

<http://www.fachaerzte.com/ziegler/Fachinformationen/anthrax.htm>

Milzbrand (Anthrax)

Der **Milzbrand** ist eine Erkrankung, die oft aus dem veterinärmedizinischen Bereich, aber gelegentlich auch bei Menschen bekannt wird. Sie tritt beim Menschen gehäuft berufsspezifisch auf: in der Landwirtschaft, insbesondere bei Menschen, die in der Viehhaltung oder Fleischverarbeitung und Wiederverarbeitung tätig sind. Die Erkrankung wird durch Bakterien (*Bazillus anthracis*) hervorgerufen, die weltweit vorkommen. Der Erreger kann sehr haltbare Dauerformen (Sporen) ausbilden, die im Boden begünstigt durch Trockenheit und fehlende Kultivierung viele Jahre infektiös bleiben. Gelegentlich kann durch Inhalieren einmal eine schwere innere Erkrankung mit Lungenbeteiligung vorkommen, seltener kommt es durch Verzehr von infiziertem Material zu Erkrankungen des Magen-Darm-Traktes. Eine Verbreitung der Bakterien im Körper ist dann auch in andere Organe möglich.

Die Infektion:

Menschen werden durch das Schlachten und Verwerten von entsprechend infiziertem Vieh, und von diesem Vieh stammenden Produkten wie Häute, Leder, Wolle, Haare etc. möglicherweise infiziert. In der Regel tritt diese Erkrankung nach Aufnahme der Bazillen oder ihrer Sporen in die Haut auf, wie es z.B. im Bereich von Wunden leicht möglich ist. Beim **Lungenmilzbrand** müssen die Erreger oder Sporen tief eingeatmet werden.

Die Erkrankung:

Verschiedene Organe können beteiligt sein, so in erster Linie die Haut oder (berufsspezifisch: sog. "Wollsortierkrankheit") der Lungenmilzbrand und andere, wie z.B. (s.o.) Magen-Darm-Erkrankungen. Die Erkrankung weist bei Hautbefall zunächst eine schmerzlose juckende Stelle auf, die anschl. ein Bläschen bildet und daraus kann sich ein schwärzliches Geschwür entwickeln, das in der weiteren Folge spontan abheilen kann. Bei etwa 10 bis 20 Prozent dieser Hautmilzbrandfälle kommt es allerdings zur Beteiligung weiterer Organe. Wenn es nach Einatmen der Sporen zu einer Erkrankung kommt, zeigt sich zunächst Fieber und Unwohlsein, auch Muskelschmerzen und Husten sowie Druckgefühl. Auch wenn sich dies ohne Behandlung bessert, kann die zweite Phase dann möglicherweise schwerwiegende Komplikationen bieten.

Bei **Milzbrand im Magen-Darm-Bereich** bestehen Fieber, Übelkeit, Erbrechen und Bauchschmerzen, die sich erheblich verschlimmern können.

Die Diagnose:

Sie erfolgt über einen Arzt, der auch Labormöglichkeiten braucht: "Blutkultur", Blutbild oder andere mikroskopische Untersuchungen und Antikörperuntersuchungen (wie z.B. der sog. "Mikrohämagglutinationstest").

Die Therapie:

Bei der Erkrankung der Haut ist mit Penicillin als Spritze oder Infusion zu beginnen, später kann mit Tabletten weiterbehandelt werden. Bei Patienten mit Penicillinallergie stehen Erythromycin oder Tetracyclin (beides Antibiotika) zur Verfügung und wirken sehr gut und prompt. Bei den übrigen Verlaufsformen muß die Penicillindosis angepaßt werden. Die Therapie wirkt sehr gut, so daß bei richtiger Therapie mit bleibenden Schäden kaum zu rechnen ist (unter ein Prozent).

Zusammenfassung:

Der Milzbrand ist eine berufsspezifisch bedeutende, auch im Bereich Ernährung und Küchenhygiene sehr wichtige Erkrankung. Sie ist weltweit verbreitet. Ausbrüche kommen immer wieder in Ländern vor, in denen auch deutsche Vertretungen sind. Dem Gesundheitsdienst ist niemals eine Erkrankung eines Bediensteten an Milzbrand bekannt geworden, weil - wie bei anderen Erkrankungen - das Risiko auch bei einem Milzbrandausbruch in dem selben Land minimal scheint. Allerdings sollten die prophylaktischen Maßnahmen (s.o., u.a. Auskochen) auch in den Haushalten unserer Bediensteten durchgeführt werden.

