did not accept my advice, which at that time I believe was in accordance with the view of the majority of urogenital surgeons, and perhaps now. The wound in the side healed up firmly, and the patient has remained quite well and has borne several children. This is a significant example of the curability of tubercle in organs which are easily removable, and perhaps too often removed. The other case was that of a practitioner, who removed a kidney that he thought had been irretrievably damaged by calculi; it turned out to be the only kidney the patient possessed.

In all the kidney cases of the above nature I thoroughly and forcibly mop the removable material from the interior of the cavity and wash with iodine.

Urethrotomy.

Since I introduced into my practice the method of injecting tincture of iodine forcibly by a glass syringe half full of air, both before and immediately after performing urethrotomy, I have not been worried with "urethral fever" or other symptoms of septic absorption from the wounded urethral canal.

Prostatectomy.

At the annual meeting of the British Medical Association in Toronto (1906) I advocated the plan of performing prostatectomy in two stages in cases where patients suffered severely from toxæmia, partly on account of the fact that an operation created additional raw surface, through which an additional dose of septic matter took place at once; this, in my opinion, too frequently turned the balance against the patient. Since that time I have given up the operation in two stages (*à deux temps*), because I have improved the technique in the direction of prevention against the immediate absorption from the raw surfaces made at the operation. This is done in the first place by a preliminary injection of an ounce of tincture of iodine into the bladder before distending it with air; by my combined method of performing prostatectomy, which usually takes only a few minutes, I have been able to save several moribund patients since the introduction of the free use of iodine—one was an octogenarian with calcified arteries, which showed almost like stems of "churchwarden" pipes upon the radiographic plate.

Rectal Operations.

After thoroughly mopping the mucous membrane—for example, in operating for hæmorrhoids—I swab the mucous membrane with iodine, and then pass an anchored iodine-soaked mop up the rectum for about six inches. This prevents a possible infection of the field of operation; when the operation is finished the mop is pulled out.

Psoas and Iliac Abscess.

Lastly, I should like to draw attention to the following method of treating psoas or iliac abscesses which have not been previously incised nor broken down spontaneously. After opening the abscess in one or more places, according to the requirements laid down by Treves many years ago, I complete the evacuation of the pus and of the lining membrane in the thorough manner which he advocated. I then flood the whole of the interior of the cavity with tincture of iodine, and then mop it dry; afterwards the whole cavity is plugged firmly with a roll of sterile gauze, and the wound closed by mass sutures. The patient is then swathed in cotton-wool, and bandaged firmly in order to keep pressure from without upon the dressing within. On the second day the mass sutures and the gauze are removed from the cavity, and the wound is closed "in tiers," as in the ordinary operation for hernia.

I have twice performed this operation with success upon double psoas abscesses, but not at one sitting.

Every surgeon suffers more or less from what may be called "the dread of skin," and in my case the cult of iodine has developed to such a degree that I venture to record the way it has almost imperceptibly evolved.

THE Research Defence Society has opened a bureau at 171, Piccadilly (opposite Burlington House), for the exhibition of pictures and specimens and the distribution of literature.

ABERRANT AND RECURRENT OSTEOMYELITIS.

BY

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UNDER the heading of "Acute Epiphysitis," a very instructive article appeared in the JOURNAL of July 20th, 1912, by Mr. Charles M. Kennedy, F.R.C.S., and I venture to publish the notes of three cases occurring in my practice, which support and partly supplement the conclusions arrived at by him. Mr. Kennedy applies the term "acute epiphysitis" to that acute destructive inflammation of the growing end of bones usually due to virulent infection by the staphylococcus. He dislikes the term "osteomyelitis" as applied to that disease, because it is vague, and though admitting that "epiphysitis" is a misnomer, he prefers it on account of its convenience. I prefer the term "osteomyelitis," which, although it covers conditions other than the disease above mentioned, has the merit of being a more exact description of the actual pathological condition. It is the name used by the Glasgow school of surgeons, and favoured particularly by Sir William Macewen, whose work in connexion with the disease is well known. In my opinion "epiphysitis" holds the same relation to "osteomyelitis" that "typhlitis" did to "appendicitis." Both are misnomers, are incorrect, and ought not to be used; the names of medical and surgical diseases should be made to indicate, as nearly as possible, the exact anatomico-pathological condition of the structures involved.

CASE I.

