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WS

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

WS/T 283-2020

Replacing WS 283-2008

**Anthrax diagnosis
(English Translation)**

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Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
3.1 Anthrax
4 Diagnosis basis
4.1 Epidemiological history
4.2 Clinical manifestations and classification
4.3 Laboratory inspection
5 Principles of diagnosis
6 Diagnosis
6.1 Suspected cases
6.2 Clinical diagnosis cases
6.3 Confirmed cases
7 Differential diagnosis
7.1 Skin anthrax
7.2 Intestinal anthrax
7.3 Pulmonary anthrax

Foreword

Chapter 6 of this standard is mandatory clauses, and the rest are recommended clauses.

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces WS 283-2008 "Diagnostic Criteria for Anthrax." Compared with WS 283-2008, the main technical indicators of this standard are as follows.

- Added normative references (see Chapter 2);
- Modified the laboratory inspection (see 4.3, 3.3 of the 2008 edition);
- Modified the diagnosis of clinically diagnosed cases (see 6.2, 5.2 of the 2008 edition);
- Modified the diagnosis of confirmed cases (see 6.3, 5.3 of the 2008 edition);
- Added specimen storage and transportation requirements (see Appendix A);

- Added biosafety requirements (see Appendix B);
- Added nucleic acid detection of *Bacillus anthracis* (see Appendix D);
- Added *Bacillus anthracis* antigen detection (see Appendix E).

Drafting organizations of this standard. Infectious Disease Prevention and Control Institute of China Center for Disease Control and Prevention, Liaoning Provincial Center for Disease Control and Prevention, Capital Medical Department Beijing Ditan Hospital affiliated to the University, Sichuan Provincial Center for Disease Control and Prevention, Chinese Center for Disease Control and Prevention, Military Medicine of the Chinese People's Liberation Army Institute of Military Veterinary Medicine, Academy of Sciences, Shaanxi Provincial Center for Disease Control and Prevention, Shenyang Sixth People's Hospital.

1 Scope

This standard specifies the diagnostic basis, principles, diagnosis and differential diagnosis of anthrax.

This standard applies to the diagnosis of anthrax in various medical institutions and their medical staff at all levels across the country.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB 19489 Laboratory Biosafety General Requirements

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Anthrax

An acute zoonotic disease caused by *Bacillus anthracis*. Mainly occurs in livestock houses, with herbivores such as cattle, sheep and horses being the most Susceptible. Humans get sick mainly through contact with animals suffering from anthrax or contaminated animal products, and environmental infections. The main clinical type is cutaneous anthrax, A few are pulmonary anthrax and intestinal anthrax, which can be secondary to sepsis and meningitis. Cutaneous anthrax has a low mortality rate, and other types of anthrax have a higher mortality rate.

high.

4.1 Epidemiological history

Within 14 days before the onset of illness, have been in contact with a disease or dead animal or its remains suspected of anthrax, or have eaten meat of a disease or dead animal suspected of anthrax or its products, or inhalation of suspected *Bacillus anthracis* contaminated dust, or engaged in close contact with animal products such as fur, and research with *Bacillus anthracis* Investigate the use of related occupations, or engage in activities such as breeding, grazing, cultivating or digging in areas that may be contaminated by anthrax spores.

4.2.1 Skin anthrax

Unexplained macules, papules, blisters, swelling and infiltration of surrounding tissues appear on the local skin of exposed parts such as hands, forearms, face and neck.

Then the central necrosis formed an ulcerative black eschar, and the skin around the eschar became red, swollen, painless, and slightly itchy. Typical skin damage it presents as a shallow ulcer with black scabs, small blisters around it, and non-pitting edema with extensive nearby tissues. In addition to skin lesions, patients often appear Symptoms and signs such as fever, headache, joint pain, general malaise, and local lymph node and splenomegaly. A few severe cases, with large patches of water locally Swelling and necrosis.

4.2.2 Intestinal anthrax

Fever, bloating, severe abdominal pain, diarrhea, usually bloody or bloody stools. May have nausea, vomiting, and the vomit may contain blood Silk and bile. May be accompanied by symptoms and signs outside the digestive tract.

4.2.3 Pulmonary anthrax

High fever, difficulty in breathing, chest pain and cough, and very thick bloody sputum. The lung signs often consist of only scattered rales. Chest X-ray the main manifestations are widened mediastinal shadows and pleural effusion.

4.2.4 Meningitis anthrax

Severe headache, vomiting, stiff neck, delirium, coma, and respiratory failure. Cerebrospinal fluid is mostly bloody. Mostly secondary to 4.2.1~ 4.2.3, it may also happen directly.

4.2.5 Septic anthrax

High fever, chills, septic shock and diffuse intravascular coagulation (DIC) manifestations, bleeding spots or large ecchymosis on the skin, cavities Blood, respiratory and circulatory failure quickly appeared. Often secondary to 4.2.1 ~ 4.2.3, may also occur directly.

4.3 Laboratory inspection

4.3.1

Clinical specimens of patients, bacterial isolation and culture to obtain *Bacillus anthracis* (see Appendix A, Appendix B).

4.3.2

In the patient's serum sample, the anti-anthrax specific antibody test was positive (see Appendix C).

4.3.3

Clinical specimens of the patient, microscopic examination revealed a large number of gram-positive large bacilli arranged in tandem with both ends flush.

4.3.4

In clinical specimens of patients, *Bacillus anthracis*-specific nucleic acid fragments were positive (see Appendix D).

4.3.5

The clinical specimen of the patient showed a positive *Bacillus anthracis* antigen test (see Appendix E).

4.3.6

Bacillus anthracis is obtained by separating and cultivating bacteria from exposed animal specimens or exposed environment specimens (see Appendix A and Appendix B).

5 Principles of diagnosis

Diagnosis is based on epidemiological history, clinical manifestations, laboratory tests, etc.

6.1 Suspected cases

Have 4.1, and have one of the clinical manifestations of 4.2.1 to 4.2.5.

6.2 Clinical diagnosis cases

A clinically diagnosed case can be diagnosed if one of the following is met.

- a) Suspected cases, and those who have any of the items in 4.3.2 to 4.3.6;
- b) Those with a clear epidemiological history and typical skin lesions.