

ARCHIVES

ORATION ON FRACTURES¹

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THE institution by the American College of Surgeons of an oration on fractures is significant; it shows a growing appreciation of the importance of this department of surgery. I value greatly the honor which has been placed upon me in asking me to deliver this first address.

At present no other subject in surgery is of more vital concern to the public and the medical profession than fractures.

Many problems which arise in the treatment of fractures are yet unsolved. Let me enumerate a few:

1. The securing of accurate records of clinical observations, which can serve as the basis for dependable conclusions.
2. The understanding of the relation of fractures to industry.
3. The necessity for sound ethical practices.
4. The further development of new methods of treatment.
5. The proper treatment of the rapidly increasing number of bizarre and complex types of fractures, the results of railroad, motor vehicle, and airplane accidents. During 1928, about \$41,000,000 was spent by the railroads of the country for the treatment of personal injuries, and of that amount \$20,000,000 was paid for the treatment of fractures.²
6. The advancement of direct and indirect research into the processes of repair, involving physical, chemical, physiological, and pathological studies, which opens up fascinating and promising fields.

These problems are the most momentous faced by the surgeon today.

"The art of surgery is far in advance of all the sciences upon which its future depends. Until they stand abreast, the progress of surgery will be slow. Some day science will outdo the art and take its legitimate place as the basis of sound treatment. By swift changes in progress, surgery has become safe

and still more safe, until it can be asserted that a further increase of safety for the patient can depend only upon an earlier access of the surgeon to him.

"The chief risk in surgery today comes from delay. Surgery has been made safe for the patient; we must study to make the patient safe for surgery" (Moynihan).

Chronic duodenal and gastric ulcers were permitted to advance to perforation, peritonitis, and fatal hemorrhage until comparatively recent times. Fractures are now wittingly allowed to go beyond the time at which successful treatment may be instituted. Such delay in the initial treatment of a fracture forever precludes the possibility of preventing disabling deformity. In some of these cases even death itself might be preferred to the permanent disability, with which we all are familiar.

In our attitude toward fractures, we must eradicate from thought certain deeply rooted conceptions of disease.

There is no incubation period in a fracture. In the ordinary case of fracture, there are not 6 days in which to wait for an organism to react. The accident is instantaneous. The fracture is present. The reparative processes begin immediately. Therefore, treatment should begin without delay so that the reparative processes may be facilitated instead of hindered.

By treating a fracture instantly you treat the fracture. By treating a fracture after delay you treat a fracture plus complications.

Early treatment is easy. Delayed treatment is difficult. Delayed treatment is dangerous. Late treatment is lamentable.

At this time, may I sketch briefly for you the treatment of fractures? I should like to stress one phase of treatment and to say a word concerning the relative usefulness of the two great methods of treatment.

The successful treatment of fractures is predicated upon the correctness of one's conception of the four ends to be achieved. These

²Findings of the Bureau of Railroad Economics, based upon the report of the Interstate Commerce Commission.

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four goals, if you please, may be called the four R's of treatment, viz.: (1) the restoration of the individual; (2) the reposition of the fragments; (3) the retention of replaced bones; and (4) the return of the injured man to society.

When I remember that I am speaking to an audience of trained surgeons, I do not expect that I shall say anything that is new to you. The baldest statement of what is meant by the restoration of a case of fracture is sufficient.

By restoration, I understand the surgeon's mental picture of the entire progress of the case, from its inception to a complete cure. In approaching a case of fracture, the surgeon will, as a matter of course, assemble all available data—everything relevant to the case—as he does in preparation for any other surgical procedure. A perfect host of conditions may impose themselves about a fracture and postulate treatment. To decide upon the initial treatment is often most difficult. When the surgeon has taken account of every adventitious circumstance and correlated all data, he will note the exact lesion as revealed by the X-ray. He will choose a treatment as closely adapted as may be to all the existing conditions. He will look into the future; he will visualize the initiation and the progress of the treatment chosen.

This imagined restoration of the patient includes far more than the prognosis. It includes the progress of the patient from the time of the injury through completed treatment.

The restoration of the patient is the vision of the reasons underlying the surgeon's choice of a particular method of treatment. This conception of the restoration is the backlog of all treatment; it is the foundation of successful fracture therapy.

