ALLISON (C.C.)

NOTES UPON

Acute Osteomyelitis.
(Syn.) Acute Infective Panosteitis.

Cancer of the Rectum—Its Treatment.

Treatment of Hernia in the Aged.

BY

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OMAHA, NEB.

ACUTE OSTEOMYELITIS.
(Syn.) ACUTE INFECTIVE PANOSTEITIS.

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In any sudden attack of illness in which acute, deep seated, lancinating pain in the neighborhood of bone and joint associated with high fever are leading symptoms, especially if the sufferer be young, osteomyelitis should at least be suspected.

The reason for this is, that this serious disease is frequently overlooked and its symptoms are interpreted as rheumatic or neurotic in character, and in the more fulminating types, death will ensue before any intelligent therapeutic aid has been employed.

In the development of this disease, two factors are usually associated; first, the condition of the blood is vulnerable to the development of pyogenic agents, on account of malnutrition, poor hygienic surroundings or probably from hereditary deficiencies; second, the exciting cause will usually be found to exist in the shape of trauma which acts only as a localizing agent in determining an hyperaemia which becomes quickly infected through the mycotic agents which are already circulating in the blood.

This process once started: viz. the infected hyperaemia in the medullary portion of the bone in the face of a blood condition which, instead of being bactericidal in its influence over these changes, already invites a determination of the infective agents to this point and encourages their colonization within this vesicular bony chamber wherein the process of inflammation cannot be palliated by swelling and the relief of tension which these symptoms afford, the determination of cells rapidly occlude both the blood vessels and the sacculated medullary spaces and the outer pressure produces a rapid infective thrombosis, filling the vessels in acute cases throughout the whole course of the central canal producing cell death both by infection and by pressure, a condition which still further fills the blood with destructive microbic organisms which are ready to attack not only the sur-

rounding tissues, but the medullary portion of adjacent or of any bony tissue in the body.

Etiology. Any of the virulent germs of inflammation may be found in the inflamed tissues or even in the blood; the streptococcus; the bacillus of Eberth, colon bacillus, and the staphylococcus are probably the most frequent infective agents found.

A mixed infection, however, is not infrequent, and it is this form that leads to the most destructive changes in the bone and to the most virulent constitutional symptoms.

It is true that multiple points of infection involving different bones may develop simultaneously, which would argue against the importance of the traumatic theory as an exciting cause of this disease and, indeed, this feature is the least important. Certainly this is true in the acute fulminating process which often leads to death in thirty-six to forty-eight hours.

Pathology. The destructive changes may first be recognized by the increasing number of leucoeytes containg pigment granules associated with an actual extravasation of blood, stasis, with mutiple foci of cell destruction and pus accumulations and a feeble attempt on the part of nature to limit the process by a line of granulation tissue while these protective cells promptly succumb to the destructive influences of the virulent infection and pressure within this bony cavity.

The pus may be forced by pressure along the entire shaft or the cancellous layer of the bone may yield and additional evidences of inflammation will appear upon its surface, if the patient has withstood the destructive changes for sufficient time.

The infection is apt to begin near the end of the shaft of the long bones because the terminal vessels are dilated in their loops near the epiphyseal cartilage. This dilation and sudden turn in the course of the vessels allows of a retardation in the current of the blood and the opportunity for a deposit of the infective agents at this point.

The process of destruction may be so acute as to destroy the cartilage, separating the diaphyses and invading the joint and superficial tissues, thus causing the suppurative arthritis and cellulitis of a very acute type; and while it is true that the long bones are most vulnerable, it should be remembered that the short bones and even the flat bones may be the seat of a primary acute panosteitis with rapid destruction involving, in many cases, the entire bone.

Diagnosis. By far the most practical phase of this trouble, is the study of the clinical aspects presented by this form of inflammation; and while it is true that the disease appears in different types, yet its early recognition is highly important because the mild case may become severe, and the severe cases are always so destructive and dangerous that unless interpreted

early and treated promptly, the termination will usually be unfavorable. Indeed it has been my experience to see one of these cases diagnosed as rheumatism which, when seen in consultation on the third day, was so hopeless as to forbid any operative treatment and a postmortem revealed pus in four long bones.

I have seen another case on the fifth day of the illness in which the pain had been diagnosed as neurotic in type, in which trephining two long bones revealed an abundance of pus; but the case was so septic that death occurred in a few hours.

I would therefore look upon the early recognition of this disease as being as important as a proper diagnosis in a case of appendicitis or a cholangitis; for, indeed, in the virulent types, death will be as certain and as rapid as it can be from any other trouble.

