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CLINICAL DEPARTMENT.

XI.

BONE CLAMPS OF ALLUMINUM WIRE.

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This clamp is made of aluminum wire, gauge sixteen or more, according to the strength required, of any desired length, and with one or more loops at each end (Fig. 1) through which screws of deep thread are inserted and thus the clamp is fastened to the bone.

The advantages of the use of this clamp over that of the ordinary broad bone plate or the silver wire are as follows: It has been shown that of all materials aluminum produces the least irritation to the tissues; the wire being round, the line of contact with the periosteum is necessarily very slight; even at the time of operation this clamp may be readily bent and made to conform to any deviations of the bones and still maintain its tensile strength; lastly, it can be so applied as to have no contact with the seat of disease.

If it becomes necessary to remove the clamp, a small incision may be made in the skin over the site of one end of the clamp, the screw removed and the loop cut off and taken out; a similar incision may be made at the other end and after removing the screw the remaining portion of the clamp can be withdrawn.

It has been shown in three excisions of the knee that the patients have experienced decidedly less pain with fixation by bone clamps or plates. The most striking feature in the use of these aluminum clamps is the almost entire absence of pain after operation.

It is apparent that the union of the tibia and femur takes longer than is ordinarily given in a clinic and that when the patient gets up on crutches the weight of the lower limb together with that of the plaster-of-Paris cast cannot but tend to somewhat

draw apart the cut surfaces of the two bones. It is very necessary that the bone ends should be secured in accurate coaptation and as nearly absolute fixation as possible.

Dr. Rugh, of Philadelphia, believes that fixation should be maintained for at least a year, and also absolute coaptation. He

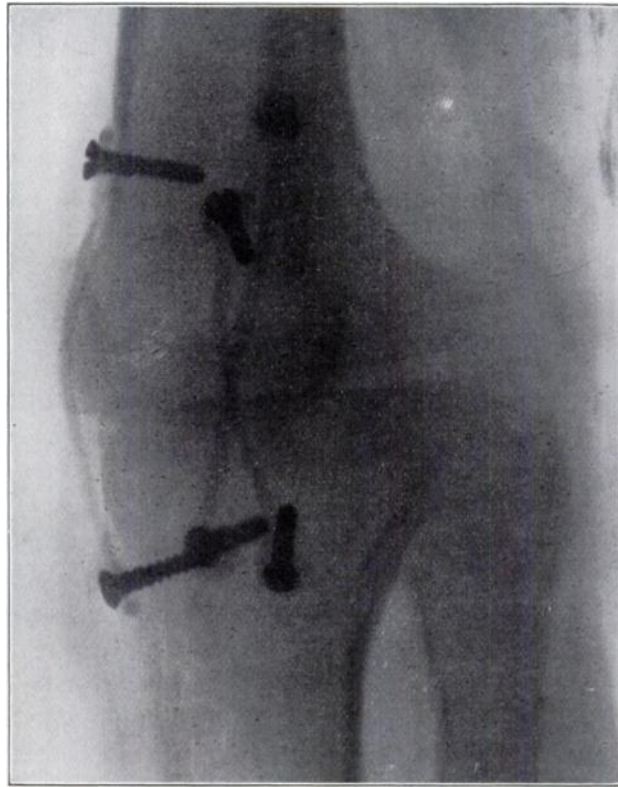


FIG. 1.—X-ray of excision of the knee six weeks after operation, showing use of one anterior and two lateral bone clamps.

also asserts that a promise of bony ankylosis should not be made for at least two years.

So, from these facts, it can be seen that any method tending to fix more securely the opposing surface in excisions of the knee will benefit results.

The use of these clamps is not confined to excisions of the knee, but may be applied to fractures of any kind where fixation of the bone is required.

The nine cases under observation have all shown very good unions and absolutely no ill effects from the presence of metal in the tissues. Two of these have had clamps in for ten months.