Medical Matters.

THE AFTER-RESULTS OF FRACTURES.

Mr. R. Warren, F.R.C.S., in an interesting paper on the above subject, read before the Medical Society, and published in the *London Hospital Gazette Clinical Supplement*, said, in part:—

Fractures form some of the commonest class of cases in the surgical practice of hospitals. In spite of this, the ultimate results are not well known, and the reasons for good results or the reverse are not clearly understood in many cases. This is due in part to the relatively short duration of the in-patient and the out-patient appointments held by the rising generation of practitioners, treatment of fractures often outlasting the tenure of office of residents; in part to the greater specialisation of departments in a large hospital, and the rapidity with which patients are, of necessity, hustled from one department to another; from in-patients to out-patients, from surgical out-patients to massage, thence to the electrical or hot air baths, and perhaps back again *viâ* the opsonic or statistical department to in-patients again. In this way cases are lost sight of by those who initiated the treatment of them, and their endeavours are buried in obscurity.

Results of fractures may roughly be classified as good and not good.

Results not good may be divided into fair and bad.

The causes of bad results come under two headings:—(1) The amount of violence and consequent damage caused by the original lesion. (2) Treatment.

Few fractures are perfectly simple, *i.e.*, such that the bone is the only part injured; in most cases there is a varying degree of injury to surrounding structures, viz., blood-vessels, lymphatics, nerves, muscles, ligaments, tendons, joints or skin.

In the treatment of fractures, the importance of those other structures should be kept in view, and the attention not merely concentrated on the bone. It is from omitting to regard the limb as a whole that bad results occur which it is possible to avoid.

Bone is a tissue which heals exceedingly readily; whereas, of the other tissues, nerves regenerate and heal very slowly, or not at all; ligaments and tendons slowly and often ill; joints indifferently well with a prospect of late osteo-arthritis; and vessels, although healing well themselves, yet in the very process of healing tend to become occlused by thrombosis, and give rise to a long-lasting œdema and stiffness, which is one of the bug-bears of after-treatment.

It is, then, not sufficient to restore the bone to its pristine shape: care must be used to restore the functions of the surrounding tissues, muscles, joints, tendons, vessels, etc., and to restore their functions rapidly we must not further injure them by injudicious treatment. Too much attention is often paid to fixing up a bone at its proper length, while the movement of the neighbouring joints is neglected. This is unpractical, for shortening of a leg unless gross, say an inch or more, causes less disability than a rather stiff knee or ankle: shortening in the arm is of no practical importance. Shortening is not commendable, but it may be the less of two evils.

Conditions Influencing the Region of Fractures.

1. Apposition of the broken ends is essential, if possible in exact anatomical position, but not by such rigid fixation or strong extension as will do harm to muscles, joints, ligaments, etc.; better in such cases to unite by an open operation.

2. Interference of foreign bodies, clot, tendon, aponeurosis muscle, etc., are an absolute bar to union and demand open operation.

3. Restoration of the axis of the limb, so that when the limb is used, strains occur in the proper direction: this applies especially to the leg, and is of far more consequence than avoiding shortening, a kink in the bone will lead to various troublesome conditions, such as flat foot and knock-knee.

4. Slight movement between the bone ends is not of the least harm and is possibly beneficial, at any rate after the first day; before that it may increase hæmorrhage and extravasation between the bone ends: but movement must on no account be sufficient to produce displacement of the ends of the bone. Movement and displacement must be carefully distinguished.

5. Maintenance of the nutrition of the bone and surrounding tissues is interfered with by firm fixation, both by the absolute rest of the parts and by the diminished blood and lymph supply, caused by the pressure necessary to attain such fixity.

Massage and passive, but, above all, active, movements, improve nutrition and make for early and sound union and rapid return to the normal condition, provided, and this is important, that the movement is not such as will produce displacement.

Dangers of Fixation.

If treatment by fixation be adopted, and in many cases fixation to some extent is necessary, though less than seems generally to be supposed, the following troubles are to be apprehended:—

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