Anchylosed Joints

I will not restrict the term Anchylosis to union by osseous matter, as is generally done, but extend it to fibrous connection, (false anchylosis) -

I will consider -

I. The Disease - its Side, &c -
II. Its Causes.
III. The treatment -
IV. Cases in illustration -

I. The Disease its Side &c -

The osseous form of the disease depends upon the union by bone, of the opposed

Surfaces

surfaces or margins of a joint. Effusion around the joint, has become osseous or the ligamentous tissues have undergone that change, or probably a combination of both will be formed.

In false anchylosis, the union is fibrous and as regards the joint, may be internal or external, bony or both. Any joint of the body may be the seat of this disease. The slightly mobile vertebral articulation, and the most perfect ball & socket joint. The knee, and elbow joints, are probably the greatest sufferers. The fingers are often so, in gouty and Rheumatic constitutions.

II. Causes. The disease is the result of an Inflammatory process. Traumatic, or Idiopathic. modified in Gout & Rheumatism. Again. long retention of a limb in any one position. Contraction of tendons connected with or passing over a joint. or the loss of motor power of joint.

1. Traumatic injury. This has probably something to do with those cases, which are

Commonly

Commonly seen known as Diapathic, a very small exciting cause will be sufficient in a predisposed constitution. Severe injury of course often leads to amputation - but even when a joint has been laid open, an attempt may be made to save limb, and this will almost invariably be at the expense of the injured joint. But better have a stiff wrist, or elbow joint, (with prospect of a future cure) than sustain loss of hand. Where a joint has been opened into, extensive inflammation almost always results, profuse discharge. Slowly drying up follows, the limb has been kept rigidly at rest in one position, and when the cure is effected, the result is a stiff joint without motion. The cartilage has disappeared from articulating surfaces, and the bones have been exposed, with the same result as if it had been a Compound fracture -

In some cases of injury, and in some joints. Anchylosis may be prevented by judicious motion, during the cure.

A sprain is severe sprain, with tedious

recovery

Recovery. the fibres of ligaments have been ruptured, or over-stretched, and have undergone a slow inflammation, with exudation of fresh material to a considerable extent. And so we have fibrous or false ankylosis more or less extensive. Ankylosis may be result of a burn.

II. Idiopathic. This is great cause.

1. Scrofulous cachexia. a great predisposing cause. Called into action by some slight injury, cold, a sprain, &c. or without any apparent cause. In the large proportion of strumous joint affections, the patient has not the good fortune to set off with an ankylosed joint. There is seldom a pause at exudation stage. giving us false ankylosis, the disease goes on to suppuration caries &c. and then early (without interference as excision), can the joint be saved to give us osseous ankylosis. The disease originates in soft or hard structures.

1 In soft structures. here it is insidious in its approach & progress. Patient generally observes joint stiff in the morning when he gets up. it

begins

begins to swell - but is not discolored. the soft parts are only affected. the synovial membrane is gelatinous and thickened. the surrounding textures have enlarged - the joint may remain for a considerable time in this state, months or even years - and the effused matter be absorbed in the end, with a more or less complete restoration of joint. there is always stiffness & swelling remaining however. But in most cases matter forms, and is discharged. ulceration of cartilages ensues, or they are exfoliated, or absorbed. the bone becomes affected, and the patient dies hectic. Suffers amputation. or recovers with a shrunk, and rigid limb. there is no joint, but a firm osseous or ligamentous union. Shewing one of the two forms of Ancylosis -

2. Commencing in bone Structures of joint. Ulceration of cartilages is most common in adults, and seems in some cases due to Scrofulous taint of Constitution. It is indicated by deep pain. often at one point of joint - felt most acutely at night, aggravated by motion

motion. The disease may terminate before giving on to Suppuration, - unassisted, or from Surgical interference - and some Stiffness of joint almost always remains - When it goes on to Suppuration, the Same occurs as when the origin of disease was Scrofulous degeneration. And if a cure be the result it is only by anchylosis - The Cancellous Structure of the bones is the part primarily affected, ulceration of cartilages being an after result - in Some cases, evidently of a Scrofulous origin - these cases are chiefly met with before puberty. There is generally not much pain until ulceration of cartilages has commenced. There is Swelling of joint - the disease consists in the Cancelli of the bone becoming filled with masses of Tubercle. The adhesion of the Cartilage to the bone is less intimate. The cartilage ulcerates, bone becomes Carious, abscesses form, and are discharged - In cases of recovery - the termination is Complete anchylosis.

