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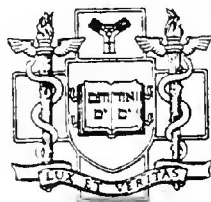
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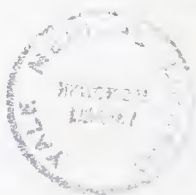
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XV.

Dissertation
on
Necrosis.

By
Edward Brown Sprawl,
of Natchitoches, Louisiana,
Candidate for the Degree of Doctor in Medicine.

Recrosis.

On looking into the human body for a portion which is not subjected to disease; we are unable to point out a single tissue or structure which is not liable to its ravages in some of its multifarious forms. The fibrous, the serous, the mucous and cellular tissues are all, equally, prone to its action.

But to enter into a full description of all its forms as it appears in the various parts of the system, would occupy, by far more time than is allotted to me at present; nor is it my intention to do so. We find that inflammation is almost always present, either as a symptom, cause or as a consequence of disease.

But inflammation, when present, is not always to be regarded as a disease, but frequently as a salutary process absolutely necessary for the cure of disease.

But we do not find that all parts of the human system, are alike subject to diseased action; but that one portion is more liable than another.

Thus we more frequently find the lungs and their appendages, suffering from disease, than the heart and its appendages. So also do we find that the soft parts, are more frequently attacked than the solid. And I believe it to be true, that in all cases where the bones are attacked the surrounding soft parts are more or less affected as a consequence of the diseased state of the bone. But on the other hand, we do not find the bone implicated always when the soft parts around are originally diseased; though from various causes, either external or internal the bone may also be affected at the same time.

It seems that those organs which perform junctions and offices important and necessary for the prolongation and sustenance of life, are more rarely diseased. But sometimes the slightest deviation from a healthy action, in those organs, will derange the whole system, whereas those parts of less importance may deviate largely from a healthy state, and the

constitution be but little or not at all affected. Nature seems to have provided for the vital organs, more efficacious means for the purpose of protecting them from the invasion of disease, than those which are of minor importance.

Take the osseous system, apart from mechanical injury, and it is more rarely diseased than almost any other part of the animal economy; of course this is subjected to a few exceptions. The age of a person and the peculiarities of constitution may render one individual more liable to affections of the bones than another. Such as a scrupulous habit of body, or a syphilitic taint, which exert their influence upon this structure through the medium of the constitution. But generally, I believe the bones to be less frequently attacked than, almost any other part of the body.

The bones are supplied with blood vessels, nerves and absorbents; thus in general circumstances resembling in texture, other

organised parts of the body - the greatest difference being, that the bones contain more phosphate of lime, which gives to them rigidity, strength and solidity, so essential to their uses in the various parts of the skeleton.

Bones have the greatest power of regeneration, than almost any other part of the whole system. Disease in its commencement, progress and decline, in the Osseous structure, evince more slowness of character than when seated in the soft parts. Dr. Samuel Cooper says, that no doubt, those facts are connected with the introduction into the osseous tissue of a lifeless inorganic calcareous matter, and also, with the inferior supply of nerves. Diseases of the bone do not affect the general constitution so much as when seated in other parts of the body. But if the disease be extensive, with severe inflammation of the soft parts, and of long duration the constitution will suffer.

Bone like all other parts of the body, is

subject to inflammation - It may be acute or chronic, simple or specific - It may be produced in a single bone from external or local causes, or in several, from a predisposition of the Osseous system to inflammation. The periosteum and medullary membrane may be inflamed without the substance of the bone being implicated, but generally when the bone is the original seat of inflammation, it extends to the periosteum and medullary membrane.

The terminations of inflammation of the bony structure are the same as that in other parts of the body. It may terminate in caries, which corresponds to ulceration in the soft parts; or it may terminate in necrosis, which is the same as mortification of the soft parts. But necrosis is caused by many other circumstances, which will be noticed when we speak of the causes of the disease. Necrosis and caries may be the effect of previous inflammation, or they may come on without any symptoms

of a previous inflammation.

Diseases of the bone generally run a slow and tedious course. In fact this class of disease is the most curious and troublesome affection, and not altogether without danger to the patient. Always troublesome but not always dangerous. There is scarcely no disease, which is so far beyond the reach of medicine as this class. In chronic inflammation of bones. The swelling comes on slowly, and the hardness is wholly uncompressible. The swelling is sometimes caused by abscesses, or interstitial depositions, or by the deposition of a large quantity of phosphate of lime. Sometimes the phosphate of lime is taken up by absorption, so that as the bone becomes enlarged, it also becomes porous, and consequently lighter than natural.

As to the effects produced in bones by the action of inflammation, depends upon the extent and cause of the morbid action, but for me at present, to go through with all this, with an accurate description, would weary the

patience of this Honorable Board. The pain which is felt, also depends upon the extent of the inflammation, or injury, also upon the violence of the attack. In cases where the disease is brought on by the effects of Syphilis, the pain is the greatest at night.