<http://www.bact.wisc.edu/microtextbook/disease/anthrax.html>

Anthrax

I am glad you are taking the time to educate yourself about anthrax. However, there is a large amount of hysteria about this illness because of recent events so I thought I would share some important points about anthrax

1. Anthrax is not contagious. The only way to get the disease is to be exposed to spores of the microbe.
2. Not much will kill these spores. Microwaving, baking, and disinfectant have no effect. If you burn your mail, that will work, but then you can't read that letter from Aunt Marge.
3. Getting spores in an envelope is not a real threat. Anthrax spores need to be dispersed in the air with very advanced equipment to become the dangerous form, pulmonary anthrax, that is lethal. Since whoever is doing this is mailing the stuff, it's obvious we are dealing with **amateurs who really don't understand what they are doing**. In that you can take some comfort. If you do receive a suspicious package report it to your local authorities and consult your physician. However, it will be very unlikely that you will receive one of these letters. Think about how many pieces of mail go out and how many people there are. Your chances are very low.
4. Cutaneous anthrax only occurs when the spores encounter broken skin creating an easily recognized boil. Even then the illness is rarely fatal.
5. Anthrax is easily treated with antibiotics if it is caught early enough. The only time I would be worried about this is if everyone around you is coming down with the flu at the same time. Believe me the government will be all over something like that and has a stock pile of antibiotics for such an occasion.
6. You should not try to get vaccinated nor buy antibiotics just in case. First, your chances of contracting the disease are less than getting hit by lightning or winning the lottery, so you would be wasting your money. Second, you are depleting the stores of antibiotics that are available to treat people who may end up having the illness. Finally, the antibiotics will go bad over time and not be effective anyway. No responsible physician should be filling prescriptions to people who have not been exposed to anthrax, just in case. If you find a doctor willing to do this, can you trust them? What's to say that they are not just selling you sugar pills or something worse?
7. The disease is caused by a **bacterium** not a virus as reported by some news agencies. (By the way some journalists are woefully ignorant of medicine and microbiology - be careful what you believe.)

The **anthrax bacillus** was the first bacterium shown to be the cause of a disease. In 1877, [Robert Koch](#) grew it in pure culture, demonstrated its ability to form endospores, and produced experimental anthrax by injecting it into animals.

Bacillus anthracis is a very large, Gram positive, sporeforming rod (1-1.5µm x 4-10µm). The organism is readily cultivated on ordinary nutrient medium and grows best aerobically, but will also multiply under anaerobic conditions. Genotypically and phenotypically, it is very similar to *Bacillus cereus*, which is isolated readily from soil habitats. However, the natural history of *B. anthracis* remains obscure.

Pathogenicity

Anthrax is primarily a disease of domesticated and wild animals, particularly herbivorous animals. Humans become infected incidentally when brought into contact with diseased animals, their hides or hair, or their excrement. Many species of animals and birds can acquire the disease naturally. In humans, anthrax is fairly rare; the risk of infection is about 1/100,000. The most common form of the disease in humans is **cutaneous anthrax**, which is usually acquired via injured skin or mucous membranes. A minor scratch or abrasion, usually on an exposed area of the face or neck or arms, is inoculated by spores from the soil or a contaminated animal or carcass. The spores germinate, vegetative cells multiply, and a characteristic gelatinous edema develops at the site. This develops into papule within 12-36 hrs after infection. The papule changes rapidly to a vesicle, then a pustule (malignant pustule), and finally into a necrotic ulcer from which infection may disseminate, giving rise to septicemia. Lymphatic swelling also occurs within seven days. In severe cases, where the blood stream is eventually invaded, the disease is frequently fatal.

Another form of the disease is **inhalation anthrax** (woolsorters' disease) which results most commonly from inhalation of dust where animal hair or hides are being handled. The disease begins abruptly with high fever and chest pain. It progresses rapidly to a systemic hemorrhagic pathology and is often fatal if treatment cannot stop the invasive aspect of the infection.

