FRACTURES OF THE INTERNAL MALLEOLUS

BY

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A certain proportion of fractures of the internal malleolus treated in plaster end in fibrous union. Though some of these have slight or no disability, others leave the patient with a painful limp or a stiff joint. To obviate the latter type of bad result it has been the custom here to perform an open reduction on these fractures.

For practical purposes the fractures may be classified as (a) fracture of the internal malleolus alone; (b) fracture of the internal malleolus complicated by fracture of the external malleolus and/or the posterior malleolus, or by diastasis. Attempted manipulative reduction of the vast majority of these fractures meets with only partial success. The chief factor militating against anatomical reduction is the indrawing of the periosteal-fascial covering of the malleolus into the gap between the fragments in a tense curtain-like fold. In the fortunate ones this fold does not extend as deeply as the cartilaginous surface, and union of the deeper part of the malleolus next to the joint restores the mortise of the ankle. In those less lucky, particularly where some displacement has occurred, the aponeurotic fold clothes the entire depth of the fracture and fibrous union is inevitable. It is not possible to tell from the skiagrams which cases have this interposed fold and which have not—it has been found here in the great majority of the cases operated on. After excision of the fold the opportunity is taken to obtain anatomical reduction of the malleolus by internal fixation. This minimizes the chance of fibrous union, maintains reduction, and facilitates early active movements and thus a return to full function in minimum time.

Operative Fixation

The operation is not a difficult one, and is best done as early as possible, before reactionary swelling occurs. A study of the lateral x-ray view will show whether the anterior or the posterior part of the malleolus is fractured, and the siting of the incision is made accordingly: attention to this apparently trivial point adds considerably to the ease of the operation. The fracture line is exposed, clot cleared, and the aponeurotic curtain excised. Anatomical reduction is now effected, particular care being taken that filleting of the small fragment is not done, because of the danger of subsequent ischaemic death.

The fragment is fixed by a long vitallium screw, which is introduced at a steep angle in order to avoid the angle of the joint mortise. The screw has to be long because of the poor holding quality of the cancellous bone into which it is introduced. Comminuted fractures, or fractures in which the fragment is too small to hold a screw, are not suitable for this method of fixation.

Active movements are started from the very next day, the leg being put up in a right-angled foot splint when at rest. In

the uncomplicated variety full movements are generally obtained in two weeks. The patient is then allowed up on crutches, and goes through the movements of walking without actually taking weight: this reduces to a minimum the gravitational oedema which otherwise follows when the patient gets up after several weeks in bed. Full weight is taken at six weeks, when he walks with confidence and without a limp.

Our series of 20 cases (15 of them personal) comprise: (a) 13 in which the internal malleolus alone was fractured, one of them with comminution. Ten of these had full movements at or before six weeks, and two were evacuated at an early stage. The case with comminution had full movements at eight weeks. (b) Of the other seven, three had trimalleolar fractures, the posterior malleolar fragment involving less than a quarter of the articular surface and not being displaced. They obtained full movements at three, five, and six weeks respectively, and took full weight at six weeks. The remaining four had fractures of the external malleolus at varying levels, obtained full movements at an average of two and a half weeks, and took full weight at an average of seven weeks. Any associated external malleolar fracture or diastasis of the inferior tibio-fibular joint is not directly treated. Since the internal and external lateral ligaments are intact, the anatomical reduction of the internal malleolus pulls the astragalus into place, and this in turn reduces the external malleolus.

Summary

The cause of fibrous union which occurs in many fractures of the internal malleolus is an aponeurotic curtain-like fold interposed between the fragments.

Internal fixation following excision of this fold is recommended as a measure to ensure union, to obviate the use of external fixation, and to restore early function.

The method of operation is described and the results of 20 cases are given.

Medical Memoranda**Partial Atresia of the Cervix complicating Pregnancy**

The case recorded below, which came under my care, may be thought interesting enough to merit publication.

CASE HISTORY

A primipara, aged about 27, was admitted on May 28, 1944. She had been carried to Calabar from a neighbouring village by canoe. On admission she gave a history of full-term pregnancy and of labour pains, which were said to have begun four days previously, but at the time of admission the labour pains had ceased. She was lightly built, emaciated, and appeared toxic. Temperature 102.4° F., pulse 144, respirations 24, and blood pressure 100/60. Pelvic measurements were: I.C. 9 in.; I.S., 8 in.; E.C., 7 in. On abdominal palpation the uterus was found to be tense and tender. The fundus was four fingers below E.C., with vertex presentation and left occipito-anterior position. The head was well down in the pelvis. Thirty-six ounces of urine was withdrawn by catheter: it was highly concentrated, with a heavy cloud of albumin; sugar was not present.

Vaginal examination showed oedema of the labia: the clitoris was normal. The vagina was about 2 in. in length and led to a blind alley, formed by the partially atresic cervix. In place of the external os were two "pin-hole" openings, about 3/4 in. apart. Through these small holes a few strands of the infant's hair were protruding, and very offensive liquor amnii was trickling out.

Treatment.—Under chloroform anaesthesia with gr. 1/100 atropine premedication the cervix was opened with a pair of scissors. Craniotomy was performed, and a female baby weighing 7 lb. 2 oz. extracted. The placenta was removed manually. Bubbles of gas and very offensive material came from the uterus on extraction of the placenta. There was brisk bleeding, but this was quickly controlled by the injection of 1 c.cm. of pituitrin. The foot of the bed was kept raised for six hours, and one pint of submammary saline given.

Subsequent treatment consisted of injection of one ampoule of soluble sulphapyridine, followed by two tablets of sulphapyridine four-hourly. As the temperature had not settled down by the end of the first week and the patient's condition was still unsatisfactory, sulphathiazole was administered in doses of two tablets four-hourly. The temperature settled down three days after giving this drug. Apart from oxytocic drugs, sedatives, and tonics, repeated administration of anti-gas-gangrene and antitetanus sera was found necessary. Local treatment consisted of a daily intra-uterine douche with 1 in 320 dettol followed by insufflation with powdered sulphapyridine.