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Possible rabies-like infection in Scotland

A man has been admitted to a hospital in Scotland with an acute neurological illness that is being investigated as a suspected case of rabies (1). The possible diagnosis of a rabies-like illness is being considered because of some aspects of the clinical presentation and because the man is a bat handler who has been bitten by a bat in Scotland on at least one occasion within the possible incubation period for rabies. There is no documented evidence that the patient has ever received rabies immunisation or has travelled abroad since 1996. Although the clinical features of the man's illness are compatible with some aspects of rabies, none of the laboratory investigations yet indicate that a rabies-like virus is responsible. Testing for rabies and rabies-like virus is not, however, straightforward and more tests are being undertaken. The case has raised awareness of the possibility of rabies-like virus infection of bats in the United Kingdom (UK) (2).

European bat lyssavirus

The rabies-like viruses carried by insectivorous bats in Europe are referred to as European bat lyssaviruses (EBLs). These are from the same family of viruses that cause rabies in terrestrial mammals, and in bats in the Americas, but differ in genotype and serotype. They are EBL 1 and 2, and are of rabies virus genotype 5 and 6 respectively. Classical rabies is due to rabies virus genotype 1. Between 1977 and 2000, 630 cases of EBL infection in bats were reported in Europe, mostly in Denmark, the Netherlands, and Germany (3). Only two EBL infections have been confirmed in UK bats one in Newhaven on the south coast of England in 1996 (4) and another in Lancashire in 2002 (5). Both of these bat rabies infections were in the same species – the Daubenton's bat. In the case in 1996 it was thought that the bat might have migrated from continental Europe. The location of the 2002 Lancashire case is, however, more consistent with EBLs being present in a bat species in the UK. The Veterinary Laboratories Agency in the UK tests about 200 bats every year for EBL but has not so far detected the virus other than the two cases in 1996 and 2002 (6).

EBLs do not readily cross the species barrier and it is very rare for other animals to be infected even in parts of Europe where bats are known to carry EBLs (7). The risk of EBL infection being passed to domestic pets such as dogs and cats, and to wild terrestrial mammals in the UK is very low, and the rabies-free status of the UK has been unaffected by the previous isolation of EBL in two bats in the UK.

As EBL does not transmit readily to other species, infection in humans is extremely rare. Only three human cases have been reported in Europe since 1977, one in Finland and two in the former Soviet Union. All three have been in people who had been in close contact with bats. One was a bat handler and the other two had been bitten (8,9,10,11). In the in Ukraine in 1977 a 15 year old girl died around five weeks after being bitten by a bat on the finger (11). In Russia in 1985 an 11 year old girl died four weeks after being bitten on the lower lip by a bat (11). Also in 1985 a 30 year old Finnish man presented with ascending paralysis and pain in the arm and neck 51 days following a bat bite in Finland (9). He progressed to becoming agitated, with hyperventilation and spasms, and died 20 days following admission. None had received specific treatment after their exposure. The different rabies-like viruses and bat species found in Europe distinguish this region from the Americas where the risk of rabies

following human contact with bats is higher (12).

Prevention of European bat lyassavirus infection in humans

Bats present virtually no risk to the general public and are protected by law. If a member of the public comes across a bat, for example because it is injured, they should not touch the bat but seek help. Only licensed or volunteer bat handlers should routinely come into contact with bats, and they should take suitable precautions, including wearing bite-proof gloves. The Department of Health advice is that all bat handlers whether licensed or not should have pre-exposure immunization against rabies (13). Vaccine is issued free of charge for bat handlers in England and Wales by the Public Health Laboratory Service. This is an amendment to previous advice, which limited free provision of vaccine to licensed bat handlers (14). Bat handlers should have booster rabies vaccination every three to five years.

Post-exposure prophylaxis

The change in policy also affects management of close exposures to bats in the UK. Prophylaxis for exposure to EBL is the same as that recommended for other potential rabies virus exposures and appears to be highly effective (15). Vaccine failures are very rare if an appropriate post-exposure regimen is followed (16). Experience has been gained in The Netherlands, where EBLs are prevalent. There, as in the UK, people who have been bitten by an EBL virus positive bat are advised to be vaccinated with rabies vaccine as for classical (genotype 1) strains. It has been shown that there is cross-immunity between genotype 1 and genotype 5 (EBL 1) and genotype 6 (EBL 2) strains (17), but it is not known if rabies vaccines are completely protective against EBLs. Over the last two decades several hundred people in the Netherlands have been vaccinated with genotype 1 rabies virus vaccines after being bitten by an EBL-positive bat, and no EBL infection has ever been confirmed in a human being in the Netherlands (*personal communication*, 20 November 2002. van der Poel WHM).

