the skin incision to the deep surface of the sutured area of the breast.

The skin over the lower portion of the breast in the case mentioned, its nerve supply being cut off, was rendered at first almost completely anaesthetic. Four months after operation this anaesthesia had almost disappeared.

CONCLUSIONS.

1. Every breast tumour should be incised prior to its removal. The surgeon who, in performing a radical operation for supposed malignant disease of the breast, neglects the elementary precaution of incising the tumour as a means of either confirming or disproving the diagnosis, runs the risk of finding himself in the unenviable position of having performed Halsted's or some equally extensive operation for a simple tumour such as an adenoma or abscess.

2. The exploratory incision should not be made through the skin which overlies the tumour. An incision made into the tumour through the overlying skin, in the event of the tumour proving non malignant and needing only local removal, results to a certainty in a scar and probably in a depression. This scar, or scar plus depression, if

* Read before the South-Western Branch of the British Medical Association on April 16th, 1908.