2. Rheumatism as Cause - In acute Rheumatism the inflammation quickly extends from one joint to another, not unfrequently

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a joint is attacked a second time. The disease may chiefly affect neighbourhood of joints or the joints themselves - and here may affect ligaments, or Synovial membrane, or both. Swelling & soreness are apt to remain for a considerable time, after the disease is checked - and weakness and stiffness of the joints are frequently left long after convalescence has been established. Pus may have been formed in joints, and fibro-cartilages have exhibited evidences of inflammation, as Softening - and erosion - This is generally a fatal case. In Chronic Rheumatism (a disease most frequently confined to joints) the inflammation is very apt to remain firmly fixed in the original joint. In obstinate cases we have stiffness or immobility of the joints, arising from contraction, thickening, and rigidity of the ligaments - from firm contraction or shortening of the muscles, and tendons - and sometimes from changes in the cartilaginous and bony structures - which undergo absorption from the long continued irritation. The joints (especially of hand) are often distorted from same cause - In some instances Suppuration takes

takes place in the joints. the Synovial membrane inflames, the cartilages are absorbed, abscesses form, and if a cure result, the denuded ends of the bones unite forming Complete anchylosis. the inflammation Sometimes thickens the periosteum, or the fibrous investments; stiffening the joint. or these tissues become studded with osseous nodules, gradually increasing, until the new osseous formation encroaches on the joint. impeding its motions. or producing complete stiffness by external bone anchylosis.

3 Gout & Rheumatic-Gout as Causes

As regards the joints Gout generally seizes on a great toe, but may affect other joints. elbow, wrist, knee, &c. When first attacked patient is affected with acute pain around the joint. or in it. with but little appearance of inflammation. the joint soon swells, the slightest jar is cruelly felt. the Superficial veins of part are turgid. in a few hours the symptoms abate. the attacks may wander from joint to joint. A chronic form generally supervenes, and often becomes fixed in certain joints. these become altered so

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as it bend with difficulty, and may be quite useless. When not completely anchylosed, the motions of joint are attended with a grating Sensation. All this may arise partly from thickening of ligamentous textures, and partly from deposition of chalky matters in, and around the joint. This latter deposition is often seen in the fingers, becoming effused in a semi-fluid state, and concreting. It seeks surface in form of chalk stone, ulcers of a troublesome kind resulting. The synovial membrane of affected joint, and the cartilages, afford indications of inflammation. The latter often shewing absorption, and the ends of bones are injected with blood. Softened, and occasionally eroded. Or chalky matters occupy portion of cartilages. Layers of chalky matters are often found within synovial membrane, or between it, and the cartilages. The external ligaments are sometimes injected and thickened. and the muscles around the joint contracted and rigid.

4th. We have the joints suffering from inflammation idiopathically. without any known predisposing

predisposing constitutional taint. This is rarely seen originating in the ligaments. On the other hand it is common enough in Synovial membranes. We may have an increased Secretion of fluid in joint, without pain, or inflammation. Constituting "hydrops Articuli". But it more commonly happens that the presence of this fluid depends upon inflammation of the Synovial membrane. After the inflammation has subsided, and the fluid become absorbed. the joint remains swollen, & stiff; painful when bent or extended beyond a certain point. Lymph will be found effused into joint. This inflammation of Synovial membrane may extend to cartilages. giving as ulceration, almost invariably attended with formation of abscess. disintegration of joint. and if recovery follow, true anchylosis.

Syphilitic, & Mercurio-Syphilitic taints are predisposing causes of diseases of joints.

III. The Treatment. This will consist of two kinds. palliative, & radical. and must be influenced greatly by the causes of the disease.

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and the extent it may have advanced.

Where there is a special Cachexia to be combated - as Strumous, Gouty, &c - Constitutional treatment will be the primary indication.