As to the symptoms then, I would lay great stress upon the pain, its severe, boring and throbbing character. It is associated with pronounced muscular spasms in the adjacent parts and attended by a high range of temperature usually amounting to one hundred and four or one hundred and five degrees.

This fever does not intermit nor does it remit in any marked degree and these symptoms are associated with pronounced constitutional depression, by a demoralization in which the temperament of the patient seems changed.

The sufferer is afraid of everybody, refusing any examination for the reason that the slightest concussion of the badly inflamed limb adds greatly to the pain.

There is a history of rigor, the secretions are impaired, the skin is dry, there is complete anorexia and the patient is unable to assume any position which affords any degree of rest.

Associated with these severe symptoms there may be practically no swelling, no redness and no local evidences except the excruciating pain indicative of the destructive changes that are going on within the bone.

It is true that many cases do not present such exaggerated symptoms and the disease is then recognized by the location of the pain, the continuous type of fever and the local manifestations; viz., redness and swelling which are important diagnostic symptoms in the sub-acute forms of this disease, while in the acute destructive type already described, these symptoms are not prominent simply because the destruction takes the course of least resistance; viz., along the medulla and into the circulating channels.

The fact that this disease has been mistaken for typhoid fever, rheumatism, growing pains and hysteria, is an evidence that its recognition is not always easy, and it is a stronger evidence that more attention should be paid to the study of the symptoms than has hitherto been done, in that it is so destruc-

tive that life may be lost in thirty-six to forty-eight hours unless appropriate treatment has been employed from the very beginning.

The disease with which it is most apt to be found is rheumatism. In rheumatism the pain is not so excruciating as a rule and the distress is referable to the joint with great tenderness over the articulation, while in osteomyelitis the greatest early tenderness will usually be found near the end of the long bone.

In acute articular rheumatism the swelling appears earlier and the fever does not attain such a high degree. It is more remittent in character and the constitutional symptoms are less pronounced. Rheumatism, furthermore. is usually polyarticular and while osteomyelitis may affect different bones, the number of inflammatory points may usually be said to be less than is the case in acute rheumatism.

We would feel therefore that the cardinal symptoms are the severe character of the pain associated with high continuous fever and tenderness near the end of the long bone in a demoralized patient with, as a rule, a history of rapid growth in one whose blood condition and surroundings may reasonably be said to be poor.

Treatment. The treatment which should be employed in any acute case is operative and it should be undertaken as soon as the diagnosis is made. In appendicitis or an acute inflammation involving the gall bladder, this advise has been given, but it is now questioned and even rejected by the best surgeons in that it cannot apply to every case. But in acute infective osteomyelitis there can be no exception to this rule so long as the patient is not moribund.

We have in this disease an haemotegenic infection which increases under the influence of pressure in something like a geometrical progression, until the system succumbs to the poisoned circulation. Therefore, an incision with trephination of the bone should be done at the earliest possible moment, drainage established and strong antiseptics used to impede as far as possible the destructive process already started. Should there be points of tenderness over more than one long bone, each should be trephined and treated energetically with a view to establishing drainage at every point where pressure and cell death are found.

In any case of extensive destruction of the shaft of a bone with sloughing of the periosteum, two methods may be suggested: First, the removal of all the diseased tissue and of all the necrossed bone, that is to say, the accomplishment of a radical operation; and second, of opening the medullary canal and es-

tablishing drainage, disinfecting with strong antiseptics, and assisting nature in the reparative process.

The rule which should guide us in deciding upon the operative plan will depend upon the condition of the patient and upon the bone involved.

If the condition of the patient should warrant a radical operation and the destruction of the bone would seem so complete as to offer no prospects of being regained by nature, then the radical operation may be recommended; on the other hand it is better as a rule to do the less extensive operation in case a long bone is involved, especially if this be the femur or the humorous, as they have no collateral support.

The operative steps, disinfection and the removal of neurotic tissue should be supplemented by the immobilization of the part, by a clean surgical dressing which encourages drainage in the greatest degree (and this the moist) and by general supportive measures with a view of sustaining the heart during the acute depressing stage of this trouble.

The early recognition of this disease will render amputation unnecessary in practically every case; yet with the process involving first the shaft of a long bone, and second epiphysis, and third the joint proper, there may be so much loss of tissue and erosion of the ends of the bones as to render the member practically useless and amputation may be necessary.

The management of the secondary complications. viz., the localized bone abscess, necrosis and sequestra are unimportant in that there is no actual danger associated with their symptoms and their removal may be easily accomplished.

UPON CANCER OF THE RECTUM—ITS TREATMENT.

