found within five minutes after the accident, and at once removed on a stretcher to his home, about one-third of a mile distant. A simple oblique fracture of the left femur, at about the middle of its shaft, was the only injury found. Shock was marked, though not extreme. Some rigors and vomiting occurred and the heart was weak. Heat was applied and a hypodermic of morphia and strychnia and a small amount of whisky were given. Reaction was soon established and the fracture was reduced and dressed. The patient passed a good night and seemed to be doing perfectly well in all respects. About fifteen hours after the injury he began to be drowsy, and a slight but persistent cough developed. Soon the pulse increased in frequency and the respiration showed slight embarrassment. These symptoms, except the cough, grew steadily worse. He roused with more and more difficulty, and less perfectly, until in four hours coma was complete. The pulse became very rapid and irregular, the respiration became stertorous and finally assumed a Cheyne-Stokes character; the surface of the body became cold and cyanotic and, twenty-three hours after the accident, the patient died.

At the autopsy fat was found in the heart, lungs, liver and kidneys. The lower lobe of the right lung was hepatized and the blood-vessels of the brain were filled with dark fluid.

As to treatment in this class of cases, the measures suitable to true shock are of most value, as heat, opium, strychnia, digitalis, alcoholic stimulants and intravenous infusion or hypodermoclysis of normal saline solution.

When fracture or crushing injury of large bones has occurred it is very important that the limb be immobilized as soon as possible, so that the freeing and absorption of fat cells may be prevented.

NON-CONSTRICTIVE DRESSINGS FOR FRACTURES.*

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It should be our aim and object in the treatment of diseases and injuries to under no circumstances interfere with the beneficent effort of Nature. In the treatment of fractures with our cumbersome splints and dressings, with many and constrictive forms of bandages of myriad name and nature, with material in some cases so heavy as to make the patient weary with its ponderosity, is it not time to stop and review the whole subject of this form of treatment and study it in its simplicity, aiming to aid and not retard Nature in her effort at repair. We should remember that all indications are fulfilled if the broken fragments of bone are in apposition and at rest. This idea of rest applies to all injuries, but at this time I wish to limit the question to the treatment of fracture, although the principle is the same, in a large measure, to all.

We all know that an unimpeded circulation will give a more rapid healing process than if impeded in the slightest degree. And why should we disturb the circulation? Can we so apply our dressings as to meet all indications in the treatment and yet not interfere with the circulation? I think we can in nearly every instance.

I am well aware that this is contrary to ordinary teaching, and you may answer that it can be done in but few cases. It will surprise you, however, to find in how

many cases, and what fine results you will have without constrictive dressings.

The old and well-tried fracture-box is one of the forms in which the principle is applied partially, but here we have lateral pressure and thus far defeat the plan of avoiding any interference with the circulation. There is for all fractures of the leg and thigh a plan of suspension that meets all requirements. By means of an iron rod properly bent, the so-called Hodgen's splint is a form that can be easily used and is almost always available. It can be made in a few minutes by an ordinary mechanic, or by the surgeon himself if he has the proper mechanical skill to practice his profession. Additional to the rod, a few safety-pins, a piece of cloth to make a suspension for the leg, a cord to suspend the leg when the splint is adjusted, and your dressing is complete. It can be used in all cases of leg and thigh fracture, and can be adjusted to any degree of flexion by merely bending the rod at the knee; extension can easily be applied by adjusting the bed to the point of attachment of the cord to the ceiling. Many surgeons will agree as to its usefulness in fractures of the leg, but if you will study recent reports you will find the best results in treatment of fractures of the femur by this means. There should be no constriction whatever. The patient can move about to a limited degree in his bed, and he can not displace the fragments if the ordinary mechanical principles are complied with.

Compound fractures can be as easily and comfortably dressed as if the fracture were uncomplicated. If a foot-piece is needed, it can be made by cutting in a piece of board at the proper angle, and by means of wedges this can be adjusted to completely support the foot, but in most instances the needed support to the foot is had by making a stirrup of a piece of bandage and attaching it to the splint higher up. I do not insist on this special form of splint, but insist that the principle should be applied, and mention this form only for its simplicity, availability and effectiveness.

A modified form of application of Hodgen's consists in supporting the leg by short strips of bandage fastened on either side, preferably by safety-pins, to admit of free inspection of all parts of the injured limb without disturbance.

For the arm the principle of non-constrictive dressings can be applied in a modified form, either by a trough or in some other simple manner. I use bent wire. In clavicle fractures, by requiring the patient to lie on his back on a firm smooth mattress, all indications are fulfilled and results are excellent.

I need not mention the trouble and anxiety with splints and ordinary dressings, but wish to say that all ready-made splints remind me of attempting to fit every man with one pair of boots. If you must use one, make it for the individual.

Remembering the principle of non-constriction of the limb, the splint applied with plenty of padding and tied on with a very few strips of bandage is much better and far safer than one applied with the ordinary roller with many turns. It is very easy to loosen or tighten the strips, but not easy to adjust the roller without cutting it entirely away.