1 Palliative treatment. When a joint has been injured or is inflamed - when it has been opened into by that injury, or merely bruised - when the inflammation has led to fibrous effusion, or formation of pus - in fact, whether we expect false or true anchylosis; we will, during our treatment, keep joint bent in such a position, as shall be most useful should anchylosis unfortunately ensue - For instance the elbow should rest at an angle somewhat more than a right, tho' not a large obtuse one.

2. Radical treatment - the result of this may only be palliative, but the aim is radical -

1. as to true anchylosis. When this is complete, the forcible breaking up of the joint is inadmissable - A French Surgeon, M. Louvrier, invented an instrument in

Much

which the Stiffened limb was placed, and straightened by mechanical force. The results were such as might have been anticipated. In some of his cases death followed from gangrene, the Skin, muscles, tendons, and blood vessels being ruptured. It must be condemned. For tho' the limb is immediately stretched, and no Severe Symptom ordinarily follows, primary, or Secondary. Yet when accidents do occur they are generally of such a character as to Cause death, and then none of the patients operated on entirely recovered the free motion of the articulation.

Mr. Barton of America has Successfully formed a false joint, in a case of Anchylosis of Hip, by Sawing thro' neck of Femur.

This operation could not be extended to all the joints, the Shoulder and hip Seem the only ones fitted for it. The new joint must be imperfect with very limited motion. Cases may occur in which a trial might be warrantable. But further experience of it is required.

Mr Syme has clearly shewn that

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in Anchylosis of Elbow joint, operation is followed by an excellent result. A joint being formed scarcely to be distinguished from the Sound one. And where a patient presents himself anxious for the operation, we should not hesitate to perform it, unless Constitutional causes prevent. The Elbow joint is peculiarly fitted for this operation. But as regards the other joints, interference in this way will generally be found unwarrantable.

2. As to false Anchylosis. While the joint is inflamed, no active interference is admissable. The following remarks apply to those cases in which the inflammation has been subdued, in the joint. The inflammation must be treated according to the usual Rules, always keeping in mind the future usefulness of the joint, and after the inflammation has been fairly Subdued, the results of it are dealt with. And here great Caution is required, lest we, by our interference, light up the inflammation afresh.

We may do much by forwarding

absorption

absorption. Scotts dressing will often be found of great service. Iodine painted over joint. Blisters applied at intervals. Frictions with stimulating embrocations. If the tendons are at fault, divide them, by subcutaneous section. Passive motion of joint should be persevered in, of a gentle description. The limb should be strengthened by judicious exercise, bringing back tone and action of muscles. Splints, bandaging &c. may be made of use. by preventing spasm being lost, and assisting in the Radical reduction. Should these means fail, or from the disease having existed for too lengthened a period, any attempt by them be thought useless. one may forcibly break the fibrous connections of joint. And after allaying any inflammatory action set up, he may by judicious motion, hope to restore the joint to its former condition, or at least greatly improve it.

IV. Cases in illustration. And first one of true anchylosis. I quote this from Sir Benjamin

Benjamin Brodie's "Diseases of the Joints".

"A young married lady was seized with
"violent pain in the knee. There was no
"perceptible swelling of the joint, or if there
"was any, it was not from fluid, or lymph,
"effused into its cavity - but from a very slight
"effusion of Serum into the cellular membrane
"external to it. In the course of three or four
"days the pain became intense, and could
"be only partially relieved by very large
"doses of opium. Blood was taken from the
"knee by leeches, and cupping, but this af-
"forded very little relief. Mercury was ad-
"ministered internally, and as soon as patient
"was under the mercurial influence the
"pain began to abate. In the course of a
"few days more it had entirely subsided. The
"patient was supposed to be well, but the
"bones were now firmly united with each
"other - so that the joint did not admit
"of the smallest motion. Various plans were
"tried with a view to restore its mobility,
"but to no purpose. The knee is still

was

"was, and Still is Complete. but as the
"leg is nearly in the Straight position with-
"regard to the thigh, it is productive of com-
"paratively little inconvenience to the patient".

This was a case of ulceration of
Articular Cartilage, resulting in complete
osseous union -

And was one of false Ancylosis, which
I watched with considerable interest.

