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ORIGINAL ARTICLES

OBSERVATIONS ON THE TREATMENT OF SIMPLE FRACTURES.*

CHAIRMAN'S ADDRESS, SECTION ON SURGERY.

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Owing to the constantly increasing use of machinery, the greater devotion to sports, roller-skating, automobiling, etc., fractures are becoming more common; therefore it is expected better results than formerly should be obtained.

Within the last few years a considerable impulse has been given the operative treatment of simple fractures. Mr. W. Arbuthnot Lane, of London, has brought this matter very prominently before the profession, and the question today is one, as to whether we should treat fractures by the accustomed and conservative plans, or by operative methods. For this reason there is an unrest in opinions formed, pending the final settlement of this all-important subject.

There is no doubt but what some simple fractures are difficult to manage, and that some results are not altogether what we would like. But shall we set aside well-established principles of treatment (often called old methods contemptuously), and resort to operations in all simple fractures? Most emphatically, No.

That the operative or open plan in a few cases of simple fractures is not only indicated, but is the best treatment, there can be no doubt, for among its advocates are surgeons of wide experience, sound judgment and great skill; yet to attempt as a general or universal measure to make all simple fractures com-

pound ones, by the open or operative plan, is an advance experience is not ready to demand—nor are we willing to agree with so good and distinguished a surgeon as Dr. Robert F. Weir, who stated that if he had his patella fractured, he would be content to have it treated like King Edward, and not have his knee-joint opened and the fracture sewn up; but, on the other hand, would insist on an open operation, and thus obtain the best, quickest and firmest union possible.

The operative method should be resorted to whenever we are unable to obtain satisfactory results by non-operative measures.

We do obtain satisfactory results in most simple fractures by the time-honored, conservative method of reduction and replacement, aided by proper extension and immobilization with splints, as there is often no deformity or shortening, and, if a bone of an extremity, the limb is absolutely useful and serviceable. Suppose slight deformity or shortening did occur, the loss of limb is never to be expected, and loss of life is practically out of the question. Can this always be said of the operative plan? No, not even in the hands of the most skilled, for records occasionally show unfortunate results. If surgeons who are unable to obtain good results by the non-operative treatment of most frac-

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tures would undertake to treat them by operative methods, the results, to suggest the least, would be most lamentable.

In fractures the rapidity and completeness of the cure are proportionate to the accuracy of reduction and retention of the fragments.

The surgeon must be careful to have fractures X-rayed in planes crossing each other at right angles, so that no displacement of fragments may escape his observation. The introduction of the X-ray as an aid, not only to diagnosis, but also to treatment, has raised the standard of requirements perhaps unnecessarily high. Important as is the X-ray in fractures, it is, as is well known, employed too often for dishonest purposes. The average juror is not capable of interpreting an X-ray plate. The fact is, it is possible that the overwhelming majority of the profession is also incompetent, as it requires a skill only to be learned by hard study and experience. It is perfectly proper that X-ray plates should be introduced in court; but the interpretation thereof as evidence should be left solely to the skilled surgeon. Many have reasons to know the annoyance that comes from a malpractice suit, and the Roentgen ray is adding to our troubles, because, while many cases are functionally perfect, they are not anatomically so; and a jury is readily influenced. The Roentgenogram is only a shadow and not the thing itself.

How many surgeons in private practice resort to the open method universally in the treatment of simple fractures? I don't know of one in this country. Then why is it we hear so much on this subject? Is it because of the attempt to be modern? I don't want to think so. The truth of the matter is, surgeons have had very little experience in the operative treatment of simple fractures other than those of the patella and the olecranon process of the ulna. This is true even to some extent in hospital practice. *The reason is, that it is the exception rather than the rule that patients will agree to the operative plan of treatment.*

Not long since I heard a surgeon read before a medical body a very excellent article on the open plan of treatment of simple fractures; in the discussion that followed the author was asked how many simple fractures he had treated by the operative plan, and to the surprise of those present he acknowledged he had not operated on a single case.

Dr. A. F. Jonas, of Omaha, Neb., chief surgeon of the Union Pacific Railroad, read a very interesting paper before the Surgical Section of the American Medical Association at St. Louis, Mo., 1910, from which I quote the following:

"When we consider the extreme difficulty, and, in many cases, the absolute impossibility of effecting an accurate adjustment of fractured bones by manipulation, and the uncertainty of fixing and maintaining the broken ends in perfect alignment, it would seem that we must instantly and unhesitatingly decide in favor of the open treatment and the employment of such mechanical devices as will positively hold in perfect position any fractured bone. That this is the ideal method is beyond dispute. All are agreed that while this method is ideal, it also becomes necessary that the work be done under ideal conditions, which means a perfect control of asepsis, and unusual mechanical and operative skill on the part of the surgeon. Any lapse in aseptic detail is more fatal to perfect union and perfect final results than a similar error in technique in abdominal surgery, for here the lymphatics are less able to cope with ordinary infections than in the peritoneal cavity. In no other domain of surgery are errors in asepsis so often punished by failures. To accomplish these results, trained assistants and a faultless operating equipment are essential."

In the very next paragraph this same authority states:

"It at once becomes evident that it is necessary to divide our simple fracture cases requiring treatment into two groups: First, those that can be treated in a hospital, which

comprise a small group; second, those that must be treated outside the hospital, and comprises by far the larger group.

"The greater number of fractures always have been and always will be treated by the general practitioner. His functional results are usually good, and satisfactory to the patient, even though a skiagram would show imperfect alignment and defective adjustment. Consequently, the surgeon can never hope to attain an exclusive control of the management of fractures, and the open treatment can never become the universal treatment.

