microbiological analysis of 62 samples from all of the hessian bags used by the case during the incubation period did not reveal the presence of anthrax. Investigation of the home and sport exposures did not reveal any items of concern. In particular, there was no history of animal exposure, no use of blood and bone fertilisers on the football fields, and no exposure to imported animal products in the home.

During the investigation, all people who shared similar exposures were counselled and provided with information on anthrax, its presentation and modes of transmission. Three people from the case's workplace and a number of sporting associates sought medical attention in regard to skin lesions. However, more than one month after the initial presentation, no further cases of cutaneous anthrax have been detected.

Discussion

Human anthrax is a rare disease in Australia with an average notification rate between 1917 and 1991 of 0.08 notifications per 100,000 population per year.[3] The last recorded case of human anthrax in Queensland occurred in 1939.[4] Most cases in Australia in the last 50 years have been related to animal outbreaks in the endemic areas in Victoria and central New South Wales. The last human case was in Victoria in 1997.[5] Cases in developed countries are usually associated with exposure to contaminated animal products.[5,6,7] The source of this case of cutaneous anthrax could not be determined by this investigation.

As non-pathogenic Bacillus species are commonly cultured from environmentally contaminated clinical specimens, laboratories may not investigate the isolation of a Bacillus species past the genus level. Therefore, it is important that this disease is recognised clinically and that where non-haemolytic Bacillus species with characteristic colonial morphology is isolated from a skin lesion, further examination is undertaken to identify the organism. Testing should include penicillin susceptibility testing, a motility test and, if in accordance with the diagnosis, a capsule stain of the organism grown under appropriate conditions.

In this case, the imperative to debride a suspected case of necrotising fasciitis led to surgery and skin grafting. This is usually not necessary with cutaneous anthrax,[8] however, with extensive eschar formation plastic surgical revision may be required.

Where there is no clear exposure, as in this case, the most common differential diagnosis for cutaneous anthrax would be a necrotising spider bite. It is conceivable that such a case could be treated successfully with penicillin, the Bacillus species isolated not be identified, and a potential sporadic case of cutaneous anthrax be entirely missed. Clinicians need to be aware of the clinical features that suggest the diagnosis and laboratories need to ensure that processes are set in place to identify any potential isolate of *B. anthracis*.

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References

1. Doyle RJ, Keller RF, Ezzell JW. Bacillus: in Lenette EH, Balows A, Hausler WJ, Shadomy HJ. Manual of Clinical Microbiology 4th Ed. American Society for Microbiology, Washington DC, 1985: 211-215.
2. Benenson A, (ed.), Control of Communicable Diseases Manual, 16th ed. American Public Health Association, 1995:18-22.
3. Hall R. Notifiable Diseases Surveillance, 1917 to 1991, *Commun Dis Intell* 1993;17:226-236.
4. Seddon H. Diseases of domestic animals in Australia, Part 5, Vol. 1, Bacterial Diseases, Commonwealth Department of Health , 1965:17.
5. Lester R, Beaton S, Carnie J, et al. A case of human anthrax in Victoria. *Commun Dis I ntell* 1997; 21:47-48.
6. Morbidity and Mortality Weekly Review, Human Cutaneous Anthrax – North Carolina, 1997. *MMWR*, 1988;37:413-414.
7. Lew D, *Bacillus anthracis* (Anthrax), in Mandell G, Bennett J, Dolin R, (eds.), Principles and Practice of Infectious Diseases, 4th Ed., Churchill Livingstone 1995:1885-1889.
8. La Force FM, Anthrax. *Clinical Infectious Diseases* 1994;19:1009-14.

Parasites in Water

In February this year, *CDI* reported on outbreaks of cryptosporidiosis in the Australian Capital Territory and New South Wales associated with swimming pools.[1] Outbreaks of cryptosporidiosis also occurred in Queensland and Victoria. An outbreak of cryptosporidiosis associated with a swimming pool in the Hutt Valley, New Zealand, in the first quarter of 1998 has also been reported.[2] Closure of the pools for cleaning and the implementation of other control measures, such as discouraging people with diarrhoea from using swimming pools, brought the outbreaks under control.