The toxigenic properties of *Bacillus anthracis* were not recognized until 1954. Prior to that time, because of the tremendous number of anthrax bacilli observed in the blood of animals dying of the disease ($>10^9$ bacteria/ml), it was assumed that death was due to blockage of the capillaries, popularly known as the "log-jam" theory. But experimentally it was shown that only about 3×10^6 cells/ml are necessary to cause death of the animal. Furthermore, the cell-free plasma of animals dying of anthrax infection contained a toxin which causes symptoms of anthrax when injected into normal guinea pigs. These observations left little doubt that a diffusible exotoxin plays a major role in the pathogenesis of anthrax.

One component of the **anthrax toxin** has a lethal mode of the action that is not understood at this time. Death is apparently due to oxygen depletion, secondary shock, increased vascular permeability, respiratory failure and cardiac failure. Death from anthrax in humans or experimental animals frequently occurs suddenly and unexpectedly. The level of the lethal toxin in the circulation increases rapidly quite late in the disease, and it closely parallels the concentration of organisms in the blood.

Determinants of Virulence

Bacillus anthracis possesses a unique a cell wall polysaccharide antigen, and forms a single antigenic type of capsule consisting of **poly-D-glutamate polypeptide**. All virulent *B. anthracis* form this capsule. Smooth (S) to Rough (R) colonial variants occur, which is correlated with ability to produce the capsule. R variants are relatively avirulent.

The poly-D-glutamate capsule is itself nontoxic, but functions to protect the organism against the bactericidal components of serum and phagocytes, and against phagocytic engulfment. The capsule plays its most important role during the establishment of the infection, and a less significant role in the terminal phases of the disease, which are mediated by the anthrax toxin.

In addition to the capsule, virulent strains of *Bacillus anthracis* produce three distinct antigenic components related to a complex exotoxin called the **anthrax toxin**. Each component of the toxin is a thermolabile protein with a mw of approximately 80kDa.

Factor I is the edema factor (EF) which is necessary for the edema producing activity of the toxin. EF is known to be an **inherent adenylate cyclase**, similar to the *Bordetella pertussis* adenylate cyclase toxin.

Factor II is the protective antigen (PA), because it induces protective antitoxic antibodies in guinea pigs. PA is the **binding (B) domain of the anthrax toxin** which has two active (A) domains, EF (above) and LF (below).

Factor III is known as the lethal factor (LF) because it is **essential for the lethal effects of the anthrax toxin**.

Apart from their antigenicity, each of the three factors exhibits no significant biological activity in an animal. However, combinations of two or three of the toxin components yield the following results in experimental animals.

PA+LF combine to produce lethal activity

EF+PA produce edema

EF+LF is inactive

PA+LF+EF produces edema and necrosis and is lethal

These experiments suggest that the anthrax toxin has the familiar A-B enzymatic-binding structure of bacterial exotoxins with PA acting as the B fragment and either EF or LF acting as the active A fragment.

EF+PA has been shown to elevate cyclic AMP to extraordinary levels in susceptible cells. Changes in intracellular cAMP are known to affect changes in membrane permeability and may account for edema. In macrophages and neutrophils an additional effect is the depletion of ATP reserves which are needed for the engulfment process. Hence, one effect of the toxin may be to impair the activity of regional phagocytes during the infectious process.

The effects of EF and LF on neutrophils have been studied in some detail. Phagocytosis by opsonized or heat-killed *Bacillus anthracis* cells is not inhibited by either EF or LF, but a combination of EF + LF inhibits engulfment of the bacteria and the oxidative burst in the pmns. The two toxin components

also increased levels of cAMP in the neutrophils. These studies suggest that the two active components of the toxin, EF + LF, together increase host susceptibility to infection by suppressing neutrophil function and impairing host resistance.

LF+PA have combined lethal activity as stated above. The lethal factor is a Zn^{++} dependent protease that induces cytokine production in macrophages and lymphocytes, but its mechanism of cytotoxicity is unknown.

In summary, the virulence of *Bacillus anthracis* is attributable to three bacterial components:

1. Capsular material composed of poly-D-glutamate
2. EF component of exotoxin
3. LF component of exotoxin

Both the capsule and the anthrax toxin may play a role in the early stages of infection, through their direct effects on phagocytes. Virulent anthrax bacilli multiply at the site of the lesion. Phagocytes migrate to the area but the encapsulated organisms can resist phagocytic engulfment, or if engulfed, can resist killing and digestion. A short range effect of the toxin is its further impairment of phagocytic activity and its lethal effect on leukocytes, including phagocytes, at the site. After the organisms and their toxin enter the circulation, the systemic pathology, which may be lethal, will result.