Wm B— aet. 24 married. On 9th
December 1854, when travelling by Railway,
She caught a severe cold. On 12th Dec-
ember She was Confined, her baby being Still-
born. She was making a good recovery.
when on 20th, She was Seized with Rheumatic
fever, and pain in various joints. first
in Ankle joints. then in left knee; and finally,
in Right knee, and in left elbow joints.
these latter became the seat of fixed pain, and
inflammation of a Rheumatic character.
She was Confined to bed for eighteen weeks.
the pain in joints was excessive. they could
not be moved. the arm was kept nearly

Extended

extended - and the knee was flexed - two pillows were placed in Mrs, and they were kept in these positions during eighteen weeks. On leaving her bed in March 1855, the pain in joints had almost gone - the elbow was nearly straight, and fixed. and the knee was so bent that she had to use a crutch, and only touched the ground with the toes. the joint was quite destitute of motion, and pain was experienced in walking - I first examined the limbs in September 1855. happening to call as a friend of the family - Mrs B. adverted to the distressing condition of her elbow, and knee joints. and was much discouraged by the report of her medical attendant. On examining the joints I found both quite motionless, and free from pain. the elbow joint was somewhat enlarged, evidently from fibrous deposit. the knee joint less so. From history of case and length of time intervening, I scarcely anticipated any union. She could now walk with the assistance of a stout

cane

Cure, but very unsuccessfully. Motion. Station, which had been originally good was now restored. I stated that an operation might be performed with a good prospect of success. A Surgeon was called in, who readily agreed to break up the connections of elbow joint, trying it first, from the less dangers should inflammation ensue, and from its almost useless condition in straight position. On 26th Sept. 1855. when under the influence of Chloroform, the arm was bent, by exerting a gradual force upon it. flexion was complete, and extension nearly so. no rotation however. On moving arm a burning sensation was imparted to hand. On 27th complained of pain in joint, slight swelling was observed, but no inflammatory redness or other untoward symptom, was exhibited. no fever. pulse scarcely affected. Cold cloths applied.

28th Swelling decreasing, and pain less.

29th Began to attempt slight motion of joint. But here I was much thwarted by patient

patient. who had a childish horror of the slightest pain, and a great want of moral courage - her nervous system was never very strong, her education had not improved it, and a peculiarly distressing family affair had thoroughly shattered the remains of it. When I attempted to move joint, immediately all the muscles resisted me. a hysterical sobbing was always at hand, and no persuasion on my part or on that of her friends could induce her to move it, in the slightest. During the fortnight or three weeks following I gave her chloroform four or five times, and then the joint moved with the greatest freedom. So much so that if bent to a right angle, it would fall the weight of the forearm straighten itself. After persevering for three or four weeks in my attempts to restore motion. I was most reluctantly compelled to give them up. and place the arm in such a position (nearly a right angle), as would ensure greatest usefulness when ankylosed. On 25th October

October affected leg was straightened in same manner, as arm - requiring much more force to be exerted on part of Surgeon. But the connections at length gave way with a loud snap. From former experience of the patient, we thought that any attempt to recover motion of joint would certainly fail. Accordingly limb was kept in extended position by long splint -

26th October. (Day after operation). found patient had taken her breakfast as usual. no pain in joint. pulse 80. No fever. She was doing exceedingly well, when I left for College in beginning of November. I have since heard repeatedly from her friends. She is now able to walk without assistance of any kind. She has been to church often, and walks out a great deal. I quote from the last letter I received from one of her friends dated 21st March 1856 -

" She (Miss B.) has an motion in her
" elbow, but it is of more use to her than
" before. Her leg is the same length as the
other -

" other. She walks more comfortably than
" before. There is no motion in the joint. it is
" not so strong as the other, it requires to be
" supported by leather straps, under her foot.
" but it is getting stronger, and she expects
" to be able to walk without the straps.
" She has sometimes pain in it, and if she
" tread on a stone or any thing when walking
" she feels it".

In this case the joints being free from disease, and the constitution of patient good. the operations were performed with perfect safety. And had the patient seconded our efforts, the result would as it was, would have been infinitely more satisfactory —

M Brandreth

Thesis.

Mechanics
Joints

April 1856

Andrew Key

(1856)