

13 Anthrax

■ 13.1 Introduction

Anthrax is an acute bacterial disease affecting the skin (and rarely, the lungs or gastro-intestinal tract) caused by the aerobic bacillus, *Bacillus anthracis* and spread through its spores. Anthrax is primarily a disease of herbivorous animals but all mammals may be susceptible to infection. Spores can be found in animal products such as wool, hair, hides, skins, bones, bonemeal, and in the carcasses of infected animals. The spores can also contaminate soil. Spores may survive for many years. New areas of infection may develop through the use of infected animal feed. In the UK human anthrax is rare, and is almost entirely an occupational disease affecting workers handling infected animals (abattoir workers) or exposed to imported infected animal products. Prevention depends on, for example, controlling anthrax in livestock and on disinfecting imported animal products. Processing of hides, wool and bone by tanning, dyeing, carbonising or acid treatment also provides a means to control the risk of infection. Bonemeal used as horticultural fertiliser may rarely contain anthrax spores if it has not been correctly treated (e.g. by steam sterilisation) in the country of origin; a certificate of sterilisation should accompany any consignment on entry to the UK. Those handling it in bulk should wear impervious gloves which should be destroyed after use.

■ 13.2 Vaccine

Human anthrax vaccine is the alum precipitate of the antigen found in the sterile filtrate from cultures of the Sterne strain of *Bacillus anthracis*, preserved with thiomersal. It creates protective immunity to the toxin produced by the bacillus. The vaccine must be kept at 2-8°C and should be well shaken before being given by intramuscular injection. Freezing must be avoided.

■ 13.3 Recommendations

- 13.3.1 Immunisation against anthrax is recommended **only for workers at risk of exposure to the disease (13.1).**
- 13.3.2 Workers at risk should receive information, instruction and training on the nature of anthrax including its mode of transmission and how to recognise early symptoms of the disease. Good hygiene practice, i.e. regular handwashing, avoidance of hand to eye/mouth contact and covering cuts and abrasions before working, should be demonstrated. Suitable protective clothing should be worn. Adequate washing facilities should be provided. Where appropriate, industry/engineering controls, e.g. enclosure of dusty processes and exhaust ventilation, should be employed with procedures for regular workplace cleaning and disinfection.

13 Anthrax

■ 13.4 Route of administration and dosage

■ 13.4.1 Four injections of 0.5ml should be given intramuscularly, with intervals of three weeks between the first three injections and six months between the third and fourth. Annual reinforcing doses of 0.5ml intramuscularly are advised. The batch number of the vaccine should be recorded in the recipient's records.

■ 13.4.2 Advice on the use of anthrax vaccine can be obtained from the Centre for Applied Microbiology and Research (Tel. 01980 612100).

■ 13.5 Adverse reactions

■ 13.5.1 Reports of adverse reactions to anthrax vaccine are very rare. Mild erythema and swelling lasting up to two days may occur at the site of the injection. Occasionally regional lymphadenopathy, mild fever and urticaria may develop.

■ 13.5.2 Severe reactions should be reported to the Committee on Safety of Medicines through the Medicines Control Agency using the yellow card system.

■ 13.6 Contraindications

There are no specific contraindications. A local or general reaction to the first injection does not necessarily indicate a predisposition to reactions following subsequent injections.

■ 13.7 Management of outbreaks

All cases of anthrax should be notified. An attempt should be made to confirm the diagnosis bacteriologically and the source of infection should be investigated. Penicillin is the treatment of choice. Skin lesions should be covered; any discharge or soiled articles should be disinfected. Anthrax vaccine has no role in the management of a case or outbreak.

■ 13.8 Supplies

Anthrax vaccine is available from:

Public Health Laboratory Service:
Communicable Disease Surveillance Centre, Tel. 0181 200 6868

13 Anthrax

Cardiff Tel. 01222 755944
Leeds Tel. 0113 264 5011
Liverpool Tel. 0151 525 2323

Scotland:
Perth Royal Infirmary Tel. 01738 23111
Law Hospital Tel. 01698 361100, ext 2785
Borders General Hospital. Tel. 01896 754333

Northern Ireland:
Public Health Laboratory, Belfast City Hospital Tel. 01232 329241, ext 2968
or 2215.

■ 13.9 Bibliography

Vaccine against anthrax
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