ON A CONDITION OF THE URINE MET WITH IN PHTHISIS.

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WHILST looking out for the dark-coloured urine sometimes found in pernicious anæmia, I examined the urines of some other patients, especially those with phthisis, as I happened to have several of them in the hospital at the same time. The urine of nine phthisical patients was examined. Two showed nothing abnormal, but I found with the remaining seven the urine often remained acid a very long time, in some instances as long as four months, and many specimens gradually became of such a dark blackish-brown colour that, when seen in quantity, the fluid appeared quite black. These two phenomena may be described separately.

The Acidity.—Out of 182 specimens examined, 4 remained acid for over 100 days, 3 between 50 and 100 days, 14 between 30 and 50 days, 24 between 20 and 30 days, 19 between 15 and 20 days, 32 between 10 and 15 days, 50 between 5 and 10 days, and 36 less than 5 days. These figures are sufficient to show that the urine from these patients remained acid much longer than most urines would have done. This is especially marked in Cases IV, V, VI, and VII. Thus in Case IV more than half the specimens remained acid more than three weeks; in Case V, 4 of the specimens remained acid over four months; in Case VI, 14 specimens remained acid over 20 days; and in Case VII, 5 out of 13 specimens remained acid over 20 days. In Case VI the amount of acidity of some specimens was tested with a decinormal solution of caustic soda, and it was found that 10 c.c. of urine usually required from 7.0 to 1.0 cc. of the caustic soda solution to neutralise it when it was first passed, and that the acidity gradually decreased day by day until the urine became alkaline. Usually 10 c.c. of urine requires from 3 to 4 c.c. of a decinormal solution of caustic soda for neutralisation, but of course this must vary very much, depending upon the diet and the amount passed. For these reasons, and also because it happened that the specimens examined for acidity did not chance to be those which remained acid for a very long time, I do not think these observations on the degree of acidity are of much value, but at any rate they do not indicate a very great excess of acidity in the particular specimens examined.

All the urines were left at the temperature of the ward, and freely exposed to the air to begin with, but, if they were being kept for a long time, they were ultimately transferred to stoppered bottles in order to prevent evaporation, but the bottle was always so large that the urine never occupied more than a third of it. Nine specimens of urine from Case No. VI were put into an incubator at a temperature of 35° C.; two went acid in a day, four in three days, one in eight days, and two in ten days. Those which kept acid over a week became very dark. We thus learn that the acidity may persist some time in spite of a high temperature.

The sediment which formed in the acid urines consisted of amorphous urates with abundance of uric acid crystals. If the urine had remained acid some time abundance of yeast-like micro-organisms could be found in it, but very few bacilli. On the other hand, urine which had undergone ordinary alkaline decomposition showed very few yeast-like organisms, but plenty of bacilli. It is thus seen that, in many respects, the changes undergone by these urines are the same as those commonly described under the name of acid fermentation, for in that condition the fluid remains very acid, and even increases in acidity, there is a precipitate of urates and uric acid, and a yeast-like micro-organism is commonly present. Our knowledge of acid fermentation, and of the condition I am describing, is too slight for us to be sure of their identity. Most of the urines which remained acid some time developed a very peculiar smell; it was not absolutely repulsive and disagreeable, but resembled the smell of certain rotten cheese. Some who smelt it compared it to the odour which may be detected in sewage works in which sewage is undergoing purification.

The Change of Colour.—Many of the urines which remained acid for some time gradually became darker and darker, until at last they were, when seen in bulk, quite black, but a dark brown in thin layers. This change usually took a month or more. Not all the urines which remained acid got darker, and many which became somewhat darker did not reach the black stage. If a urine, which was darkening, turned alkaline, it often continued to darken after the change in reaction. When once the urine had become black, it remained so, even if kept for nearly a year. The cause of this darkening is obscure. It is not due to pyrocatechin or any of the allied substances, for they only cause a darkening of the urine when it is alkaline, and they reduce Fehling's solution, but the dark acid urine of these patients with phthisis did not do so.

These peculiarities of the urine could not be connected with any particular symptoms observed during life nor with any conditions found after death. None of the patients who died had any local disease of the genito-urinary apparatus. They were all ordinary cases of phthisis. In those that did not die the diagnosis was confirmed by finding tubercle bacilli in the sputum. The condition of the urine was not related to any particular drug or diet. It seems most probable that these peculiarities of the urine are due to the excretion in that fluid of some of the direct or indirect products of the action of the tubercle bacilli. Possibly, as a result of this, micro-organisms which could not otherwise flourish in the urine are enabled to do so, and they cause the persistent acidity, the smell, and the colour. Whether these alterations occur in other conditions than phthisis I cannot say. I am much indebted to the clinical clerks to the cases for the help they gave me in testing the urines.

