A NEW APPARATUS FOR THE TREATMENT OF GUNSHOT FRACTURES OF THE HUMERAL SHAFT.

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Compound fractures of the middle third of the humerus would appear still to present considerable difficulty in treatment with regard to satisfactory immobilization and at the same time ease of dressing; in the splint to be described herewith the objective aimed at is the maintenance of the limb in an abducted position with efficient extension of the bone fragments.

DESCRIPTION OF SPLINT.

The apparatus is designed on the principle of the "Middledoff" triangle and is constructed from the malleable aluminium splinting material provided with field fracture boxes. It consists of two shaped pieces (fig. 1), each having a short limb for application to the chest wall and a longer limb for the arm. The one (A) is designed to lie on the front of the arm and chest wall, and one (B) behind, and the two are connected above by a stout shoulder piece (C), and below by an angle piece (D) which is fitted with a notch to which the extension apparatus is attached. A loop (E) is attached to the anterior V for the purpose of supporting and fixing the forearm.

APPLICATION OF SPLINT.

Flannel strips (F F) are slung between the shorter ends of the V pieces and these are applied to the chest wall; another strip (G) is slung between the angles of the V pieces and passed under the axilla. The extension (either plaster or gauze and glue), having been applied to the lower fragment, is fixed to the angle piece prepared for the purpose; when it is tightened the purchase is mainly taken from the chest wall and to a less extent from the axilla. The forearm is slung on flannel strips and bandaged into position.

It is usually necessary to tuck in pads of wool between the splint and the chest wall to minimize rubbing.

No further support is really required, the extension, keeping the splint in firm apposition to the chest wall.

At the present time we are nursing a case with a badly comminuted fracture of the left humerus at the junction of the upper and middle thirds on this splint. He has three large wounds, one anterior, one lateral, and one posterior, all of which are perfectly accessible with the splint in position. As he is being treated with continuous hypertonic saline "drip" irrigation, no bandages are applied at all and the arm is completely exposed from the axilla to the elbow. This accounts for the slight inward displacement of the upper fragment in the reduced radiogram (fig. 2), which was taken with the splint in position. Since this
Fig. 1.

Fig. 2.
Clinical and other Notes

Splint was applied, ten days ago, the patient has been entirely free from pain or discomfort even when it has been necessary to dress his wounds. In cases where continuous irrigation is not required and dressings can be applied, the employment of flannel strips is desirable to support the fragments and prevent such slight displacements as are evidenced in the accompanying radiogram. If the patient is confined to bed, he should be well propped up on a bed-rest; whilst if he is allowed up, the application of a broad supporting binder round the chest is recommended, so as to keep the splint in close apposition to the chest wall.

Summary.

The advantages claimed for this splint are:

1. That it maintains the fragments in a position of uniform extension with the limb well abducted from the body, so tending to really good alignment and ease of dressing.
(2) That it allows of passive movements being carried out at the elbow-joint. By undoing the forearm and suitably rotating the splint, movements may be carried out at the elbow-joint without mobilization of the lower fragment.

(3) It is extremely comfortable, especially for travelling purposes.

(4) It is simple to make and very easily and quickly applied. Only one disadvantage has so far been demonstrated, namely that with the splint in position the patient is too wide for a stretcher. This drawback is easily overcome by getting him to lie on the sound side when necessary.

FIG. 4.

FIGS. 3 and 4. — Splint applied: counter-extension taken from chest wall (F F) and axilla (G). Extension shown at II.