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The treatment of cancer of the rectum has been extensively discussed within the past decade. Careful operators have recorded their views, and honest efforts have been made to lay down rules, which from individual experience seemed best to conserve the patient's welfare, yet a greater diversity of judgment prevails than would under such circumstances seem reasonable to expect.

It must be admitted in explanation that personal experiences vary; that one observer meets with classes of cases with a proportionately high development of the disease, or that another meets a relatively large number with a malignant development of a slow localized type, in which the fibrous stroma prevails, as opposed to the more rapid ulcerating annular destructive growth which more promptly invades the neighboring organs.

The rapidly destructive nature of cancer in the rectum,* death supervening at an average of seventeen months, with the acute suffering caused by ulceration, obstipation, and mutiple infection, suggest a reason for interference, although the operation be comporatively formidable. We will assume that the growth is operable; yet we may at this point include remarks upon the palliative or complementary treatment of colotomy.

Julliard† says: "The artificial anus offers the following advantages, (1.) A certain disinfection of the lower segment of the bowel. (2.) Protection of the ulceration from fecal infection. (3.) The question of nutrition is more simple, due to the hygiene of the bowel through the new opening. (4.) The relief of irritation from rests to the diseased segment. (5.) The opportunity for radical removal is advanced by the improved

*Jessop, British Medical Journal, 1889, page 407.
†Centralblatt für Chirurgie, June, 1899, No. 25.

condition of the patient." The author argues in favor of the inguinal method on account of the ease and greater certainty in reaching the descending colon, and of the facility of subseqent disinfection of a distal segment of the bowel which may be flushed from above.

Three months may be considered in deciding upon total excision of the malignant mass:

First—The posterior or sacred method of Kraska.

Second—The anterior or vaginal.

Third—The combined abdomino-sacral, lately suggested by Kraska.

The well-established rule of applying the sacral method of attack to cases in which the digital exploration reaches above the disease will in all probability stand as the method of choice, yet when the infiltration is limited to, or most extensive anteriorly, the vaginal route offers opportunities which may designate this as the most feasible one. It must appear, however, that in a reasonably large series of cases the vaginal operation will be employed less frequently than the above named.

The most discouraging type of this disease is that in which the malignant deposit is located high up in the rectum, with infiltrations beyond the limitations of digital search. For this Kraska has with courage suggested and successfully employed the abdomino-sacral route, the essential steps of which are as follows:*

"The abdomen is entered by an incision an inch and a half above and parallel to Poupart's ligament. In Trendelenburg's position the healthy bowel is displaced by gauze, the peritoneum with meso-sigmoid incised above the growth, bleeding controlled, and the rectum isolated by blunt dissection. The partially excised upper rectum is then well packed from above and the patient placed in a lateral position for the lower (Kraska) sacral operation, which allows of excision of the entire diseased portion and the accomplishment of an anastomosis conserving the natural outlet or of completing an artificial inguinal opening."

For this very radical method it is claimed by Kraska that less bleeding and greater immunity from peritoneal infection is attainen, from the clear exposure of the successive steps of the operation. The proportion of cases in which a high development of disease is found, and the fact that the combined method has been successfully performed, argues in its favor and with some weight, when it is remembered that the original Kraska operation has been very stubbornly antagonized, yet the increasing report of successful cases with cures beyond the usual limit has grown to include a number sufficiently large as to combat

*Sommer, Medical Kecord, August 12, 1899.

adverse theory and argument by the existence of useful and comfortable members of society who have passed through this mooted treatment.

Individual reports, when the cases are comparatively few, are insufficient data for general conclusion, yet they should be added to the record that a complete analysis, embraciug the results in different hands and under varying circumstances, may be made and trustworthy rules formulated. Five cases of advanced malignant disease of the rectum have come uuder my observation in which no operative treatment was employed, either for the reason that palliative measures seemod inadvisable or were declined by the patient. Seven cases have been treated upon palliative lines, in each one of which the inguinal colotomy was performed, with the result that considerable comfort was gained during the few weeks or few months of the remainder of their lives. Three cases have been treated by radical measures, with the following outcome:

CASE 1.—Male, aged 28; was operated upon by the sacral method in April, 1894. The middle and lower porations of the rectum were excised and the upper segment sutured within the sphincter. After a tedious recovery, the patient remains well at this time, with good control of the bowel and no evidence of recurrence.

A second case, in which a vaginal excision of the middle portion of the rectum was made one and a half years ago, with restoration of the continuity of the bowel, and at this time she is free from return.

In a third case a sacral incision was made in a female, who presented a mammary scar, the result of a removal of a growth, called malignant, in that location fifteen years before. The middle and lower portions of the rectum and posterior vaginal wall were excised and an artificial anus made at the side ef the sacrum by the employment of artificial volvulus (Gerster) and suture of the bowel at this point. This operation was performed December 28, 1898, and up to this time the patient is well and has good functional control of the bowel.