Bacillus anthracis coordinates the expression of its virulence factors in response to a specific environmental signal. Anthrax toxin proteins and the antiphagocytic capsule are produced in response to growth in increased atmospheric CO_2 . This CO_2 signal is thought to be of physiological significance for a pathogen which invades mammalian host tissues.

Immunity

Considerable variation in genetic susceptibility to anthrax exists among animal species. Resistant animals fall into two groups: (1) resistant to establishment of anthrax but sensitive to the toxin and (2) resistant to the toxin but susceptible to establishment of disease. This is illustrated in the table below.

ANIMAL MODEL	INFECTIOUS DOSE	TOXIC DOSE CAUSING DEATH	BACTERIA PER ML AT DEATH
Mouse	5 cells	1000 units/kg	10^7
Monkey	3000 cells	2500 unit/kg	10^7
Rat	10^6 cells	15 units/kg	10^5

Animals surviving naturally-acquired anthrax are immune to reinfection. Second attacks are extremely rare. Permanent immunity to anthrax seems to require antibodies to both the toxin and the capsular polypeptide, but the relative importance of the two kinds of antibodies appears to vary widely in different animals.

Vaccines composed of killed bacilli and/or capsular antigens produce no significant immunity. A nonencapsulated toxigenic strain has been used effectively in livestock. The **Sterne Strain** of *Bacillus anthracis* produces sublethal amounts of the toxin that induce formation of protective antibody. The best vaccine for humans is a preparation of the protective antigen of the lethal toxin recovered from culture filtrates of the bacteria. In either case, frequent boosters are necessary to maintain resistance to anthrax challenge.

Recently, the toxin of *Bacillus anthracis*, specifically its cell-binding domains, has been exploited to transport molecules into selected types of eukaryotic cells, in the search for new vaccines aimed against intracellular parasites. In this case, researchers fused parasite (bacterial or viral) antigens to the anthrax toxin's cell-binding components, thereby creating a **model pathogen molecule** which is able to recognize and be taken up by T-cells, but which is unable to produce disease. Such types of vaccines are known as **intracellular vaccines**, and they theoretically have the potential to stimulate protective CMI (as opposed to AMI), which is rarely accomplished with most present vaccines. Though still in early stages of testing, the vaccines show promise, and this work may lead to an entirely new class of human vaccines against most viruses, certain bacteria, and parasites.

Anthrax and Biological Warfare

U.S. military forces have been vaccinated recently against anthrax, reflecting the concern about the prospect of anthrax spores being used in defense against them. Iraq, Russia and as many as ten nations have the capability to load spores of *B. anthracis* into weapons. The spores of *B. anthracis* can be pro-

duced and stored in a dry form and remain viable for decades in storage or after release. When released, the spores are easily dispersed in air for inhalation by unprotected troops (or civilians downwind) and may remain in soil for many years. Anthrax spores are the top choice in biological weapons for "germ warfare".

The following is an excerpt from the U.S. Navy Manual on Operational Medicine and Fleet Support, entitled "Biological Warfare Defense Information Sheet".

"The disease Anthrax is caused by the bacteria *Bacillus anthracis*. Anthrax is normally found in sheep, cattle and horses but can be transmitted to humans who contact infected animals or their products.

Usually humans acquire the disease by skin contact with the bacteria or by inhaling the bacterial spores found in sheep wool.

Disinfection of contaminated articles may be accomplished using a 0.05% hypochlorite solution (1 tbps. bleach per gallon of water). Spore destruction requires steam sterilization.

The military chemical protective mask is effective against inhalation of all Biological Warfare Agents.

Symptoms:

About 1-6 days after inhaling *Bacillus anthracis* spores there would be a gradual onset of vague symptoms of illness such as fatigue, fever, mild discomfort in the chest and a possibly a dry cough. The symptoms would improve for a few hours or 2-3 days. Then, there would be sudden onset of difficulty in breathing, profuse sweating, cyanosis (blue colored skin), shock and death in 24-36 hours. These symptoms are essentially those of Woollsorter's disease, which is caused by inhalation of *Bacillus anthracis* spores rather than contact with the bacterium through the skin. Contact through the skin is the most common "naturally" occurring form of Anthrax and is characterized by swelling and boils on the skin. Skin symptoms would not necessarily be expected with Anthrax resulting from inhaled spores in BW.