Plaster-of-Paris splints or casts should never under any circumstances be used for a primary dressing. This may be very radical as a statement, but as a question of practical experience it is abundantly supported by many unfortunate results. Do we consider how rigid a plaster cast is—that it contracts after being applied? How difficult, if it is causing pain or the limb be painful,

* Read at the Annual Meeting of the American Academy of Railway Surgeons, held at St. Paul, Minn., Sept. 5 and 6, 1900.

to inspect the fracture or remove the dressing! Then you may ask when to use plaster—only when all swelling has subsided, absorption of extravasated blood taken place, and you wish to give your patient his freedom during convalescence. Practically then, use plaster-of-Paris dressing after the bone has united and you wish to protect the point of injury from possible results of attempting to move about. Another point is, under no circumstances use this dressing without plenty of cotton or other padding next the skin. It is never proper to use plaster-of-Paris without this plentiful layer of cotton.

There are many forms of retentive dressings which come and have a trial and are forgotten. Many of them, like wigan, silicate, starch, wire-cloth and others have advocates, and all are useful, but useful only when convenient. We have these things in mind only to be applied when they are easily reached. But under no circumstances can all fractures be dressed with one form of dressing or one kind of splint. You can find bark or a limb of a tree in the forest, that will make a splint to fit the case in hand, and I believe that every surgeon ought to be able to dress his case of fracture with what he can find on the spot. If he expects to manage such cases successfully, he should have mechanical ingenuity to adapt conditions to his needs and not be helpless because he may not have his favorite dressings with him. But these are all to be considered as temporary and applied to meet the needs of transportation, and in all cases when the patient reaches his home or a permanent residence he should have a non-constrictive dressing and be made comfortable.

I can give positive results from actual experience in many cases with this principle applied, but one of each kind will be more than enough.

CASE 1.—A railroad brakeman had his leg broken by a derailment, a car crushing him. He received an immediate dressing of plaster-of-Paris, and within a short time, from constriction of the dressings, the pain became unbearable and, when first seen by me, the dressing had been cut, the leg was covered with large blisters, was very much swollen and still painful. This visit was at night, but by making a sketch and giving an ordinarily bright young man directions, he brought a splint—Hodgen's—ready for use in less than an hour. After suspending the leg and adjusting the short strips of bandage there was no further trouble, and healing was uneventful.

CASE 2.—An impacted fracture of the neck of the femur was treated with a similar splint and sand-bags, with a good recovery, a useful limb, and no unpleasant symptoms. This patient was a woman, very much emaciated and neurasthenic. She now walks with scarcely a perceptible limp.

CASE 3.—A crushing injury of the leg was caused by a heavy log striking it, in a man of 55, of phlegmatic temperament. He was dressed in a fracture-box at first, applied very loosely, but swelling occurred to such an extent that I was obliged to suspend the leg and remove every form of constriction. Enormously large blisters, filled with bloody serum, extended from the knee to the ankle, the foot was cold, and every appearance of gangrene occurred, yet by suspension and non-constriction I succeeded in getting a result which, being slow—about two months—was as perfect as if in a younger man with a better constitution. In this case there was no possibility of saving limb or life with any form of constriction.

CASE 4.—This was similar to Case 3 in every way, as to constitution and conditions of the system. The injury was a fracture of the malleoli with dislocation. Four hours after the injury I found the patient as free from pain as if he had sustained no hurt; he had slept and was comfortable, and yet there was complete displacement with laceration of all structures at the ankle-joint, sharp fragments of bone pressing dangerously on the skin to such an extent that perforation was almost complete. There was no sensation on reduction. Blisters similar to those in Case 3 formed over the injured parts. Similar open treatment was given, with good recovery in a reasonable time.

CASE 5.—This was a fracture of the middle third of the femur, with contusions of various parts of the body. The patient had been struck by an engine on a crossing. Suspension, non-constriction and healing without shortening was secured.

In some of these cases any form of constriction would have produced disaster, and if we get good results in our worst cases with such dressings, how much better must be the healing powers in the ordinary case. How much anxiety is saved by the ready inspection, ease and comfort and gain in time to the patient!

ACUTE GLAUCOMA DEVELOPING IN A CATARACTOUS EYE, AFTER CATARACT EXTRACTION IN OTHER EYE. IRIDECTOMY AND CURE.

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Among the more serious affections of the eye, there is not one which demands such prompt and proper attention as that known as acute glaucoma, or the so-called green cataract of the early writers. And while it is the usual and every-day facts and phases of a subject which should demand our most considerate attention, yet it is likewise true that we should be cognizant of the unusual and atypical, in order that our mission may be best fulfilled. Such is the excuse for that which is to follow.

Glaucoma is said to be secondary when it occurs as a result of some previously existing disease of the eye; and complicating, when it occurs in the presence of another eye affection, but without apparent etiologic relation to the same. The case in point probably belongs to the latter class, though the distinction is largely a matter of individual opinion.

Exclusive of nationality, the factors which predispose are old age, with its accompanying changes, hypermetropia, and a small cornea. Of these, the first and last were present.

Various theories have been advanced as to the mechanism of the disease, most of which are no longer tenable since the demonstration of the nutrition processes and the path of the circulation of fluids in the normal eye.¹

A general review of the late literature on the subject leads one to accept these facts: 1. That glaucoma is due to a disturbance of excretion rather than an increase of secretion. 2. That this excretory blockade is accomplished by an abnormally swollen ciliary body pressing the iris-base against the periphery of the cornea, to which it soon becomes adherent, and in this manner causing a retention of fluid by closing the filtration angle. 3. That the only reliable and safe method of treatment is broad peripheral iridectomy, done early and under general anesthesia.

1. De Schweinitz: p. 376.