When the symptoms are violent from the beginning, in necrosis, the disease is more rapid in its progress, and ends sooner than when it begins in a milder form. Thus, when a man goes to bed at night well, and is attacked with a deep seated pain in the leg, in the middle of the night. The pain followed in a short time, by swelling of the part, accompanied with severe inflammation of the soft parts, an abscess soon forms, and the whole course of the disease is completed in the space of six weeks or two months. But more commonly many months and even years pass away, and the disease continues, with a continual discharge of pus from the diseased part, undermining the constitution. producing irritative fever, followed

be hectic and all its consequences. Necrosis
is as common, perhaps more so, than any other
disease of the bones. Necrosis is the death of
a bone. It may be a part, or it may be the death
of the whole bone. It is rare that we see the whole
of a bone necrosed - but cases do occur, where
the whole length of a bone is found dead.
It may involve the whole three kinds of the bone or
it may be only the external portion.

It may attack any and all of the bones,
in the body, at any period of life, and in
either of the sex. Those that are more frequently
attacked, are the long cylindrical bones, and
those of the hardest texture - the spongy bones
being more frequently affected with caries.

Necrosis is found oftener in the tibia and fibula
next, the femur and lower jaw. Sometimes
the scapula and the bones of the head are
affected. In children and young persons the
long bones are oftener affected with necrosis,
than at any other period of life. In persons
from thirty to thirty five years of age, the flat

bones seem more prone to necrosis. I am unable to account for this.

Symptoms. Necrosis comes on with a deep seated pain, of more or less severity, followed in a short time by enlargement, with inflammation of the soft parts. And if the inflammation be extensive and severe, there will be constitutional disturbance. An abscess forms and matter is collected and is discharged, and perhaps, after a time the dead bone is also discharged. But the discharge of the sequestrum depends upon circumstances, and often requires a considerable time for this to be accomplished.

Necrosis may be divided into three different stages, according to the condition of the bone.

The first stage is the formation of the disease, characterized by inflammation of an acute nature.

In the second, the sequestrum is produced, but not detached from the sound bones.

In the third stage, the sequestrum is not only formed but loose. The sequestrum is now to be considered as an extraneous substance, which, as long as

retained in the limb, will keep up irritation and suppuration.

A portion of the bone loses its vitality and a new bone is formed around this dead bone, which in some instances completely surrounds it. In a varied length of time the pus is discharged through one or several small openings of a more or less circular form.

Through these openings, there appears a fungus growth, which is pathognomonic of the disease in joint.

When the sequestrum is loosened, it may be discharged in a longer or shorter time, or it may remain during the life time of the patient. Some time after the formation of the openings just mentioned, they run together; and a portion of the sequestered bone protrudes, which when thus protruded may be discharged. As soon as the matter is discharged, the sufferings of the patient are greatly diminished. Could the sequestrum now be discharged, the disease would disappear. The new bone is generally formed before the sequestrum

is detached from the living parts of the bone, so that the whole course of the disease may be completed without the loss of the use of the limb. The symptoms of this disease vary according to the cause, extent and constitution of the individual.

The causes of necrosis are external and internal. The external causes are fractures, contusions, and sometimes the application of caustics to an indolent ulcer upon the skin. The tibia is more frequently attacked by this disease, perhaps from its being less covered by soft parts, and being more liable to bruises than most bones of the body. The internal causes are such as exert their influence upon the diseased part, through the medium of the constitution: such as a scrofulous predisposition of body - Syphilis venerea, and the debilitating effects of malignant diseases - such as Small pox, typhus fever, and Measles. In fact any thing that affects the periosteum, the substance of the bone and the medullary membrane, in such a manner as to interrupt the

irradiative force of the bone, will cause its death. The injudicious use of mercury in the cure of Syphilis, is often the cause of Necrosis. When it arises from this cause it commonly attacks the lower jaw, sometimes causing the destruction of the whole of the bone.

When caused by the effects of Syphilis, the pain is greater at night when the patient is warm in bed.

Necrosis is sometimes the consequence of inflammation, though it sometimes makes its appearance without any symptom of previous inflammation, and again it arises from no assignable cause whatever. The causes of Necrosis may also, be divided into predisposing and exciting causes. The predisposing causes being constitutional peculiarities, and cold and Mechanical injuries being the exciting causes.

