JMM Correspondence

Misidentification of *Brucella melitensis* as *Ochrobactrum anthropi* by API 20NE

Brucella organisms have been misidentified as *Moraxella phenylpyruvica* by the API 20NE non-enteric identification system (bioMérieux), as *Moraxella* species by the MicroScan Negative COMBO type 5 system (Dade MicroScan) (Batchelor *et al*., 1992) and as *Haemophilus influenzae* biotype IV by the *Haemophilus–Neisseria* identification (HNID) panel (Dade MicroScan) (Barham *et al*., 1993). *Ochrobactrum anthropi*, formerly classified under CDC Group Vd, is an oxidase-positive, non-lactose-fermenting, Gram-negative bacillus of low virulence that occasionally causes human infection. Here, we report misidentification of *Brucella melitensis* by API 20NE as *O. anthropi* in a case of brucellosis and we highlight the importance of differentiation from other cases of pseudobacteraemia caused by *O. anthropi*.

On 18 May 2002, a blood culture gave a positive signal after 48 h incubation on the BACTEC 9240 system. A slowly growing, oxidase-positive, Gram-negative bacillus failed to grow on MacConkey agar and was identified as *O. anthropi* in the API 20NE system, profile 1207004. This was thought to be of uncertain clinical relevance. However, because the patient was being investigated for possible endocarditis, repeat blood cultures were advised to help to assess significance. A further set of blood cultures sent on 23 May 2002 flagged positive after 48 h incubation. Gram-negative bacilli that failed to grow on MacConkey agar were isolated and identified as *O. anthropi* in the API 20NE system, profile 1201724. Further clinical history revealed that the patient's son, who had accompanied him on a trip to Cyprus, had been admitted to another hospital suffering from brucellosis. Subsequently, the patient's serum was tested for the presence of *Brucella* antibody. This test was positive and the reference laboratory confirmed acute *Brucella* infection by *Brucella* microagglutination test, complement fixation test, ELISA IgG and IgM. All blood culture isolates sent to a reference laboratory (Veterinary Laboratories Agency, Weybridge, Surrey, UK) were identified as *Brucella melitensis* (Table 1). The patient was treated for *Brucella* endocarditis with doxycycline and streptomycin.

Table 1. Confirmation of identification of blood culture isolates as *Brucella melitensis*

Characteristic	Result
Growth characteristics:	
Urea	+
H_2S	–
CO_2	–
Basic fuschin*	+
Thionin*	+
Detection of surface antigens with monospecific sera:	
A	+
M	–
Phages at routine test dilution:†	
Wb	NL
Tb	NL
BK_2	CL
Fi	NL
R/C	NL
Detection of DNA by PCR	+

*Tested at 20 μl ml^{-1} (1 : 50 000, v/v).

†CL, Confluent lysis; NL, no lysis.

On 10 September 2002, a Nigerian woman was admitted to the accident and emergency department with pyrexia, lower abdominal pain and vomiting for the previous 24 h. A diagnosis of acute appendicitis was made. Appendectomy was performed and a gangrenous, ischaemic appendix was removed. A blood culture from the patient grew an oxidase-positive, non-motile, Gram-negative bacillus that failed to grow on MacConkey agar and was identified as *O. anthropi* by API 20NE, profile 1241145. The patient's serum was tested negative for *Brucella* antibody and the reference laboratory at the Veterinary Laboratories Agency – Weybridge confirmed that the blood culture isolate from this patient was not *Brucella*. This isolate was sent to the Central Public Health Laboratory (Colindale, London, UK) and was confirmed as *O. anthropi* by fatty acid analysis. The patient recovered and was discharged home without antimicrobial therapy.

We have conducted a MedLine search to review all the literature on reported cases of *O. anthropi* infection. API 20NE was used for identification of 32 isolates of *O. anthropi*, 41 isolates were identified by using other methods and no microbiological method of identification was mentioned for 20 isolates. We found that cases of *O. anthropi* bacteraemia reported in the literature fell into two groups: those who made a full, uncomplicated recovery and those who had serious infections. Patients with pseudobacteraemia (El-Zimaity *et al*., 2001), catheter-associated sepsis (Cieslak *et al*., 1992) or bacteraemia due to intrinsic drug contamination (Ezzedine *et al*., 1994) recovered fully, some even without the use

of antimicrobial therapy, and no relapses of *O. anthropi* bacteraemia occurred after removal of the source of infection. These cases reflect and confirm the low pathogenicity of this organism. The group of patients with severe disease required multiple antimicrobial therapy, as in cases of transplant-related infection (Chang *et al*., 1996), infective endocarditis (Saeed Mahmood *et al*., 2000) and other pyogenic infections (Yu *et al*., 1998). Our findings highlight the fact that *O. anthropi*, with its low virulence, should be differentiated from *Brucella* in patients presenting with severe disease manifested primarily as *O. anthropi* bacteraemia with no obvious focus of infection.

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