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AN

INAUGURAL DISSERTATION

ON

Fractures

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Fractures

A fracture is a solution of continuity of parts produced by external violence, by muscular contraction, or by the action of both. Fractures may be divided into transverse, obligue, and longitudinal, according to the direction in which the bone may be broken.

A simple fracture is nothing more nor less than a mear seperation of a bone into two parts; a compound fracture implies an open wound communicating with the fracture, it is comminuted when the bone is broken into numerous fragments, and it

is said to be complicated when attended with luxation, and laceration of large blood vessels.

Causes. The causes that most frequently produces fractures of bones may be divided into predisposing, and exciting. The most frequent cause that predisposes a bone to be fractured is that of old age, in the decline of life the bone becomes fragil or brittle the earthy matter becomes deficient, in quantity and the animal matter looses its elasticity.

The exciting causes are mechan-ical violence, and muscular

contraction, mechanical violence may be direct, or indirect, it is direct when it produces a fracture at the part to which it is applide, and indirect when a force is applide to two portions of a bone, and it yields in the middle.

Reparation. The reparation of a fracture is produced by the effusion and the organization of lymph, when a bone is brooken, a quantity of lymph is effused into the cellular tissue around the brooken ends, and in two or, three weeks it becomes converted into a cartilaginous capsule, called provirional callus, this completely sur-

rounds the fracture, and adheres firmly to the broken bone.

Symptoms The most prominent symptoms of a fracture are deformity, preternatural mobility, crepitation, pain, swelling and helplessness of the part: sometimes a shortening of the limb if the fracture is in an extremity, inability to moove the limb without some pain at the injured part, inequality of the skin. but of all the symptoms that I have assigned to fractures that of crepitation is the one which the surgeon should rely upon the most. He should take hold of the limb above, and below the fractured

part and by moveing the extremity he will be able to produce this sound beyond all doubt. If the surgeon should not be called in until swelling and inflammation and ecchymosis have taken place, he should wait until thies symptoms have all subsided.

In judging the prognosis of a fracture ther are many circumstances which the surgeon may depend upon. If the bone of an old person should happen to be fractured it will take much longer time to unite than if it were the bone of a young person. A healthy condition is much more favourable, than that of

a valetudinarien The surgeon
should know the degree of violence
the mode by which it was ap-
plied, thies circumstances greatly
influences him in making his
prognosis.
Fractures produced by the dis-
charge of a gun are always dan-
gerous a portion of the bone being
destroyed by the force of the
ball; in this case it must ex-
foliate before the sound bone
can granulate, and reunite.
A compound fracture is al-
ways more dangerous than a
simple one- unattended by these
symptoms An obligue, is more
difficult to manage than a
Transverse fracture.

fractures of superficial bones, are less dangerous than those which occur in bones that are more deep seated, and covered with strong muscles: a fracture in the middle of a bone is less dangerous than at the extremity in the vicinity of joints.

The seasons of the year, and many other circumstances will no doubt affect the healing of broken bones.

Treatment. In the treatment of fractures the first thing that is to be discussed is the apposition of the broken ends of the bone. They are to be brought into as exact contact as possible; but this should not be attempted un-

'til the splints are all ready to be applide; the fractured bone must be kept in a steady position for every motion of the wound injures the soft parts, and produces an irritable state of the muscles which is apt to cause subsequent displacement of the bones.

The treatment of fractures is the same in principle as that of wounds. The patient should be placed in an easy position in which he can remain without any material inconvenience till the disjointed parts are firmly united.

The position of the limb which is called a relaxed position has

been sought for, and is generally enjoined. In the position so denominated a limb may certainly be kept for a long time without inconvenience the patient indeed is accustomed to it.

The fore arm is generally fleet upon the arm the thigh upon the pelvis, and the leg upon the thig, although in these positions some muscles are relaxed and others are put upon the stretch. so that the term relaxed position, is objected to by some, but such a position is easy, and natural, and may be long continued without disquiet.

The means which are employed for bringing the ends of a frac-

fractured bone into apposition are extention, and counter extention this should be continued until the ends are brought in direct apposition.

The limb having been previously laid in an easy posture resting upon a suitable splint, the surgeon generally succeeds without any difficulty, in accomplishing the end in view. When he has brought the ends of the bones in apposition the means the to be employed are splints, and roller bandages.

The splints that are to be applied to the fracture should be longenaugh to confine the bone in a steady position, to prevent

the bone from growing out of its natural shape.

The splints must be adapted to the shape of the limb, so as to give equal support to the whole surface to which they are applied. Splints should never be placed next to the surface, but be well and soothly padded before they are used to prevent irritation. This may be done by laying several folds of flannel or patent lint upon them when the splints are gently placed upon the broken limb the whole compress should be enclosed with a bandage. The best that are employed are made of calico or white domestic.

The bandage must be from two and a half to three inches in wedth, and from three, to five yards in length. When a bone of an extremity is fractured the surgeon should commence bandaging at the extremity and rol it above the point of fracture to prevent swelling. When inflammation comeson it should be treated on the antiphlogistic plan under this treatment the inflammatory symptoms will soon subside, and the treatment is to be discontinued as it has a tendency to lessen the action which is essential to the reperation of the wound.

As it appears that a degree of

vigour of action in the vessels is necessary for the process of ossification it is generally wrong to abstract blood, or to insist on the carpul observance of a low diet. The length of time required for a fractured bone to become strong, and unyielding is varied in children in some instances bony union will take place in ten, or fifteen, days, whilst in some adults it will take from one, to six months, for it to become complete so as to support the weight of the limb or body. The only means by which the surgeon can judge of the firmness of the union is an examination; and this examination

should never be too forcible;
when, on moving one end of the
bone if the other follow the mo-
tion in a corresponding manner
the union is complete.

The taking off the splints, and
a slight degree of exercise, together
with gentle friction to the soft
parts. is necessary

In fractures of an extremity the
prateent should never attempt
to use the limb before it firm
ly unites if he does it will cause
it to be somewhat shorter than
the corresponding one. As the
motionless stat of the fractured
bone is the most important
circumstance conducting to the
reunion, gravitation seems in

every instance to be necessary and of great importance; cases sometimes occur in which practures do not heal by ossification, but by ligamentious union, a bone that has no peristium will not unite by bony union; When this is the case motion is always at the place of practure, Thus a joint is formed which distroys the use of the limb, and the patient is exposed to great inconvenience. after the lapse of two months or more without solid union it becomes necessary to excite inflammation, by rubbing forcibly the practured ends against eachother, after which the dressing should be reapplied,

and the parts kept in a steady position.

When large blood vessels are injured in a fracture they should be cut down to and ligated.

The constitutional treatment of fractures must be regulated by various circumstances, When inflammation attends, which is an essential part of the process of restoration; if it be too violent the surgeon must restrain it by the usual remedies. Cathartics in many cases are extremely inconvenient in consequence of the motion to which it gives occasion. Blood letting is to be preferred as this mode of evac-

ation is not liable to the same objection, and the bowels are to be kept from costiveness unless in those cases in which absolute rest is required and the patient on the contrary is permitted to walk as fractures of the humerous, and clavicle but a low diet should be observed—