TREATMENT OF HERNIA IN THE AGED.*

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Hernia in the aged attains a position of clinical importance, first, on account of its comparative frequency; secondly, on account of the increased suffering and actual danger associated with its presence. The muscular atony of advanced years, with accumulated adipose tissue, practically limited in many cases to the abdomen, added to an increased abdominal pressure, in prostatiques, or in ptosis of the abdominal viscera from relaxation of the unstriped muscular tissue, which connects the base of the mesentery to the abdominal wall (muscle of Treitz), aid in destroying the integrity of the deep fascia or in widening a breach already existing.

We may look upon the above-acquired causes as of special significance in the hernia of advanced years, which, if associated with constipation, late gestation, chronic cough, or persistent meteorism, may seriously complicate an existing hernia or develop a new one.

Prophylactic measures are mentioned here mainly to emphasize the necessity for their employment. A dietary which will reduce weight and aid in hygiene of the bowels, combined with efforts to alleviate the distress of an hypertrophied prostate, or a chronic bronchitis or an intestinal fermentation, will come within the domain of first aid—yet the predisposing causes already exist, and the exciting causes cannot be readily, or in some cases possibly, controlled.

It is in this class of cases that radical steps must he sometimes employed, and our increased observations point to the conclusion that old age per se is not a contraindication. The kidneys, the blood-vessels, the heart, and the individual resistance must be carefully considered; yet with organs doing good func-

*Read before the Medical Society of the Missouri Valley, Council Bluffs, Ia., September 21, 1899.

tional work, an operation may be conservatively advised. In the male, as pointed out by Ochsner, the greatest good can be accomplished by a unilateral castration, which facllitates the repair of the inguinal region and assists, in ihe majority of cases, in abating the prostate obstruction.

As to selection of methods, no set rule nor one-idea feature should be employed at the expense of general surgical principles based upon good mechanics and clean work. The operator who clearly comprehends the Bassini operation is, I think, well prepared for any case, yet modifications may be permitted or essential in an extensive experience. Clear exposure of the internal ring by a high incision is the first and a leading feature of this operation. Deep expossure of the hernial sac, its excision and suture, as opposed to ligation and excision, is a method which we have long employed, and which is a departure from the usual surgical practice, judging by descriptive reports. Yet I look upon this as a distinct gain over the method which constricts tissue to atrophy in the face of conditions, which, by slight error from the exact limits of a sepsis, could lead to cell death of a destructive character. Coaptation of the layers by moderate tension sutures of absorbable material, with particular care directed toward careful apposition of the fascial planes, are features of the first importance; as primary union is essential, not only as a barrier against danger from tbe operation, but against a return of the hernia, probably more serious in character than the original.

That nature aids very efficiently in correcting the distortions of tissue, in tbe neighborhood of the ring and canal, is demonstrated by the excellent permanent results of Anderson, in his work at St. Thomas' Hospital, London. This operator makes a clear exposure and excision of the sac within the internal ring; then clears the canal of any fat or intervening tissue, sutures the skin and allows nature to close the muscular and fascial layers. While it would not seem wise to follow this method, yet it is an argument in favor of careful and natural apposition with moderate tension of the tissue layers, and of removing any impediment in the shape of serous or plastic or fatty material along the canal. It should be mentioned that a relatively protraeted period of preparation for operation is necessary, in cases of hernia in advanced years, for the reason that secretions are more sluggish. Elimination is slow and autointoxication is more apt to occur. Should the protrusion attain to any considerable size, the patient should remain in bed, with the hernia reduced for a reasonable time, that the new visceral relations may be assumed naturally and without force.

A report of cases would add nothing to the general rules unless some feature of these cases showed unusual conditions.

In two cases over 80 years of age with large painful hernia, increasing in size, the following conditions were found:

Case 1 showed such marked attenuation of the muscular and aponeurotic layers as to render difficult their identification, and the canal contained a large fatty tumor, originally omentum, the removal of which was more tedious than would ordinarily be expected. Fifteen months later this unilateral castration and radical cure were found to show improvement in the bladder symptoms and a cure of the rupture.

In case 2 an operation for strangulation had heen done two years before, and the testicle removed. Incision of the sae revealed a large number of small peritoneal cysts, and the cavity contained a large amount of ascetic fluid. An incision of the thickened omentum and complete closure of the abdominal wall was followed by primary union and absence of return of the rupture, yet the period is less than one year, and the result cannot yet be accorded permanent.