CASE OF BISMUTH POISONING.

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IN view of the value of bismuth injections into tuberculous and other cavities and sinuses, and their subsequent radiography for purposes of diagnosis, the following case will interest both surgeons and x-ray workers.

E. M., female, aged 21, developed a synovitis of the right knee after a cycling accident on July 22nd. There was a good deal of bruising at the time, but no abrasion of the skin. Three weeks after the accident, as the knee was not improving, her doctor made an exploratory puncture with a hypodermic syringe.

Three days later (August 13th) she was admitted into hospital. Her temperature was 102.4° and pulse-rate 134, tongue foul, and diarrhoea, which had lasted for a week, rather profuse.

The joint was opened on both sides of the patella on August 14th and drained. The abscess cavity went far up the thigh, and beyond the reach of an ordinary spoon. The pus contained a "short streptococcus."

There was very little discharge for the next day or two, but the temperature, which fell after the operation, again rose to 101.4° on August 19th, and more pus was evacuated from the thigh.

On August 22nd, through the outer incision at the knee, 3 oz. of a 33 per cent. mixture of bismuth subnitrate in vaseline was injected for therapeutic purposes.

On August 26th a new abscess was opened over the head of the fibula, but no bismuth exuded, only pus. All the openings had closed by September 2nd, but some deep fluctuation could be made out in the thigh. As the temperature remained normal, this was thought to be due to the bismuth solution.

The outer knee wound opened again on September 7th, and about 6 oz. of pus mixed with bismuth and vaseline came away.

On September 9th—that is, about a fortnight after the first injection—a second injection of about 4 oz. of the bismuth mixture was given. This was allowed to come away by the pressure of the tissues, and the wound was then dressed.

By September 15th the wound had closed, but fluctuation could still be made out in the thigh. There was absolutely no pain and no fever, and at the patient's request the splint was left off.

On September 20th the knee wound again burst and discharged thin pus, and at the same time a periosteal abscess over the lower part of the tibia was opened by a puncture incision, evacuated, and the cavity filled with bismuth solution.

For the next ten days there was some discharge from both knee and tibia, and after this the lower wound healed completely.

September 27th. The patient now for the first time complained of some painful ulceration of the tongue, and was given a mouth wash of formalin. The discharge from the knee was mainly bismuth and vaseline and occasionally a little pus.

As she had a tuberculous family history, the Calmette test was tried and gave a very positive reaction.

The mouth soon became very painful, but there was nothing peculiar except the very fetid odour till October 10th, when a marked bluish-grey line, about $\frac{1}{8}$ inch wide, was noted opposite the central lower incisors and more faintly as it disappeared along the margin of the jaw on either side. This condition became rapidly worse, and spread along both gums and back on to the soft palate and pharynx. The teeth became quite loose, the gums spongy and sore, and the breath very offensive. The bluish-grey line extended on both sides of and between the teeth, and on to the adjacent lips and tongue and cheeks. There was no headache except on one evening, no albuminuria, and no stomach symptoms, but the pulse was weak and rapid—once 120 a minute for a whole day, when she looked extremely ill. The mouth wash was changed to one of potassium chlorate, and potassium iodide was given internally. I suspected the bismuth, but, as I could find no note of such condition in any book in my possession, I concluded that there was probably some impurity

in the bismuth, and on October 15th evacuated the thigh cavity and scraped away all the bismuth, which must even then have been in fair quantity, judging from darkening—shown in the accompanying radiogram, which was taken on October 13th. The whole under side of the tongue and lips were now quite black. I thought also of poisoning from oxidation of the metal of the syringe used, but on referring the matter to Professor Marshall he kindly supplied me with some references to similar conditions noted by Meyer, Kobert, and Lewin some twenty-five years ago. He also saw the patient with me, and was quite positive that the case was one of pure bismuth poisoning.

On October 26th the bluish-grey line was still quite marked, but it was fading, and the leg had not discharged any pus through the tubes, but the dressings were stained black, and so were the outer ends of the drainage tubes. These were removed. The ulcers of the tongue had healed, and the teeth were beginning to get firmer and less painful. The pulse-rate was below 100. There had been no rise of temperature above 100°, except on the one occasion noted, since the first operation.

It is evident from the above that bismuth injection is not quite safe, though I had used it many times before with not only no bad effects, but with remarkable efficacy both for diagnostic and curative purposes. I have looked

into the literature more carefully, and find that poisoning from its surgical use is mentioned by several recent writers, the symptoms given by Cushny and Stevens being those observed in my own case, except the gastrointestinal troubles, which were absent. There was no diarrhoea, and only slight anorexia. It is possible that it is only in large cavities and in acute infections that any harm will result, but I have seen enough to make me hesitate to introduce very much of this 30 per cent. solution, and I should not care to leave it in for its curative action again. The line on the gums was no doubt due to a foul and septic mouth—a form of sepsis not sufficiently feared by nurses and surgeons—and the formation of sulphide of bismuth from the H_2S of decomposition, but the loosening of the teeth and the other symptoms of poisoning must be put down solely to the bismuth itself. It is also probable, since bismuth can be detected in the urine, as shown by Wood and others, shortly after the

oral administration of the drug, that poisoning might be caused by the heroic doses now being administered in this way for diagnostic purposes. In fact a few cases are already on record. Caution will have to be exercised in giving it by either method for purely diagnostic purposes.

A BUILDING intended to serve the purpose of a medical institute for women has been erected at Kieff.

THERE was a very representative gathering at the annual meeting of the British Medical Temperance Association in the rooms of the Medical Society of London on Friday, November 20th, 1908. The President, Professor Sims Woodhead, who occupied the chair, paid a warm tribute to the services of the late Dr. J. J. Ridge, who had acted as Honorary Secretary of the Association for thirty-two years. A discussion followed on the future work and aims of the Association. The policy outlined was that the Association should be strictly medical and non-political, working for the advancement of knowledge of the medical and scientific side of the alcohol problem. It was announced that the *Medical Temperance Review* would be continued and published quarterly. The Association has 671 members and 237 student associates.