Medical countermeasures:

There is a licensed human Anthrax vaccine that consists of a series of six doses with yearly boosters. The first vaccine of the series must be given at least four weeks before exposure to the disease. This vaccine protects against Anthrax that is acquired through the skin in an occupational environment. It is believed that it would also be effective against inhaled spores in a BW situation.

For unvaccinated individuals, antibiotics are given if the individual is exposed to Anthrax. Pencillin is the drug of choice. Antibiotic treatment is known to lessen the severity of the illness in workers who acquire Anthrax through the skin. Inhaled Anthrax was formerly thought to be nearly 100% fatal despite antibiotic treatment, particularly if treatment is started after symptoms appear. A recent Army study resulted in successful treatment of monkeys with antibiotic therapy after being exposed to Anthrax spores. The antibiotic therapy was begun one day after exposure. This study implies antibiotic therapy may be useful in a BW setting if begun soon after the attack.

There is no evidence of person-to person transmission of Anthrax. Quarantine of affected individuals is not recommended. Anthrax spores may survive in the soil, water and on surfaces for many years. Spores can only be destroyed by steam sterilization or burning, but not by disinfectants. An infection of local animal populations such as sheep and cattle could follow a biological attack with spores. Infected animals could then transmit the disease to humans through the human's skin, mouth or nose. Veterinarians should be made aware of this possibility. Local health officials should take appropriate measures (published elsewhere) to prevent Anthrax outbreak among animals and an ensuing human epidemic."

http://www.terrorismfiles.org/weapons/anthrax_biological_warfare_agent.html

Anthrax is the preferred biological warfare agent

It is highly lethal.

- 100 million lethal doses per gram of anthrax material (100,000 times deadlier than the deadliest chemical warfare agent).
- Silent, invisible killer.
- Inhalational anthrax is virtually always fatal.

There are low barriers to production.

- Low cost of producing the anthrax material.
- Not high-technology. Knowledge is widely available.
- Easy to produce in large quantities.

It is easy to weaponize.

- It is extremely stable. It can be stored almost indefinitely as a dry powder.
- It can be loaded, in a freeze-dried condition, in munitions or disseminated as an aerosol with crude sprayers.

Currently, we have a limited detection capability.

What is Anthrax?

Anthrax is a naturally occurring disease of plant eating animals (goats, sheep, cattle, wine, etc.) caused by the bacterium *Bacillus anthracis*.

It is an illness which has been recognized since antiquity. Anthrax was common in essentially all areas where livestock are raised. Intensive livestock immunization programs have greatly reduced the occurrence of the disease among both animals and humans in much of the world, and most outbreaks occur in areas where immunization programs have not been implemented or have become compromised (primarily Africa and Asia; however, outbreaks occurred during the mid-1990's in Haiti and the former Soviet Union).

Anthrax spores can remain viable for several decades under suitable environmental conditions; thus, absence of cases does not equate to absence of risk.

Humans can contract anthrax in three ways:

- Through cuts or breaks in the skin resulting from contact with an infected animal (cutaneous anthrax), resulting in local and possibly systemic (bloodstream) infection.
- From breathing anthrax spores (termed "woolsorters" disease) resulting in an infection of the lungs (inhalational anthrax).
- From eating infected meat, resulting in gastrointestinal infection (gastrointestinal anthrax). Gastrointestinal anthrax is generally not considered a threat to U.S. forces.

What are the symptoms?

Symptoms of anthrax begin after a 1 to 6 day incubation period following exposure.

For contact or cutaneous anthrax, itching will occur at the site of exposure followed by the formation of a lesion. Untreated contact anthrax has a fatality rate of 5-20 percent, but with effective antibiotic treatment, few deaths occur.

Initial symptoms for inhalational anthrax are generally non-specific: low grade fever, a dry hacking cough, and weakness. The person may briefly improve after 2 to 4 days; however within 24 hours after this brief improvement, respiratory distress occurs with shock and death following shortly thereafter.

Almost all cases of inhalational anthrax, in which treatment was begun after patients have exhibited symptoms, have resulted in death, regardless of post-exposure treatment.

What is the medical countermeasure?

