BACTERIOLOGICAL NOTES ON A CASE OF
TROPICAL ABSCESS OF THE LIVER.By ALLAN MACFADYEN, M.D.,
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NUMEROUS researches have abundantly proved that in a large number of cases of dysentery amœbæ are to be found in the intestine. Similar amœbæ have also been found in the liver abscesses of dysenteric cases. Dr. Kartulis, of Alexandria, found amœboid organisms in more than 500 cases of dysentery.¹ The amœbæ were likewise found by him in dysenteric liver abscesses. In 13 cases of liver abscess a bacteriological examination was made. In 3 of the cases staphylococci were isolated from the pus; in 1 case the bacillus fœtidus, and in another the proteus vulgaris. The remaining cases gave negative results. Kartulis suggests that the amœbæ and the bacteria find their way into the liver through the portal vein, and that the pyogenic bacteria excite suppuration in the liver as a result of the lesions previously induced by the amœbæ.

Osler² found large numbers of amœbæ in the pus of a liver abscess, and in the dysenteric evacuations of the same patient. The disease had been contracted in Panama. The organisms were similar to those described by Kartulis. Another case of dysentery is recorded by Dr. Lafleur,³ of Baltimore, in which amœbæ were present, not only in the stools, but also in the liver abscesses. An abscess in the lower lobe of the right lung contained amœbæ. They were also found in the sputum; no doubt as a result of the lung infection. A number of cases that yielded similar results might still be quoted. These instances will suffice to show that in tropical dysentery and its complications amœboid organisms are so constantly met with that they may possibly be the factor, or one of the factors, in the causation of the disease. Kartulis believes that the amœbæ found by him are the cause of tropical dysentery. Osler, in the paper already cited, quotes the following remarks of Baumgarten on Kartulis's observations:

We regard it as unlikely that the amœbæ could cause all of the conditions in the dysenteric processes. We have no analogy to show that amœboid parasites can induce ulceration, and we rather believe that the pyogenic organisms, well known as exciters of ulcerative processes, are concerned with the amœbæ in the causation of tropical dysentery.

Cunningham and Grassi do not ascribe any pathogenic action to the amœbæ found in the diseased digestive tract; amœbæ have also been found in the normal intestine. In the absence of trustworthy animal experiments one cannot yet say whether the organisms are pathogenic and the cause of the disease or simply harmless parasites.

Councilman and Lafleur,⁴ in a paper entitled "Amœbic Dysentery," furnish a very full and complete discussion of this question. In addition to their own investigations a most complete bibliography is given. They hold that the pathology, etiology, and clinical history of amœbic dysentery separate it from other affections in the intestine, with which it has hitherto been classified under the general name of dysentery. The ulcers in the colon generally differ from those found in any other forms of dysentery. The ulceration is produced by infiltration of the submucous tissue and necrosis of the overlying mucous membrane. The ulcers have in consequence an undermined form. In the lesions, unless complicated by the action of bacteria, there is an absence of the products of purulent inflammation. Abscess of the liver, with or without lung involvement, is a more frequent complication than in other forms of dysentery. The amœboid organisms were found at the bases of the ulcers. As regards the liver abscesses the lesions differed from those produced by bacteria, and no pus organisms were found. The abscesses, on the other hand, contained amœbæ unassociated with any other organism. This is the form of dysentery commonly called tropical dysentery, and its cause, according to Councilman and Lafleur, is the amœba dysenteriae. In all the investigations mentioned above in which amœbæ were found in the liver abscesses, there were also dysenteric lesions of

the intestine. The amœboid organisms had wandered from the intestine to the liver, and produced, according to Councilman and Lafleur, a secondary infection of that organ. But the so-called tropical abscess of the liver may be unaccompanied by any dysenteric affection of the intestine (Murchison, Fayrer); and Councilman and Lafleur remark that "Whether or not amœbic organisms are capable of producing the abscesses of the liver so often met with in the tropics without any ulceration of the intestine, must still remain *sub judice*."

A case that I had an opportunity of examining may perhaps aid in the elucidation of the point. I have to thank Dr. G. Thin for kindly drawing my attention to the case, and also Mr. Knowsley Thornton for placing the material at my disposal. The case was that of a gentleman invalided home from India. The diagnosis was made by Dr. Thin of a large hepatic abscess, and an operation decided upon. There were no dysenteric complications, nor could any history of dysentery be traced. The abscess, which was opened by Mr. Thornton, was a large single one, situated in the right lobe of the liver. When it was opened samples of the pus were collected in sterilised tubes, and immediately examined. The pus had a pinkish tinge, and contained liver tissue debris, blood cells and pus cells.

A careful microscopical examination was made for amœboid organisms, but the results were entirely negative. On the other hand, the fresh and stained specimens that were made contained numerous staphylococci. They were the only organisms detected in the pus. Plate cultures were at the same time made from the pus. The pus was also directly smeared on potato and on agar-agar, and the tubes so inoculated were kept at blood heat. On the gelatine plate cultures numerous liquefying colonies developed. The macroscopic and microscopic appearance proved that they were colonies of the staphylococcus pyogenes aureus. The potato and agar-agar tube cultures also gave a pure growth of the same organism. Finally, an animal experiment that was made conclusively proved that the organism was the pyogenic staphylococcus aureus.

The examination of this case of tropical abscess of the liver gave, therefore, the following results. The pus contained no amœboid organisms. The only organism found in the pus was the staphylococcus pyogenes aureus, and from the pus pure growths of the staphylococci were obtained on the culture media. There being no history of dysentery in this case, the bacteria did not probably find their way to the liver through the portal vein. They may have gained access to the liver through the bile channels, helped perhaps in their progress there by some diseased condition of the bile duct.

If the above results are confirmed by further examination of similar cases, we may then regard such forms of liver abscess as due not to amœboid organisms, but to a simple invasion of the liver by pyogenic micrococci.

Under Mr. Thornton's care the patient made a perfect and uninterrupted recovery, and has continued in good health.

FATAL CASE OF SNAKE-BITE IN SOUTH
WALES.

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THE interest attaching to snake-bites in general, and the comparative rarity of the occurrence of fatal effects from the bites of snakes peculiar to this country, will doubtless prove sufficient apology for the publication of the following case:

A. B., aged 11½ years, whilst playing on the side of a mountain in Glamorganshire on June 3rd, 1893, was bitten by a snake. He saw a bird resting on a fern, fluttering its wings; for the purpose of capturing it he extended his hand, and was immediately bitten by a reptile lying concealed. The bite was at once sucked by someone who had witnessed the incident, and the boy ran homewards.

¹ Virchow's Archiv, vol. cxviii.² Johns Hopkins Hospital Bulletin, 1890.³ Ibid., 1891.⁴ Johns Hopkins Hospital Reports, 1891.