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Wound Colonization by *Ewingella americana*

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***Ewingella americana* was recovered from a wound on the left leg of a 46-year-old male after a compound fracture of the tibia and fibula. Compared with the reported characteristics of 44 American strains, this strain was shown to belong to biogroup 1. The isolation of this bacterium in South Africa confirms its wide geographical distribution in clinical specimens. Colonization was not associated with clinical deterioration.**

Ewingella americana is a newly described genus and species of the family *Enterobacteriaceae* (2). The generic name honors the American bacteriologist, William Ewing, and the specific epithet refers to the American source of the clinical isolates described (2). Wound sites were described for the original 10 clinical isolates (2), and this origin (wound sites) is also described in a more recent paper (1). We report the isolation of this organism from a wound site in a male patient in South Africa and compare the biochemical characteristics of the present strain with those of the published American strains.

Case report. A 46-year-old, previously healthy male was admitted to the Baragwanath Hospital in Soweto, South Africa, on 16 February 1985 after a motor vehicle accident. He sustained multiple compound fractures involving the right humerus, left tibia and fibula, and right tibia and fibula.

On the day of admission, debridement with internal fixation of the right humerus and external fixation of the left tibia and fibula was performed, and a plaster of paris support was applied to the right leg wounds after excision of devitalized tissue. As there was considerable soft tissue loss, the wounds of both legs were left open. Prophylactic antibiotic therapy was initiated with ampicillin, cloxacillin, and gentamicin and was continued for 7 days. This regimen was followed by a 7-day course of oral ampicillin and cloxacillin. The patient underwent surgery on 12 March 1985 for the removal of the external fixator on the left leg and sloughectomy. At this stage, there were no local or systemic signs of sepsis. One month after admission, a discharging sinus was noted on the anterolateral aspect of the midshaft of the left tibia. Culturing of wound swabs taken from this lesion yielded *Staphylococcus aureus* and a group D streptococcus. These two organisms were repeatedly isolated from multiple cultures over a period of 4 months. A course of cephradine was given for 10 days to treat the staphylococcal infection and to provide antibiotic coverage against gram-negative pathogens. Local treatment included povidone-iodine (Betadine; The Purdue Frederick Co., Norwalk, Conn.) dressings.

A swab taken on 20 July 1985 yielded, in addition to the above-mentioned gram-positive organisms, an isolate which we identified as *E. americana*. Upon disk susceptibility testing with Diagnostic Susceptibility Test agar (Mast Laboratories, London, England), the isolate was found to be susceptible to the cephalosporins ceftazidime, cefoxitin, and cefotaxime, to the aminoglycosides tobramycin, netilmicin, and amikacin, and to piperacillin, chloramphenicol, and tetracycline. The isolate was resistant to ampicillin and cephradine. The biochemical properties of the strain are shown in Table 1, together with a comparison with the biochemical properties of published strains (1). On the basis of the lack of fermentation of L-rhamnose and D-xylose, the organism may be classified as biogroup 1 (2). Upon biochemical analysis with the API 20E kit (API System S.A., Vercieu, France), the numerical profile of 1005101 yielded the presumptive identification *Yersinia pestis*, a finding mentioned by other authors (1).

Table 1 shows the positive biochemical reactions published for *E. americana* (1) and the reactions of the present strain. We also report the following negative biochemical reactions, which have been uniformly negative for all *E. americana* isolates: production of indole, H_2S (triple sugar iron agar), urea (Christensen), and gas from D-glucose; presence of the enzymes phenylalanine deaminase, lysine decarboxylase (Møller), arginine dihydrolase (Møller), and ornithine decarboxylase (Møller); gelatin liquefaction at 22°C; utilization of malonate; acid production from sucrose,

TABLE 1. Biochemical characteristics of *E. americana*

Test	% of 44 known *E. americana* strains positive[a]	Reaction of present strain[b]
Methyl red	84	+
Voges-Proskauer	95	+
Citrate (Simmons) utilization	95	+
Motility	60	−
Growth in the presence of KCN	5	−
Acid production from:		
D-Glucose	100	+
Lactose	70	+
D-Mannitol	100	+
Salicin	80	+
L-Rhamnose	23	−
Maltose	16	−
D-Xylose	13	−
Trehalose	99	+
Cellobiose	10	−
D-Arabitol	99	+
Glycerol	24	−
D-Mannose	99	+
Tartrate (Jordan) utilization	35	ND
Esculin hydrolysis	50	−
Acetate utilization	10	+
Nitrate reduction to nitrite	97	+
o-Nitrophenyl-β-D-galactopyranoside	85	+

[a] Based on reactions after 48 hs of incubation at 36°C (1).
[b] +, Positive at 48 h; −, negative at 48 h; ND, not done.

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dulcitol, adonitol, *myo*-inositol, D-sorbitol, L-arabinose, D-raffinose, erythritol, and D-melibiose; and presence of DNase at 25°C, oxidase, and yellow pigment (1). The organism did, however, ferment D-galactose and utilize citrate (Christensen) but did not clear tyrosine (3). Motility was demonstrable at 25°C.

E. americana has been described as a rare pathogen or colonizer (2), and a call has been made to investigate future isolates as causing wound infections (2). No clinical deterioration was noted after the isolation of *E. americana* in our patient, and the wound closed without further antibiotic administration. This supports the idea that *E. americana* was a colonizer, rather than a pathogen, in this patient. Further swabs taken from the wound 2 weeks after the initial isolation of this organism failed to grow any pathogenic bacteria. Wound swabs taken from 12 patients in the same ward did not yield *E. americana*, and we were unable to isolate the organism from the patient's stool. It is possible that the use of cephradine predisposed the patient to colonization with the organism resistant to that antibiotic. *E. americana* was originally described on the basis of the characteristics of isolates from sputum, blood, and toe and thumb wounds (2). Although subsequent isolates from urine and stool samples have been reported (1), only one full case report has appeared (3). In that study, the organism and an unusual *Pseudomonas* species were isolated from the blood of an immunosuppressed patient. Although 7 of the 44 described strains are from wounds (1), this is the first report of the clinical significance of an isolate in a wound culture and suggests that the pathogenic potential of the organism is low in that setting, at least in an immunocompetent host.

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