Diagnosis. Necrosis has been confounded with Caries, though the two diseases are as different and distinct as ulceration and mortification of the soft parts. Caries is one of the —

consequences of inflammation of the bone, some of whose textures are absorbed, so that a chasm is formed without the loss of vitality. while in necrosis another condition of the bone is found, being the complete or partial death of the bone, followed by the formation of a new one, or by a more or less repair of the part destroyed. Caries mostly affects the spongy portion of bones - while Necrosis more commonly attacks those that are of a solid and compact texture, containing more of phosphate of lime. This is so much the case, that the same cause that excited Caries of the spongy bones, would if its influence were exerted upon the more solid parts of the skeleton, excite Necrosis. But both of these diseases may be found at the same time - but rarely do we find such a combination. There is a difference in the discharge, from the two diseases - which of itself is almost diagnostic of the disease. That of necrosis being of a

healthy character and that of caries of a foul and unhealthy nature, making black the silver probe when introduced into it. Necrosis of the lower end of the femur has been mistaken, for white swelling of the knee joint. By passing the hand along the bone from the condyles upwards, and we find that the bone is thickened about a hand's breadth, up the bone, the disease is necrosis. Sometimes there is an abscess formed between the bone and the muscles just above the condyles. The swelling is often firm and unyielding to the touch.

Necrosis differs from common exfoliation, in that the new bone is almost always formed before the old bone separates from the living parts of the bone; it resembles it, viz that there is always a pulp membrane between the sound dead bones.

The prognosis of this disease depends upon the bone that is necrosed and the severity of the symptoms that follow.

If the articular portions of the bone are destroyed or involved in the mischief of necrosis, with the shaft of the bone, at the same time; the prognosis is unfavorable, and nothing short of amputation of the limb, will save the life of the patient. This disease is so uncertain as to the extent that the bone is diseased and as to its duration, that it is no easy matter to form a correct prognosis—especially in the early stage of the disease—If the sequestrum has been discharged, we may promise our patient a prospect of recovery—But until this is accomplished there is no probability of recovery—Its presence is a source of irritation and suppuration, and the constitution will suffer greatly from the continuation of the discharge, and the patient be destroyed—

Treatment.—The treatment must vary according to the stage of the disease and the severity of the case—Suppose that in

the first stage, when the sequestrum is not yet formed - the disease involves a large portion of the bone accompanied with violent and extensive inflammation of the soft parts. All that can be done here, is to use our endeavors to check the inflammation - Here as in all other inflammatory diseases, the antiphlogistic treatment is the best means of combating the disease. If the patient be of a plethoric constitution and the fever is high, with a full strong and tense pulse we may bleed from the arm with local depletion, by means of leeches and cupping, fomentations and poultices - Saline purgatives and diaphoretics - From the nature of the disease, namely, from the circumstance of its unavoidable and speedy complication, with a portion of the bone deprived of vitality, being up irritation as an extraneous substance, all that can be done is to lessen the inflammation and alleviate the sufferings of the patient. The sequestrum will be formed,

the removal of which either by a natural process or by the interference of the surgeon, is absolutely necessary for a favorable termination.

As soon as matter is known to be present, which can be distinguished by the feel of fluctuation, a free opening is to be made, so that an early discharge of pus may be produced. In the second stage, the dead bone is formed, but still attached to the living bones. In this stage, we are obliged to wait for the natural separation of the sequestrum; as there is no medicine yet discovered that will hasten this process.

It requires a quarter or half length of time - months and sometimes years, for the old bone to become separate and loose; for this process is particularly slow. In young persons and children the separation is quicker than in a more advanced age.

The third stage. The sequestrum is loose and regarded as a foreign body. The indication is to remove it - and if this is not accomplished

by the efforts of nature, it must be done by
the surgeon. If the constitution be healthy,
the discharge diminishing in quantity and
the fistulas are disposed to heal, we might
wait for the natural discharge of the bone;

But if the constitution is suffering from
debility, and the discharge of pus copious,
and the sequestrum known to be loose, or
loose, it becomes an object to remove it
by an operation, which consists in cutting
through the soft parts and cutting away
as much of the new bone, which encloses the
dead portion, as will admit of its free
removal. The treatment varies in certain
cases. When a portion of the detrita becomes
dead and, the skin ulcerated, and the dead
bone is exposed, and turns black, and
undergoes no further change for some time,
we may suspect a syphilitic taint of the
constitution, and Mercury is indicated. But
if the necrosis be caused by the injudicious
use of mercury, the Sodide of Potassium is

used with advantage - If the constitution of the patient becomes weakened from the continued discharge - Tonics should be used such as Barks with wine &c. Sometimes all our plans of treatment fail us, and the patient is gradually sinking under hectic symptoms, characterised by the evening exacerbations, night sweats, and the circumscribed redness of the cheek called the hectic flush. Here amputation becomes necessary for the safety of the patient. This operation should not be performed during the irritative stage of the fever - but on the appearance of the hectic symptoms - Usually if the patient has sufficient strength, after operation the stump of the limb will heal kindly and necrosis terminated with the loss of the limb - We should always try to effect a cure without the loss of the limb if possible - But when this cannot be done it is our duty to resort to the operation of amputation -

Sometimes the disease is easily cured,
when the general constitution is healthy -
but if there be an unhealthy condition
of the constitution, sometimes all our
remedial efforts are useless and the patient
gradually sinks into another state of existence.

This the 19th day
of January 1848

Edward B. Snow
of
Natchitoches
La^a

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