The habit of the active utilization of well understood principles is the final possession of wisdom. The really wise surgeon establishes treatment in consonance with his idea of the restoration of the case.

Unless the restoration concept is sound, treatment cannot be sound. The treatment selected will be not only correct but the best

possible if based on a clear vision of the restoration of the case. Concerning reposition, I shall have something to say in a moment.

The retention of reposed fragments must be accomplished in the treatment of all fractures, and is so effected as to permit eventually the greatest possible active movement in involved or adjacent joints.

The return of the patient to society means the progress from job to job, that is, from job lost to job secured. The return includes: (a) the rehabilitation of the injured part; (b) the restoration of joints, muscles, tendons, nerves, and circulation; and (c) the recovery of function by the damaged part to the greatest degree possible, as early as possible.

All fractures are treated by non-operative or operative methods, or by combinations of these two. The procedures available in the non-operative treatment are: (1) traction and counter traction; (2) manipulation; (3) pressure and counter pressure; (4) leverage; and (5) rotation.

Traction and counter traction may be applied by: (a) gravity; (b) manual means; (c) skin hold; and (d) block and pulley, with hitch about the ankle or wrist, intermittently; with or without electrically driven motor; and (e) skeletal attachment.

It is my firm conviction that a chief cause for poor results in the treatment of fractures lies in the failure to recognize certain mechanical forces, and in the inappropriate, imperfect, and inadequate application of the available forces of traction and manipulation. Each of the ways mentioned for securing traction in the use of the non-operative method may be attended by dangerous consequences. To employ correctly non-operative methods of reposition requires training, a natural mechanical sense, skill, devoted interest, and a good conscience.

May I exhibit now a series of cases of fracture treated by non-operative methods? (At this point were shown 40 slides of cases of fracture treated by non-operative methods. Each case exhibited shortening and deformity. The slides presented the condition immediately after the accident and again following the treatment.)

These patients were each and all seen early; there was no delay, and each received treatment by non-operative methods, well conceived and well applied. The four R's of treatment were ideally carried out. The results are good. The patients were treated in different clinics¹ throughout the country and undoubtedly could be duplicated in the experience of many here. These cases illustrate splendid achievement. Such results are possible by the use of the non-operative method and a large proportion of all fractures may be so treated with success.

The general practitioner or general surgeon first treats most fractures. He may properly and safely continue to do this, provided he is familiar with simple adequate emergency treatment and is also aware of his own limitations.

The great difference between the non-operative and operative treatment of fractures lies in the procedure of repositioning the fragments.

The restoration, the retention, the return to function, all are common to the two methods. The repositioning of fragments is indirect by one method, and is direct by the other method.

Twenty years ago, at the time of the popularization and exploitation of the operative treatment of fractures, I said in Atlantic City, in opening the discussion of Sir Arbuthnot Lane's paper: "We are not ready for the popularization of the operative fracture treatment in this country. We

¹The Beekman Street Clinic, the clinic of James Worcester and Robert Kennedy, New York; of Earle Conwell, Fairfield, Alabama; of Arche Hall, Detroit; of John Moorhead, New York; of George Hawley, Bridgeport, Connecticut; of Willys Campbell, Memphis, Tennessee; and of the Massachusetts General Hospital, Boston.

should advance fracture treatment by developing non-operative methods." Gentlemen, time has proved that that opinion expressed in 1909 was correct.

Today, I believe the situation in this country is changed and is as follows: The operative treatment of fractures has become a firmly established practice. It is based upon necessity, asepsis, and a clearer knowledge of the pathology of repair. It is a safe and sound treatment. It is no longer a method of last resort. It is often the method of primary choice. The results of such operative treatment when safeguarded and carried out by competent men are brilliant.

Today the non-operative treatment of fractures, properly applied by skilled and trained practitioners, gives superb results, as witness the cases briefly shown you tonight.

When one considers the extent to which the present acknowledged fundamentals of both the non-operative and operative treatment of fractures are neglected by some members of the surgical profession, it is difficult to restrain a savage rage.

My theses tonight are:

1. That surgeons must demand the early treatment of fractures.
2. That the non-operative methods of reposition used are entirely inadequate.
3. That when proper non-operative methods are used, good results are obtained.

The two great methods of treatment available, the non-operative and the operative, are developing and being perfected to such an extent that a satisfactory choice of treatment can be made only by the interested and skilled surgeon.