

Surgery

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Non-Union of Fractures J. S. HORSLEY, RICHMOND, VA. (*Journal A. M. A., February 3*).

The fault in true non-union of fractures is due to the failure of the tissues to deposit lime salts, and after excluding all local and constitutional causes there still remains a group of cases in which this condition seems to occur and the bones fail to unite. There are two indications for the treatment of these cases, namely, to increase the quantity of lime salts in the blood and, second, to induce a larger quantity of blood-flow through the affected bone. The first indication is met by the administration of calcium salts, usually in the form of hypophosphates. Thyroid extract has been recommended, but its method of action is uncertain and reports are conflicting as regards its efficacy. It may, however, act as a hormone. The diet and personal hygiene must, of course, be carefully attended to. The second indication, increasing the circulation, must be carried out by local measures, and Horsley recommends the introduction of a sterile foreign body into the tissues to induce hyperemia. This idea was suggested to Dr. Charles Mayo by the fact that a sequestrum or a clot induces a growth of new bone around it. He therefore uses a sterile ivory pin in the medulla of the bone in cases of ununited fracture. It does not fit tightly, is unabsorbable, and instead of the ends being smooth they should be a little jagged, so as to induce blood-clots and hyperemia. Another useful measure is Bier's hyperemia, obstructing the venous circulation for from ten to forty minutes. Frequently in these cases the ends of the bone are one solid mass, which exhausts and blocks off the nutrition. Hence it is advisable to drill out the end of the bone and expose the medullary cavity, which is best done with a burr, though a small chisel may be gently used to enlarge the opening. Horsley reports a case, showing the difficulty of nutrition in these cases. The matter of fixation of the fracture is probably the least important matter. With good personal hygiene, absence of constitutional trouble and observance of the local indications, such as cleaning out the ends of the bone and roughening them and inserting an ivory pin inside, it matters little what method of fixation is used so the limb is put in