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SYMPTOMLESS ANTHRAX IN HUMANS

Simai, G. J.

SYMPTOMLESS ANTHRAX INFECTION IN HUMANS

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Sinai, G. J. Symptomless anthrax infection in humans. Zcitschr. Immun-forsch. 79: 199-205, 1933.

The human being is little susceptible to anthrax infection; the number of diseased is, in proportion to the number of people who come into direct or indirect contact with infectious material, slight. In this respect we can make the following observation in one of the fields of Kasakstan.

On the 10th of July there appears in the expedition ambulance a Cosak N with 39.6° and with a typical malignant pustule on the chest, between the breast and the collar bone on the lin. mamill. sin.

on the lin. mamill. sin. The diseased, 19 years old, unmarried, appeared with his mother and sister in the vicinity of the main sewer around the Reissowehos.

In the anamnesis no further diseased were indicated. The last diseased had begun on July 8 in the form of a general indisposition, abating, and then a sensation of pain in the pleura. The sick were not bedridden the whole time, and only the increasing edema and high temperature forced him to seek medical aid (10 kilometers from the expedition base).

The diagnosis of anthrax was ascertained by bacterioscopic as well as bacteriologic methods by means of isolating a typical anthrax culture. The patient received a 0.45 ccm Neosalvarsan intravenously, after which he was hastened to the nearest Turkish station. The temperature was arrested after 3 days. After 10 days he was discharged cured, with the obligation of coming daily to bandage the granulating wound.

For the explanation of the epedemiology of the case in question we went with Frof Popoff to the nomadic bed of the Cosaks and searched ther carefully for the source of the disease.

As a result, of this investigation has proved that on

July 6 a yearling calf belonging to the patient stopped eating, lay immobile and appeared very ill. Thereupon it was resolved to kill the calf, which patient N did with an old woman who helped him, also carried out later. The skin was buried. The bacterilogic tests of the blood traces on the place of slaughter resulted in the sowing of anthrax bacilli. The meat was consumed by the inhabitants of Aul. The meat used as nourishment was cooked(in an open dish on a grate); it is presumed that it was cooked throurghlw, the more since the Kosaken like to eat the meat in great pieces with large bones.

How many people had eaten this meat cannot be ascertained. The intestines of the animal were buried, the cooked bones of the domesticated animals were used as food. Aside from Aul no offers diseased with anthrax occurred, notwithstanding that a surprising majority of the population had eaten the cooked infected meat.

We have removed blood from 39 Kosaks, to carry out a precipitation test with anthrax. The precipitated serum had been prepared at Waronish Veterinary Institute, we used the examined serum as an antigen. To the control, a precipitation reaction with sodium chloride solution and serum was administered to shuch people (see Table 1) who had not come in contact with the anthrax virus.

In 15 out of 38 cases we obtained a positive precipitation reaction, therefore only thirteen people according to there statement had eaten the meat and 2 had not eaten it. Of 23 cases with negative precipitation reaction supposedly 17 persons had eaten the meat and 6 had not. In any case one must assume that in all probability the vast majority of the population of Aul had eaten the infected meat.

The fact that 40% of the population by eating the infected meat, manifested a positive precipitation reaction, it remains for us to clarify how many and how frequently the local population generally come in contact with the anthrax infection. Hereby we must note that during a very long job in the nomadic order by the local inhabitiants one hears more frequently (russian Kosaken) that sick cattle were slaughtered shortly before their death and that after eating the meat wither isolated cases of illness were noticed or generally none occurred.

First and foremost: we have examined the working men of the crude leather collectors: wool laundry and leather factory, the raw material collected with a radius of 200 kilometers and therefore could give us particular information about the development of anthrax among the population. With this purpose we have taken proofs in the factory and the wool laundry, if possible one of seach of the leather and skin company and performed thermoprecipitation with a precipitating anthrax serum according to Ascoli and Valenti. All tests as well as the inoculation carried out in culture media resulted negative. Besides there was a complete examination of the serums of the working men present, 190 of the number; carried outin both factories. Futhermore we continued our

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investigation among the nomadic population of the area adjoing Aul and among the shepherds (see Table 1). The table shows, that in the village where there is no information about the exsistance of an epizootic and no contact of any kind with infectious material the exsisting preciptisation reactions remained fixed.

Table 1

		INhabitants		Precipitat reaction	ion
	HEU	rev.	1.42	herer herer	
9 Aul (region of epizootic)	27	20	10	15 ¹) 23 ²)	19
10 Aul (neigh- borhood)	4	40_		40	
5 Aul		.33_		33	
Slaughterhouse and shepherds		6		6	
Wool laundry		122		122	
Leather Factory		68		68	

1) Having eating positive meat Having natreaten-positive meat

2) Having eaten positive meat Having eaten negative meat

On the basis of this table one indeed cannot assert that this population group had not come in contact with anhanthrax but also if such contact existed, then ingany case formerly significant.

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That is already seen, that in the case of the 2nd serum examination which took place one month after the first, in the case of 2 Kosaken out of the 6 Aul, in the case of which the first time, recently after the eating of the infected

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meat, a positive precipitation with anthrax existed, now the reaction turns out negative.

Intestinal anthrax already interested the becteriologists since the time of Pasteur. It has been established by a whole series of epedemiologic observations that the eating of anthrax infected meat is not harmful (Abel).