Now, would it be desirable to do an open operation in all simple fractures? This we must answer in the negative, because many of them can be accurately and perfectly adjusted by manipulation and accurately held in place by proper retentive dressings. Many transverse fractures of the tibia, and supracondylar fractures of the femur, show very little tendency to displacement when once properly reduced, and the extremity secured in a well fitting plaster-of-Paris cast. Therefore the most enterprising surgeon would hardly find justification for a statement that all simple fractures must be exposed by a free incision and the broken bones secured by suture or a mechanical device. Those of us who had an opportunity of examining Arbuthnot Lane's numerous skiagrams of simple fractures, on which operation had recently been done, which he exhibited before us a year ago, could not help but be impressed with the fact that some of his cases would have done quite as well if the fractures had been reduced by manipulation, and the use of the same external splints that he employed to reinforce the clips and screws which he used through an incision. Experience has shown that with the open operation the external retentive and fixation appliances must be of the same design, and must be applied with the same care as in cases where no open incision is made."

"At best, fixation appliances used to secure accurate adjustment in the open incision can

be depended on only for a few days, because the bony structure immediately surrounding a screw or peg or wire introduced in the bone becomes loose and fails to hold in accurate apposition bone fragments unless aided by a carefully applied external splint."

From more than ordinary experience, we express the belief, that in simple fractures of the patella, olecranon and other bones, in which reduction and retention are impossible, the weight of opinion is in favor of the open or operative plan. In the shaft of the humerus it is true we have more delayed, or non-union, than any other bone, yet the causes that produce the ununited fractures can nearly always be prevented, so that the prognosis is good. From experience with various plans of immobilization, I must confess, the internal right-angle splint, with or without the shoulder-cap, depending on whether the location of the fracture is high or low, is the ideal support and plan of treatment. Hamilton taught, that in the fractures of the humerus, "the elbow soon became fixed, and that any movement of the forearm moves the seat of fracture and not the elbow." In the use of an internal-angular splint the forearm as well as the fracture is immobilized.

As to fractures in the upper third of the shaft of the femur, it is universally acknowledged that treatment by external appliances is usually unsatisfactory, and the results show great permanent shortening from angular union or overlapping. Treatment in the extended position fails to correct the displacement of the upper fragment, and the double-inclined plane will not accomplish full control of this upper fragment, but following the advice of Agnew, in the use of this double-inclined plane, extension in the axis of the partially flexed thigh, no doubt accomplishes the best non-operative results that can be obtained. Brown's modification of Hodgen's apparatus is quite satisfactory for fractures in the lower two-thirds of the bone. In all fractures of the upper third of the femur, the dis-

placement should be determined by the X-ray, and when it is found that no form of apparatus will maintain reduction it is advisable to incise, and fixate the ends of the fragments by Kangaroo-tendon, or the use of the largest sized chromicized catgut. I don't like metallic fixative materials where they can be possibly avoided. Then, in some simple fractures of the upper-third of the shaft of the femur, and even in very oblique fractures of the shaft of the tibia, in healthy patients of suitable age, the indications are for the open plan of treatment, but we can see no reason why it is necessary to wire or otherwise fixate by open methods the inferior maxillary, clavicle, ribs, radius, especially lower end (Colles' fracture); fibula, especially lower end (Pott's fracture), or the vast majority of bones.

Let us indulge the hope that the day is not far distant when surgeons will agree on the treatment of this all-important subject, constituting, as it does, one-seventh of all injuries.

DISCUSSION.

Dr. Gessner.—We owe Dr. Eve thanks for his valuable paper. I wish to endorse his objection to the use of the open plan of treatment of simple fracture, when that can be dispensed with. Further, I wish to object to the use of metal plate, wire or

staples as a routine procedure in those cases which do require operative treatment.

I recently had referred to me a patient who had a fracture of both bones of the forearm. A skiagraph taken after attempted reduction under anesthesia showed that there was considerable overlapping of both fractured bones. Under ether I exposed the points of fracture and separated the periosteum. In the radial fracture I found interposition of muscle between the two fragments. With difficulty I was able to lever the two ends together on each side. Then the question arose how we should keep the two fragments of each bone together. I concluded to close the wound without using any metallic support, and did so close them. We operated on Monday and applied palmar and dorsal splints. On Thursday we had a skiagraph taken which showed excellent apposition without any overlapping. Now, three months later, there is splendid union with a very good functional result. The result could not have been made better by the use of metallic supports. On the other hand, such supports frequently cause much disturbance. I recently had occasion to observe a woman who had union of the femur with angular deformity plus considerable overlapping. The fragments were chiselled apart and a large Lane plate was screwed into position. She got union, but had quite an osteomyelitis from the screws, and about three months ago I had to gutter her femur. She has spent the greater part of a year in the hospital. I believe the principal advantage of operating on fractures is the opportunity of removing interposed tissue. That is abundantly proven in fracture of the patella, which we treat with capsulo-periosteal suture, without a screw, without a wire, without plates. That is our routine treatment now, and the results are good. I believe they are mainly attributable to the removal of the soft tissues interposed between the fragments, though in this particular fracture prevention of separation of the fragments is also of considerable importance.

THE IMPORTANCE OF PROPER SHOES. THEIR RELATION TO DEFORMITIES OF THE FOOT AND BODY EFFICIENCY.*

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In choosing the subject, "The Importance of Proper Shoes; Their Relation to Deformities of the Foot, and Body Efficiency," it is my desire to simply call your attention to a much neglected question. In our scientific progress we are prone to lay aside the common things in our activity and interest in the

less common; so I am sure we have all been guilty in the past of leaving the question of the fitness of our shoes to our seemingly good friend, the shoemaker, represented in turn by his salesman.

It is rather striking that we are so careful in having proper lenses fitted to our eyes, and

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