H. M., a boy aged 14 years, came under my notice on February 28th, 1911. He had a rigor two days before, and complained of pain at the upper part of the right thigh, made worse by walking or standing. His temperature was 103° and pulse 120. His face was flushed, the eyes bright, and tongue coated with a dirty white fur. The urine was distinctly albuminous. Physical examination revealed a spot of definite tenderness at the upper part of the thigh just below the middle of Poupart's ligament. Percussion of the outer side of the right trochanter also caused pain in this part. The hip-joint moved freely and without pain in all directions, except for slight adductor spasm when the thigh was abducted. There was no swelling or discoloration of the skin over the painful area. None of the other joints were swollen or painful, and apart from headache he made no complaint of pain in any other part of the body. The heart sounds were quite clear. On the face, chest, and back brownish stains and flat adherent scabs, due to impetigo contagiosa, were discovered. I suspected he was suffering from acute osteomyelitis of the upper part of the right femur, and asked a surgeon to see him in consultation. The latter concurred in my opinion, but, as the local signs were somewhat abating, it was considered advisable to wait and watch how the symptoms progressed. The following day, as the boy's general condition had not improved, the temperature being still 102°, I sent him to the Royal Alexandra Infirmary, Paisley. Owing to the doubtful nature of local signs at the upper part of the right femur, operation was again deferred, but two days after I received a note from the surgeon saying that he had been obliged to operate on the left tibia, where he found about a pint of pus under the periosteum, which was completely stripped from the shaft. No complaint of pain in that region had been made by the boy either before or after entering the hospital, and the condition was only discovered by the surgeon himself in course of his examination. After operation, slight pain continued in the upper part of the thigh, but no further advance of symptoms took place here. The temperature remained at 102°, pulse 112, and signs of pyæmic infection of the lungs occurred, from which death took place about three weeks after admission to hospital.

Mr. Kennedy, in his paper, mentions cases which are admitted to hospital with pyrexial symptoms and a tender spot. These are entered as "epiphysitis," and if they recover, as sometimes happens in a few days without operation, they are then most probably ascribed to mono-articular rheumatism. The case above reported, no doubt, would have been classed as "epiphysitis" of the upper part of the right femur, but the occurrence of definite symptoms of acute osteomyelitis of the tibia of the opposite leg makes it more than probable that there was a primary focus of osteomyelitis in the upper part of the right femur, which although it, in a manner, abated or retrogressed, was undoubtedly responsible for the subsequent infection of the tibia. The simultaneous occurrence of impetigo contagiosa on the skin, when the bone symptoms developed, is a striking illustration of the theory that skin lesions are the chief sites of entry for the organisms (staphylococci) of acute osteomyelitis, and

the subsequent development of the disease in the left tibia, at a situation far removed from the primary focus in the femur, is strong evidence of the extreme vulnerability of growing bone tissue to staphylococcal infection without previous trauma. The case above reported is of an unusual and aberrant type, but Sir Hector Cameron has described a case still more unusual: a man, aged 25 years, developed an abscess in the left leg, due to staphylococcal osteitis of the left tibia, eight years after having had his right leg amputated for acute osteomyelitis and necrosis of the right tibia.

Acute osteomyelitis is one of the most formidable diseases of childhood, and entails considerable loss of life and limb. The suffering during the acute stage is very great and the convalescence after operations on affected limbs is very tedious. Much deformity as a rule results in those cases in which bone loss has been great as a result of necrosis, and it is in cases such as these that a successful bone-grafting operation gives excellent results. The operation of transplanting bone removed from tibias on which osteotomy had been performed was first performed by Sir William Macewen in the case of a boy who had lost the shaft of his humerus by necrosis due to acute osteomyelitis. This operation was attended by brilliant results, and although Macewen's conclusions—namely, that bone forms bone and the periosteum has little to do with the process of repair—have not been accepted by all surgeons, others have followed his teaching, and many cases of successful bone transplantation have now been recorded. In a case of necrosis of the whole diaphysis of the tibia, due to acute osteomyelitis, I have seen the fibula split longitudinally and a portion laid in a bed of granulations springing from the tibial epiphysis, with the result that a large portion of the lost tibia was regenerated. Unfortunately, the sufferings of those afflicted with osteomyelitis do not always end when the acute disease has been successfully combated. Sir Hector Cameron says:

Few patients pass through a serious illness of this kind, especially with necrosis and formation of sinuses in such important bones as the femur, tibia, or humerus, without having relapses, sometimes numerous, and often very severe in character.

These relapses may take place years after, with intervals of good health between them, and they may persist, off and on, till a very advanced age. I give below the notes of two cases of recurrent osteomyelitis, which illustrate the relapsing nature of the disease.

CASE II.

J. L., aged 38, a shepherd, came to me on July 13th, 1908, complaining of pain and stiffness of the right leg on walking. On examination I found that the lower third of the right femur was markedly thickened; there was a depressed adherent scar, 2 in. long, situated on the inner side of the lower third of the thigh. The skin around this was thickened and stained a brownish-red colour; deep pressure over the scar region revealed a spot of distinct tenderness; there was no fluctuation, although the skin and underlying tissues were much swollen, and he had no fever; his general health was apparently good. He stated that he had suffered from bone disease in the part complained of when he was 10 years old, and that "little bits of dead bone had come away" then. Six years before I saw him he had an abscess in the part complained of, which was treated in the Royal Infirmary, Glasgow, but no bone was removed. I diagnosed his condition as chronic osteomyelitis with an acute exacerbation and ordered him to lie up and rest his leg for a week or two. Hot antiseptic fomentations were applied to the inner side of the thigh over the painful area. He did not improve; his temperature, previously normal, rose to 101° F., and the area of redness and tenderness increased. A large bulla formed over the scar area; this was opened and dressed antiseptically; it contained only clear serum. I expected to find an abscess form and point at any time, and at every visit I went prepared to have to open it. His condition remained unchanged for three weeks, when I tried, under Sir Anthony Bowlby's recommendation, the effect of 15-grain doses of potassium iodide t.i.d. and mercurial ointment applied on flannel to the painful part. He began to improve shortly after, and the pain and tenderness subsided, so that he was able to resume his occupation. The swelling also diminished, but the area round the scar remained firmly indurated.