In the report of Osol and Winogradow who had examined the black soil region for anthrax, the committee in 1928 used this method:

The eating of meat infected with anthrax occurred often in village inhabitants, which nevertheless seldom caused intestinal anthraz. Worthy of note are the details by Ostertag: in a Swiss village 300-400 peope have eaten meat infected with anthrax, of them only the butcher who had a small wound on his hand became ill. Of the other observations we will only mention the one by Dr. Nikolaew (1928). The last reported case of a family, consisting of 6 persons, who had all eaten inflected meat, only 2 persons became ill and also not at the same time.

He mentioned another case in the hospita;, where a child was admitted, who complained of nothing but diarrhea which stopped after a day. The father of the child died 5 days before. The feces examination of the child, which was sent to the Bacteriological Institute revealed anthrax bacilli.

An analogous observation can be made with experimental infection as well as the vegetative forms also with spores in the case of little susceptible animals.

Brotzu fed the dog either with non-sporing cultures or with meat of animals dead from anthrax and thergbyffound in the animal anthrax bacilli and spores. On the basis of this he accepted, that spores originate in the intestine and can be separated from the feces.

Behring had been able to observe in the case of adult guinea pigs after incorporation of non-sporing bacilli without disease if they separate the bacilli from the feces very quickly.

That the precipitation reaction performed by us has brought about the detection of the existing anthrax antigen in the blood. Doubtless this antigen can be found only during an infetion even if it has no symptoms; the same cannot be detected any more in the blood after the expiration of the infection.

Our results were confirmed by the work of Kritschewski and Messik, "On immunity against anthrax bacilli".

These authors conducted their experiments on rats, an animial little susceptible tp anthrax. By incorporation of anthrax bacilli no infection appeared in the rat, nevertheless anthrax antigen could be detected in the organs by thermoprecipitation according to Ascoli.

It must be emphasized that it did no succeed in this case in isolating anthrax bacilli from the rats organs: the results were also negative to the infection of mice wit these rat organs.

The authors came to the conclusion that the appearance of antigens in the rat organs point to germs sprouts even if the latter occurs without symptoms. The control test perfromed by the authors, which should be explained, whether the positive Ascoli reaction is caused perhaps by the introduction of antrax bacilli precipitated negative thereby would consequently the symptomless infection would be detected in the infected rat. Kruska (1927) confirmed that the feeding of anthrax bacilli by mouth as well as by rectum to adult guinea pigs and rabbits caused the death of the same; he considered the anthrax bacilli introduced and their spores as saprophytes. In order than an illness take place, according to Kruska a trauma must be present, it may be in the form of a mechanical lesion of the membrane or in the form of an erosion of the mucous membrane. This method explains only the prenounced infection and we will show observations thus theintricate correlation which exists between the infectious

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and macro-organiems generally not cleared.

The research of the vomiting inhabitants serve us on the one hand to control there) specificity of the results minted in Aul, on the other hand the absence of tests would be detected by the vomiting population. Doubtless some of the workers in the skin factory had formerly come in contact with anthrax material.

Consequently there could be observed only in one of the 48 people who had eaten infected meat, a clear clinical picture of anthrax sickness; in the case of 15 people the same disease symptoms were observed while antrax antigen could be established in the blood serum. In 269 serums of vomiting inhabitants who had been tested the same way the antrax antigen could however not be detected.

SUMMARY

1) The anthrax infection in the case of humans can proceed without any visible symptom (symptomless infection)

2) With the help of precipitation reaction it succeed in detecting the anthrax antigen im blood of an animal however only in the course of the infection: after the discharge of the same the antigen disappeared from the blood.

3) On the basis of our observations one can assume that the distinct clinical form of anthrax infection occurred very seldom as the symptomless form of the same.

4) Unfortunately we have neglected a reason in our texts: we have omitted testing the person with positive precipitation reaction of bacilli secretion.

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We maintain it is not necessary to call attention to the epedemiology that consistssin the possibility of symptomless infection in the cases where the infectious condition has appeared simultaneously in whole groups of people. Such cases must be used in our opinion in order to solve the epedemiological question, namely if in such cases the secretion of anthrax bacilli takes place.

Consequently the illness observed in a person in Aul who had eaten the meat infected should be considered not as an exception but sooner as a rule. According to our observations one can suppose that the cases often take place with symptomless infection.

小山地。1994年1997

LITERATURE

1)	Ascoli, Virchows Arch., Bd. 213, S. 181.
2)	Abel, Zentralbl. f. Bakt., Bd. 18, 11, 5/6.
3)	Brotzu, zit. nach Sanarelli.
4)	Isabolonski and Pazevich, Russ. Vratsh, 1942 No. 18.
5)	Januschke, Seuchenbekampfung, 1927, 11.1.
6)	Gregersen, Eentralbl. f. Bakt. Bd. 77, No. 4.
7)	Kritschewski and Messik. Zeitschr. f. Immumitat., Bd 66,1930.
8:)	Michin, Mikrobiologie (russ.) 1929.
9)	Nikolaeff, Veatscheb Gazeta, 1928, No. 2, S. 100.
10)	Ozol and Vinogradoff, Hygiena i Epid., 1929, No. 9.
11)	Rochs, Virchows Arch., Bd. 222, S. 322.
12)	Sanarelli, Krankheitsforschung, Bd. 3, 1926.
13)	Uffenheimer, Arch. f. Hyg. Bd. 55, 1906.
14)	- Handb. d. pathog. Mikroog., 3. Auflage.