Anyone who has been scratched or bitten by a bat, or who has experienced contact between bat saliva or neural tissue and their eyes, broken skin, or mucous membrane should, after assessment, be offered post-exposure vaccination as soon as possible after the incident. If the person is already fully immunised against rabies, they should be offered two doses of vaccine. If they were previously unimmunised or incompletely immunised, they should be offered five doses of vaccine. For those who were previously unimmunised, and who have been bitten by a bat that is known, or strongly suspected, to be rabid, rabies immunoglobulin may be offered in addition to a full course of vaccine. In view of the occasionally prolonged incubation period of rabies, post-exposure vaccination should also be offered to any individuals who have been exposed to bats as described above at any point in the last year if they did not receive post-exposure vaccination at the time of the incident. Public health authorities in other countries should note the change of policy so that returning travellers who report exposure to bats in the UK are offered prophylaxis if appropriate.

General background information about bats in the UK can be obtained from The Bat Conservation Trust website at <http://www.bats.org.uk/bat_info.htm>.

Further guidance is available in the *PHLS Immunoglobulin Handbook* (18) and can be obtained from duty doctors at the PHLS Central Public Health Laboratory Virus Reference Laboratory (tel: 020 8200 4400, fax: 020 8200 1569) or Communicable Disease Surveillance Centre (tel: 020 8200 6868, fax 020 8200 7868).

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Joint Syphilis Outbreaks Working Group

The first meeting of the Joint Syphilis Outbreaks Working Group was held on 18 November 2002 in London. The group brought together specialists in genitourinary medicine, communicable disease control, health advisors, health promotion, and epidemiologists currently involved in the prevention and control of the ongoing syphilis outbreaks in Brighton, Manchester, Newcastle-upon-Tyne, and London. The meeting was set up to facilitate communication across outbreak sites, to consider the design and results of enhanced surveillance programmes, to review prevention interventions, and to develop joint action plans for syphilis outbreak control activities in 2003.

The meeting also considered areas for new research aimed at improving our understanding of the determinants of the outbreaks and opportunities for refining control interventions. The working group aims to meet every six months and will provide a forum for providers and researchers currently involved in the management of syphilis outbreaks across the United Kingdom to discuss developments in the field. Further details on the work of the group may be obtained from Ian Simms at the Communicable Disease Surveillance Centre (CDSC), email: isimms@phls.org.uk.

Bacteraemia

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PDF

Uncommon pathogens involved in bacteraemia. England and Wales, 2001

This review covers reports from laboratories in England and Wales of clinical specimens taken in 2001 and concern bacteria isolated from blood culture, with or without cerebrospinal fluid (CSF), as well as sera where the diagnosis was made using molecular techniques. This report covers the less common organisms, (*ie*, those genera with fewer than 50 reports in 2001).

Many of the reported genera are common pathogens usually responsible for other diseases, such as *Legionella pneumophila* or *Shigella* spp. Others are rare pathogens, such as *Empedobacter* spp. A full list of all genera with fewer than 50 reports in 2001 is given in the table.

Some reports stated that the infection was hospital-acquired, and a number of others had comments that suggest the infection was probably also hospital-acquired, for example, infection of intravenous lines or infection after recent surgery. Travel abroad was indicated in some reports (*eg*, *Borrelia burgdorferi*, *Legionella pneumophila*).

A sizeable number of reports indicated that the patient had an underlying condition likely to predispose them to infection; for example, they were neutropaenic, had cancer, and/or were receiving chemotherapy. Less common predisposing factors were diabetes, kidney failure or being on dialysis, pancreatitis, liver failure, being a premature infant, recently having a bone marrow transplant, or otherwise being immunocompromised. A number of reports indicate that the individual also had a respiratory tract infection (often described as a chest infection or pneumonia) as well as bacteraemia. Several reports indicated that the infection was polymicrobial: and some indicated endocarditis.