Prior to exposure, prevention through vaccination, using the FDA-licensed vaccine. Link to nbc-med.org with information about the [Anthrax Vaccine »](#)

Otherwise, antibiotics such as penicillin, ciprofloxacin, and doxycycline are the drugs of choice for treatment of anthrax.

Treatment with antibiotics must begin prior to the onset of symptoms and must include vaccination prior to discontinuing their use.

The use of antibiotics keep the patient alive until their body can build an immunity to anthrax via vaccination. After symptoms appear however, inhalational anthrax is almost always fatal, regardless of treatment.

<http://www.hopkins-biodefense.org/pages/agents/agentanthrax.html>

Anthrax

Bacillus anthracis, the organism that causes anthrax, derives its name from the Greek word for coal, *anthracis*, because of its ability to cause black, coal-like cutaneous eschars.

Anthrax infection is a disease acquired following contact with infected animals or contaminated animal products or following the intentional release of anthrax spores as a biological weapon.

In the second half of this century, anthrax was developed as part of a larger biological weapons program by several countries, including the Soviet Union and the U.S. The number of nations believed to have biological weapons programs has steadily risen from 10 in 1989 to 17 in 1995, but how many are working with anthrax is uncertain.

Perhaps more insidious is the specter of autonomous groups with ill intentions using anthrax in acts of terrorism. The Aum Shinrikyo religious sect, infamous for releasing sarin gas in a Tokyo subway station in 1995, developed a number of biological weapons, including anthrax.

Given appropriate weather and wind conditions, 50 kilograms of anthrax released from an aircraft along a 2 kilometer line could create a lethal cloud of anthrax spores that would extend beyond 20 kilometers downwind. The aerosol cloud would be colorless, odorless and invisible following its release. Given the small size of the spores, people indoors would receive the same amount of exposure as people on the street.

There are currently no atmospheric warning systems to detect an aerosol cloud of anthrax spores. The first sign of a bioterrorist attack would most likely be patients presenting with symptoms of inhalation anthrax.

A 1970 analysis by the World Health Organization concluded that the release of aerosolized anthrax upwind of a population of 5,000,000 could lead to an estimated 250,000 casualties, of whom as many as 100,000 could be expected to die.

A later analysis, by the Office of Technology Assessment of the U.S. Congress, estimated that 130,000 to 3 million deaths could occur following the release of 100 kilograms of aerosolized anthrax over Washington D.C., making such an attack as lethal as a hydrogen bomb. The Centers for Disease Control and Prevention estimates that such a bioterrorist attack would carry an economic burden of \$26.2 billion per 100,000 people exposed to the spores.

The largest experience with inhalation anthrax occurred after the accidental release of aerosolized anthrax spores in 1979 at a military biology facility in Sverdlovsk, Russia. Some 79 cases of inhalation anthrax were reported, of which 68 were fatal.

One of the major problems with anthrax spores is the potentially long incubation period of subsequent infections. Exposure to an aerosol of anthrax spores could cause symptoms as soon as 2 days after exposure. However, illness could also develop as late as 6-8 weeks after exposure -- in Sverdlovsk, one case developed 46 days after exposure.

Further, the early presentation of anthrax disease would resemble a fever or cough and would therefore be exceedingly difficult to diagnose without a high degree of suspicion. Once symptoms begin, death follows 1-3 days later for most people. If appropriate antibiotics are not started *before* development of symptoms, the mortality rate is estimated to be 90%.

There are a number of rapid diagnostic tests for identifying anthrax at national reference laboratories, but none is widely available.

If anthrax is suspected on clinical, laboratory or pathology grounds, then the Working Group recommends that hospital epidemiologists contact local and state health officials immediately so that the proper reference tests can be performed.

The U.S. has a sterile protein-based human anthrax vaccine that was licensed in 1970 and has been mandated for use in all U.S. military personnel. In studies with monkeys, inoculation with this vaccine at 0 and 2 weeks was completely protective against infection from an aerosol challenge at 8 and 38 weeks, and 88% effective at 100 weeks.

However, U.S. vaccine supplies are limited and U.S. production capacity is modest. There is no vaccine available for civilian use.