In July, and again in August, both C*ryptosporidium parvum* and G*iardia lamblia* were detected in the Sydney water supply. Although no increase in the number of cases of diarrhoeal illness was found, Sydney residents were advised, as a precautionary measure, to boil their water before drinking. Investigations have been undertaken to detect the cause of the problem and measures to clear the organisms from the water supply have been implemented.

These separate incidents involving protozoal contamination of water have highlighted a number of complex issues relating to the microbiological testing of water and the effectiveness of water-treatment methods for removing organisms which are resistant to chlorination. Over the next month, two separate meetings and a conference will be held to examine these issues in the Australian context.

Meetings

The New South Wales health authorities are convening a meeting of invited experts on 4 September 1998 to review

the implications of parasites in Sydney water in light of present knowledge about these organisms and their control. The meeting will consider the development of a consensus position on the place of routine testing of water supplies and the management of contamination incidents.

On 6 October 1998, the Victorian health authorities are holding a meeting of invited participants and experts to develop a consensus strategy on central issues.

Conference

The first Australian Conference on *Cryptosporidium* in Water will be held on 5 October 1998 in Melbourne. Further information is presented below.

1. Anonymous. Cryptosporidiosis outbreak. *Commun Dis Intell* 1998;22(2):22.
2. Baker M, Russell N, Roseveare C, O'Hallahan J, Palmer S and Bichan A. Outbreak of cryptosporidiosis linked to Hutt Valley swimming pool. *The New Zealand Health Report* 1998;5(6):41-45.

Cryptosporidium in Water Conference

On 5 October 1998, the first Australian conference on *Cryptosporidium* in water will be held in Melbourne. The Australian Water and Wastewater Association, the Cooperative Research Centre for Water Quality and Treatment, and the Water Services Association of Australia are jointly organising the conference. The conference has three streams examining: the epidemiology of cryptosporidiosis, risk assessment of *Cryptopsoridium* in water, and typing of oocysts. International speakers for the conference include Dr Bill MacKenzie (CDC), A/Prof Cynthia Chappell (University of Texas), Dr Peter O'Donoghue (University of Queensland), Dr David Casemore (PHLS), Dr Peter Teunis (RIVM), and Professor Gordon Finch (University of Alberta). The cost of the conference is $290 (Australian). Please refer to the Bulletin Board for contact details.

How long should you boil water to make it safe to drink?

The recent incidents of contamination of the Sydney water supply with *Cryptosporidium* and *Giardia* have generated considerable interest in the issue of how long water should be boiled to make it safe to drink. *CDI* inadvertently muddied the waters (so to speak) in last month's edition when our 'Advice for travellers' recommended that water be boiled for at least 10 minutes.[1] This information was sourced from the fourth edition of the Commonwealth Department of Human Services and Health's publication *Health information for international travel*. [2] This reiterates the unreferenced recommendation of earlier editions of the same publication. Our attention has since been drawn to the Centers for Disease Control (CDC) recommendations for boiling water, which were made in September 1994 on the basis of a contemporary literature review.[3,4] These recommendations have been followed by the New South Wales health authorities in responding to the contamination incidents.

CDC recommends making water microbiologically safe to drink by bringing it to a rolling boil for one (1) minute. This will inactivate all major waterborne bacterial pathogens (for example, *Vibrio cholerae*, enterotoxigenic *Esherischia coli, Salmonella, Shigella sonnei, Campylobacter jejuni, Yersinia enterocolitica* and *Legionella pneumophila*) and waterborne protozoa (for example, *Cryptosporidium parvum, Giardia lamblia*, and *Entamoeba histolytica)*. It will also be effective for waterborne viral pathogens such as hepatitis A virus, which is considered one of the more heat-resistant viruses. An increase in boiling time to three (3) minutes is recommended if viral pathogens are suspected in drinking water in communities at elevations above 2 km.

1. Anonymous. Advice for travellers. *Commun Dis Intell* 1998;22(8):154.
2. Department of Human Services and Health. Health information for international travel. Fourth edition. Australian Government Publishing Service, 1994.
3. Anonymous. Assessment of inadequately filtered public drinking water - Washington, D.C., December 1993. *MMWR* 1994;43(36);661-668.
4. Anonymous. Assessment of inadequately filtered public drinking water - Washington, D.C., December 1993. *JAMA* 1994;272(18);1401-1402.