CASE I.—Male, aged 40. Fatal. Clerk, Mr. G. F. Still. Twenty-six specimens examined: 1 remained acid 30 days, 1 for 20, 2 for 11, 1 for 10, 2 for 9, 4 for 7, 2 for 6, 3 for 5, 2 for 4, 4 for 3, 3 for 2, and 1 for 1.

Remarks.—The specimen which remained acid thirty days gradually became a deep blackish-brown colour. One of those which turned alkaline in two days did the same. Two specimens contained indican.

CASE II.—Male. Clerk, Mr. G. F. Still. Twelve specimens examined: 1 remained acid 10 days, 1 for 9, 1 for 8, 1 for 7, 6 for 6, 1 for 5, and 1 for 4.

CASE III.—Male. Fatal. Clerk, Mr. E. L. Adams. Twenty-seven specimens examined: 1 remained acid 15 days, 1 for 14, 2 for 10, 1 for 9, 2 for 8, 2 for 7, 1 for 6, 2 for 5, 6 for 4, 5 for 3, 3 for 2, and 1 for 1.

CASE IV.—Male, aged 27. Fatal. Clerk, Mr. J. O. Williams. Twenty-seven specimens examined: 1 remained acid 57 days, 1 for 49, 1 for 47, 1 for 43, 1 for 41, 1 for 36, 1 for 34, 1 for 33, 1 for 32, 1 for 31, 2 for 29, 1 for 28*, 1 for 24, 1 for 23, 1 for 22, 1 for 14, 1 for 13, 1 for 11*, 2 for 10, 1 for 9, 3 for 8*, 1 for 6*, and 1 for 4.

Remarks.—Those specimens marked * were thrown away after the number of days given in each case. Thirteen specimens gradually became a deep blackish-brown.

CASE V.—Male, aged 28. Clerk, Mr. S. Floyd. Twenty-five specimens examined: 1 remained acid 126* days, 1 for 123*, 1 for 122*, 1 for 113*, 1 for 95, 1 for 38, 1 for 27, 1 for 21, 1 for 16, 2 for 13, 1 for 12, 1 for 10, 2 for 9, 1 for 8, 1 for 7, 1 for 6, 1 for 5, 5 for 4, and 1 for 3.

Remarks.—Those specimens marked * were put aside for four months, and again tested. They were then found to be alkaline. All the first five specimens in the above list gradually became deep blackish-brown.

CASE VI.—Male. Clerk, Mr. Hinds. Fifty-two specimens examined: 1 remained acid 32 days, 1 for 28, 1 for 27, 1 for 26, 3 for 25, 3 for 23, 1 for 22, 3 for 20, 2 for 19, 3 for 18, 3 for 17, 2 for 16, 3 for 15, 3 for 14, 1 for 13, 3 for 12, 5 for 11, 1 for 10, 1 for 9, 5 for 8, 3 for 7, and 3 for 4.

CASE VII.—Thirteen specimens examined: 1 remained acid 56* days, 1 for 49*, 1 for 46, 1 for 23, 1 for 20, 1 for 19, 1 for 17, 2 for 16, 1 for 14, 1 for 13, 1 for 10, and 1 for 5.

Remarks.—The specimens marked * were then thrown away.

FRENCH MEDICAL ASSOCIATION.—The French Medical Association held its general meeting in Paris on April 24th and 25th. M. Lannelongue was elected President, in the room of the late Dr. Henri Roger, by 3,380, out of a total vote of 3,444, representing all the branches throughout France. M. Peter was elected Vice-President. The financial report showed funds in hand to the amount of 1,574,822 francs (£63,000). M. Bucquoy submitted details of a scheme for the creation of a sickness indemnity fund; after some discussion it was decided to place the proposal before the local branches, and if they agreed to the principle they were to be asked further to state whether they approved of a subscription of from 12 francs to 20 francs for the purpose. The committee were again empowered to urge on the Government that the Association should be recognised as being "of public utility."

Dr. W. E. BENNETT was recently presented with the bronze medal and certificate of the Royal Humane Society for saving the life of a man named Samuel Loton from drowning in February last. Dr. Bennett at the time was just recovering from an attack of pleurisy.