PRESSEMITTEILUNGEN

AOL, 09.10.2001

Washington - Die Behörden im US-Bundesstaat Florida sind alarmiert. Innerhalb weniger Tage sind zwei Männer an Milzbrand erkrankt und einer davon bereits gestorben. Die US-Fahnder verfolgen nun Spuren, die auf einen Anschlag hindeuten. Sie suchen dringend einen Praktikanten, der im Sommer in dem Gebäude arbeitete, in dem sich die beiden Männer mit den hochgefährlichen Bakterien infizierten. Der Mann sei arabischer Herkunft, und habe nach dem Ende seiner Arbeit eine kryptische eMail-Botschaft hinterlassen, berichtete die angesehene Zeitschrift "Newsweek".

Bakterien nicht natürlichen Ursprungs

Nach Angaben des Senders MSNBC haben die Gesundheitsbehörden inzwischen festgestellt, dass die Anthrax-Bakterien, mit denen sich die beiden Männern infizierten, nicht natürlichen Ursprungs seien. Die Bakterien, die für einen Biowaffeneinsatz in Frage kommen, lösen die lebensgefährliche Krankheit Milzbrand aus.

Brief mit "pudriger Substanz"

Eine Woche vor den Terroranschlägen in New York und Washington sei in dem Gebäude in Boca Raton ein verdächtiger Brief mit einer "pudrigen Substanz" eingetroffen, berichtete "Newsweek". Am Freitag war ein 63-jähriger Fotograf, der in dem Gebäude arbeitete, an Milzbrand gestorben. Die Erkrankung des zweiten Mannes wurde am Montag bekannt. Der Mann habe gute Überlebenschancen, weil die Krankheit in einem frühen Stadium entdeckt wurde. Das Gebäude wurde evakuiert und abgeriegelt. Auf einer Computertastatur wurden Bakterienspuren entdeckt.

Justizminister schließt Anschlag nicht aus

Der Praktikant, von dem nach Medienberichten jede Spur fehlt, soll seinen ehemaligen Kollegen in einer Abschieds-eMail angekündigt haben, er habe ihnen eine Überraschung hinterlassen, berichteten US-Medien. Justizminister John Ashcroft hatte einen terroristischen Hintergrund der Anthrax-Fälle nicht ausgeschlossen. "Wir können noch nicht schlüssig sagen, ob hier eine Attacke oder etwas Anderes vorliegt", sagte Ashcroft. (häg/dpa)

AOL, 12.10.2001

Washington/New York - In den USA ist ein weiterer Milzbrand-Fall bestätigt worden. Bei einer Mitarbeiterin des Fernsehsenders NBC in New York wurden die gefährlichen Erreger nachgewiesen, bestätigten der Sender und New Yorks Bürgermeister Rudolph Giuliani am Freitag. Einen Zusammenhang mit den terroristischen Anschlägen auf das World Trade Center schloss ein NBC-Sprecher aus. Auch das FBI erklärte: "Wir sehen überhaupt keine Verbindung mit dem 11. September."

"Verdächtiges Paket" mit pudriger Substanz

Die Erkrankte habe Ende September ein "verdächtiges Paket" mit einer pudrigen Substanz erhalten, teilte der Sender mit. Sie sei daraufhin sofort und dann immer wieder auf Milzbrand (auch Anthrax genannt) getestet worden. Am Freitagmorgen (Ortszeit) sei der Test dann positiv gewesen, sagte Giuliani. Die Frau werde mit Antibiotika behandelt und zeige keine Anzeichen der Erkrankung.

Stockwerk des Rockefeller-Centers gesperrt

Weitere Personen seien nicht betroffen, vorsichtshalber sei der dritte Stock des Rockefeller-Gebäudes, in dem die Frau arbeitete, abgeriegelt, teilte der NBC-Sprecher mit. Nach ersten Erkenntnissen besteht kein Zusammenhang mit den Infektionen in Florida.

Sehr seltene Milzbrand-Form

In dem jüngsten Anthrax-Fall handelt es sich im Gegensatz zu den Fällen in Florida um Haut-Milzbrand, der durch direkten Hautkontakt übertragen wird. Hautmilzbrand benötigt eine Verletzung oder Bisswunde zur Infektion. In Florida hatten die Infizierten den Erreger eingeatmet. Diese Form der Erkrankung ist viel seltener.