The slow progress of this case meant a period of over twelve weeks' disablement for the patient, and though his painful symptoms subsided without requiring operation, I have no doubt that his leg will again prove a source of trouble to him. Sir Anthony Bowlby, who happened to be resident on holiday in the district at the time, very kindly offered me his opinion on the case. I had been

rather puzzled owing to its rebellious nature, and feared that a sequestrum was forming and the inflammatory symptoms had developed in the process of separation. I remember Sir Anthony Bowlby then informed me that old-standing cases of osteomyelitis frequently gave trouble in after-life, and his opinion was that the periosteum at the seat of the old disease was in a spongy, hypervascular condition, which readily gave rise to subperiosteal haemorrhages, as a result of slight injuries. Suppuration did not always ensue, although the parts frequently appeared on the point of breaking down. He related the case of a patient on whom, when a boy at Eton, he had operated for acute osteomyelitis of the humerus, and who had frequent relapses in later life, when the parts around the seat of the old disease assumed a very threatening appearance. I am much indebted to Sir Anthony Bowlby for his kind assistance in the case above mentioned, as well as in other cases in which he favoured me with his advice.

CASE III.

J. W., aged 24 years, a law clerk, came to me on February 8th, 1912, complaining of weakness of the right arm and hand and pain and tenderness at the upper and inner side of the right humerus. On examination I found the right arm about 3 in. shorter than the left. The muscles of the arm and forearm were atrophied, and the limb looked very much stunted, and was carried in a limplike condition at the side of the body. There was a scar about 3 in. long situated on the upper third of the right arm at its inner side, and pressure over this revealed a spot of tenderness. The movements of the shoulder-joint were quite free, but caused some pain at the seat of the scar. He said that when he was 12 years old his arm first began to trouble him, causing him great pain, and that the scar on the inner side was the result of the opening of an abscess in that situation by the doctor who attended him. Previous to the onset of this trouble his right arm was the same length and as strong as the left. His present condition was unaccompanied by fever, although the skin around the old scar was reddened and tender. He had been lifting some heavy ledgers the week before he came to me, and blamed that as the exciting cause of his condition. Two years before he came to me he had been in the Paisley Infirmary under the care of a surgeon there. He said that his arm was x-rayed, but no operation was performed, and he was discharged without any improvement. I advised him to rest the arm in a sling, and, by the use of potassium iodide internally and mercurial ointment applied locally on a piece of flannel, the inflammatory symptoms subsided, but the weakness of the arm and hand still remained.

This was another instance of recurrent osteomyelitis. The shortened arm was, no doubt, the result of injury to the upper epiphysis of the humerus at the time of his first attack. No operation on the bone was done on that occasion, and it is just possible that, if the bone had been trephined and the medulla curetted, his epiphysis would have been saved. The disastrous results to the arm in this case are a serious lesson that periostitis with abscess, in the limb of a growing boy, should always be regarded as strongly suspicious of accompanying osteomyelitis, and treatment ought not to end in simply evacuating the abscess, but search should be thoroughly made for a primary focus of osteomyelitis in the bone shaft on the diaphyseal side of the epiphysis.

The two cases reported above serve to show that in bones previously affected with pyogenic organisms the organisms may still persist in the parts, and give trouble years after the primary disease has subsided and the patient thinks himself quite free. In a lecture entitled *Clinical Illustrations of the Persistence of Disease Germs in the Human Body*, Sir Hector C. Cameron says:

I do not think it is sufficiently appreciated what a lifelong trouble this infantile infective disease of bone often proves itself, laying a man aside from business time after time during his life. Twice I have seen men over 70 years of age laid up by most serious and painful abscesses, occurring in each case in connexion with a tibia from which in early life numerous and large sequestra had separated and been removed after long-continued suppuration. In each the tibia was greatly deformed and showed the depressed scars of many old sinuses, and more than one relapse had occurred during the long life of both men. But recurrence is not always confined to the part in which the primary infection takes place. It may occur years afterwards in another part of the body.

I have never used any antistaphylococcal serum in the treatment of relapsing osteomyelitis. In acute cases it is said by those who have tried it to be of no value. It certainly could not take the place of incision with the knife, but in the recurrent type of case, such as the last two described above, it would probably have some value and would be well worth a trial.