Table

Abiotrophia spp	5
– *Abiotrophia defectiva*	4
Achromobacter spp	3
Actinobacillus spp	5
Actinomyces odontolyticus	1
Anaerobiospirillum spp	1
Arcanobacterium haemolyticum	2
Bifidobacterium spp	1
Bordetella pertussis	2
Borrelia burgdorferi	10
Branhamella spp	1
Brevibacterium spp	7
Brevundimonas spp	**16**
– *Brevundimonas diminuta*	4
– *Brevundimonas vesicularis*	12
Brucella spp	3
Burkholderia cepacia	15
Capnocytophaga spp	8

– *Capnocytophaga ochracea*	1
Cardiobacterium hominis	1
Chromobacterium spp	4
– *Chromobacterium violaceum*	3
Chryseobacterium spp	30
– *Chryseobacterium gleum*	1
–*Chryseobacterium indologenes*	19
–*Chryseobacterium meningosepticum*	10
Dermabacter hominis	1
Edwardsiella tarda	1
Eikenella corrodens	2
Empedobacter brevis	1
Erwinia spp	1
Erysipelothrix rhusiopathiae (insidiosa)	3
Eubacterium spp	10
– *Eubacterium lentum*	5
Flavimonas oryzihabitans	16
Flavobacterium spp	13
Gardnerella vaginalis	2
Hafnia spp	43
– *Hafnia alvei*	41
Helicobacter pylori	3
Kingella kingae	3
Kluyvera spp	20
– *Kluyvera ascorbata*	1
Lactobacillus spp	25
– *Lactobacillus acidophilus*	4
– *Lactobacillus rhamnosus*	3
Lactococcus spp	22
– *Lactococcus lactis*	17
Leclercia adecarboxylata	1
Leifsonia aquaticum	2
Legionella pneumophila	2
Leptospira spp	3
Leptotrichia buccalis	2
Leuconostoc spp	20
Mycobacterium spp	41
– *Mycobacterium avium - intracellulare group (mai)*	16
– *Mycobacterium chelonae*	7
– *Mycobacterium fortuitum*	1
– *Mycobacterium scrofulaceum*	1
– *Mycobacterium tuberculosis*	15
Nocardia spp	2

– *Nocardia otitidis caviarum*	1
Ochrobactrum spp	40
– *Ochrobactrum anthropi*	37
Oerskovia spp	1
Oligella urethralis	1
Pasteurella spp	49
– *Pasteurella aerogenes*	1
– *Pasteurella haemolytica*	1
– *Pasteurella multocida*	32
– *Pasteurella peumotropica*	3
Pediococcus spp	1
Peptococcus spp	17
Porphyromonas spp	2
– *Porphyromonas asaccharolytica*	1
– *Porphyromonas endodontalis*	1
Prevotella spp	46
– *Prevotella bivia*	2
– *Prevotella buccae*	4
– *Prevotella disiens*	1
– *Prevotella loescheii*	7
– *Prevotella melaninogenica*	13
– *Prevotella oralis*	7
Rahnella spp	3
Ralstonia pickettii	7
Rhodococcus spp	6
– *Rhodococcus equi (Corynebacterium equi)*	1
Shewanella putrefaciens (Pseudomonas putrefaciens)	3
Shigella spp	5
– *Shigella flexneri*	3
– *Shigella sonnei*	1
Sphingobacterium spp	2
– *Sphingobacterium multivorum*	1
Sphingomonas spp	26
– *Sphingomonas paucimobilis*	25
Streptobacillus spp	2
– *Streptobacillus moniliformis*	1
Tropheryma spp	1
Veillonella spp	9

Vibrio spp	3
– *Vibrio metschnikovii*	1
Weeksella virosa	1
Yersinia spp	9
– *Yersinia enterocolitica*	7
– *Yersinia intermedia*	1
– *Yersinia rohdei*	1

Discussion

The purpose of this review is to cover the unusual bacterial genera that have not been discussed in the other bacteraemia reports in the *CDR Weekly* this year. This is the first time that these uncommon genera have appeared, and feedback is welcome. Although these bacteria only account for a very small proportion of the total number of bacteraemia reports, they can be associated with important clinical consequences such as endocarditis (1).

Although these reports should reflect clinically significant diseases, there were 38 reports of *Ochrobactrum anthropi* bacteraemia, some of which are known to have been pseudobacteraemias (2). Another uncommon bacteria, *Ralstonia pickettii*, has also recently been identified as a source of pseudobacteraemia (3).

If confirmation of unusual bacterial pathogens is required, isolates can be sent to the Laboratory of Hospital Infection, Central Public Health Laboratory (CPHL), London.

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These reports would not be possible without the weekly contributions from microbiology colleagues in laboratories across England and Wales, without which there would be no surveillance data. Feedback is always welcome – please send comments to George Duckworth, email: gduckworth@phls.org.uk. The support of colleagues within the PHLS, CPHL in particular, is valued in the preparation of these reports.

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