In Florida waren am Mittwoch bei einer 35-jährigen Frau die Sporen des gefährlichen Milzbranderreger in den Nasenschleimhäuten nachgewiesen worden. Sie arbeitete in demselben Verlagshaus in Boca Raton, in dem bereits zwei Männer mit dem Erreger infiziert wurden. Einer von ihnen ist inzwischen gestorben, der andere zeigt keine Erkrankungssymptome.

Angst vor Biowaffenanschlag

Nach Bekanntwerden der ersten Fälle war in den USA die Angst vor einem Biowaffenanschlag gewachsen. Der Milzbranderreger gilt als eine der gefährlichsten Biowaffen. Nach Einschätzungen der Ermittler in Florida gibt

es in diesem Fall jedoch keinen terroristischen Hintergrund, es gehe eher um einen Kriminalfall. (md/dpa/AFP)

AOL, 14.10.2001

Washington/New York - Fünf neue Milzbrandfälle in den USA haben am Wochenende die Angst vor Bio-Angriffen weiter geschürt. Gut eine Woche nach dem Tod eines Angestellten wurden nach Angaben der Polizei fünf weitere Mitarbeiter des Verlagshauses American Media im US-Bundesstaat Florida positiv auf Anthrax getestet. Auch in einem Brief an den Computerkonzern Microsoft entdeckten Fahnder Spuren des Milzbrandregers. Zunächst wurde jedoch keine Ansteckung bekannt.

NBC-Mitarbeiterin geht es besser

Unterdessen zeigt ein zweiter Mitarbeiter des TV-Senders NBC in New York Symptome der gefährlichen Infektionskrankheit. Der Mann zeige typische Symptome wie Ausschlag, Fieber und geschwollene Lymphknoten, berichten New Yorker Behördenvertreter. Am Freitag war bekannt geworden, dass sich eine Mitarbeiterin des Senders mit Hautmilzbrand infiziert hatte. Sie hatte einen an Starmoderator Tom Brokaw adressierten Drohbrief geöffnet, in dem die US-Bundespolizei FBI den Erreger entdeckte. Die Frau ist den Angaben zufolge auf dem Weg der Besserung.

Massentests in Florida

Im Fall der fünf infizierten Mitarbeitern von American Media ist noch unklar, ob die Infektionen im Zusammenhang mit drei früheren Erkrankungen in der Firma stehen. Der Kontakt mit den Erregern kann nach Angaben der Ermittler auch schon länger zurückliegen. Am 5. Oktober war ein 63-jähriger Angestellter von American Media an Lungenmilzbrand gestorben. Zwei weitere Fälle waren bereits bekannt geworden. Fast 1.000 Menschen, die sich in den Büroräumen aufgehalten hatten, wurden auf Milzbrand getestet und mit Antibiotika behandelt.

Cheney stellt Verbindung zu bin Laden her

Vizepräsident Dick Cheney stellte am Samstag zum ersten Mal eine Verbindung zwischen den Milzbrandfällen und dem mutmaßlichen Top-Terroristen Osama bin Laden her. Bin Laden habe in der Vergangenheit versucht, sich biologische und chemische Massenvernichtungswaffen anzueignen, sagte Cheney. In den Trainingslagern von bin Ladens Organisation El Kaida in Afghanistan seien seine Anhänger in der Anwendung solcher Substanzen geschult worden. Auch wenn die Ermittlungen noch nicht abgeschlossen seien, halte er die Milzbrandfälle nicht für einen Zufall, sagte der US-Vizepräsident. Für eine Verbindung zu den Terroranschlägen vom 11. September liegen nach Angaben des FBI dagegen keine Hinweise vor.

Stimmung schlägt teils in Panik um

Falscher Alarm und Trittbrettfahrer sorgten in den USA darüber hinaus für Panik. Die Fluggesellschaft US Airways leitete einen Flug aus North Carolina um, weil an Bord eine "verdächtige Substanz" entdeckt wurde. Eine United-Airlines-Maschine aus London musste in Washington auf der Rollbahn warten, weil Mitglieder der Besatzung ein weißes Pulver in der Toilette gefunden hatten. In den USA verschärften die Postabteilungen von Unternehmen und Behörden ihre Sicherheitsvorkehrungen. Justizminister John Ashcroft rief seine Landsleute zur Vorsicht auf beim Öffnen ihrer Post. Das Gesundheitsministerium versetzte alle Gesundheitsdienste der USA in höchste Alarmbereitschaft. (häg/AFP/dpa)