

NOTE ON THE OCCURRENCE OF DIPHTHERIA BACILLI IN MILK.

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THOUGH milk has often been considered the medium by means of which outbreaks of diphtheria have been propagated, the diphtheria bacillus has only on rare occasions been isolated from the milk in a virulent form.

Bowhill (1899), Eyre (1899), Klein (1901), and Dean and Todd (1901) are at present the only authors who instance cases and there seems to be no reference to similar cases apart from English literature. In June of this year there was received at this Institute for bacteriological examination a sample of milk, supposed to be associated with an outbreak of diphtheria, from which the diphtheria bacillus was isolated in a virulent form. The outbreak consisted of two cases of diphtheria, with an interval of about six months between them, which occurred in a private house with a private dairy attached. After milking, the milk was conveyed to the milk-house, which is situated in the basement of the house, poured into a sterilised bottle and forwarded to the Institute.

Four guinea-pigs were inoculated subcutaneously with the centrifuged deposit of the sample, two being inoculated on the 12th June 1906 and two on the 13th. On the morning of the 16th these four guinea-pigs were all dead. The post-mortem appearances presented by these guinea-pigs were characteristic of diphtheria. Subcultures were made on inspissated blood-serum from the local lesions at the site of inoculation and in guinea-pigs Nos. I and III a bacillus morphologically resembling the Klebs-Löffler Bacillus of Diphtheria was found and isolated on agar plates.

The virulence and specificity of these two strains, Nos. I and III, were tested as follows :

No. I.

						Result
Guinea-pig No. 1	received	subcutaneously	$\frac{1}{2}$ c.c. of a	72 hours	broth culture	Dead within 72 hours.
" 2	"	"	1 "	"	"	" "
" 3	"	"	3 "	"	"	" "
" 4	"	"	3 "	"	+ 1 c.c. Diphtheria Antitoxin (L.I.P.M.)	Alive and well.
" 5	"	"	3 "	"	+ 1 c.c. "	" "

No. III.

" 6	"	"	$\frac{1}{2}$ "	"	"	Dead within 72 hours.
" 7	"	"	1 "	"	"	" "
" 8	"	"	3 "	"	"	" "
" 9	"	"	3 "	"	+ 1 c.c. Diphtheria Antitoxin (L.I.P.M.)	Alive and well.
" 10	"	"	3 "	"	+ 2 c.c. "	" "

In all the guinea-pigs which died from inoculation the post-mortem appearances were typical of diphtheria infection and in guinea-pigs Nos. 2, 3, 7 and 8 the bacillus of diphtheria was again isolated from the tissues.

This seems conclusive proof that the diphtheria bacilli were present in the milk in a virulent form. As to the source of the bacilli and their mode of entrance into the milk one is unable in the present case to come to a definite conclusion. Dean and Todd, and more recently Ashby, have described outbreaks of diphtheria, in the latter instance consisting of 75 cases. In both outbreaks ulceration of the teats of the cows supplying the milk was associated with the presence of virulent bacilli on the lesions, so that it seemed important to enquire into the condition of the udders and teats of the cows supplying the milk in this instance. I had the privilege, along with a veterinary surgeon, of inspecting the dairy and all the animals connected with it.

In all the cows the teats and udders appeared perfectly healthy and only in one cow did we find anything resembling what may have been the scar of a previous ulcer. Swabs taken from the throats of the milkman and dairymaid afforded negative results upon examination.

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