Correspondence

Bacteria, arthritis, and skin lesions due to *Kingella kingae*

Sir,

Kingella (Moraxella) kingae, a Gram-negative, non-encapsulated, nonmotile aerobic coccobacillus, is an occasional inhabitant of the upper respiratory tract.¹ Rarely has it been associated with disease. Recently we cared for a young leukaemic patient in whom an episode of *Kingella kingae* septicaemia occurred. Illness in this child was associated with cutaneous and articular manifestations similar to those described in cases of sepsis caused by other members of the family of Neisseriaceae.

A 4-year-old boy with acute lymphocytic leukaemia in relapse was admitted with vesicular stomatitis, rash, and fever which had been treated with nystatin oral suspension for 2 days. He was listless but arousable and his rectal temperature was 38.6°C. There was a vesicular, pustular eruption affecting both lips, and the gums and tongue were coated with a yellowish-white friable plaque. Skin examination showed a vesicle (5 mm in diameter) on an erythematous base on the dorsum of the right hand, two erythematous papules (1 cm in diameter) on the extensor surface of the left forearm, and an erythematous papule (0.5 cm in diameter) on the plantar surface of the left foot. Gram stain of the oral plaque showed mixed bacterial flora, particularly Gram-negative bacilli; no budding cells or pseudohyphae were observed. The WBC was $0.77 \times 10^9/l$ with 8% polymorphonuclears, 12% bandforms, 42% lymphocytes, 10% monocytes, 2% metamyelocytes, and 26% lymphoblasts; the platelet count was $<5.0 \times 10^9/l$. Treatment was started with intravenously-administered gentamicin and carbenicillin.

On day 2 in hospital the left knee was noted to be erythematous, warm, swollen, and tender, but without evidence of a joint effusion. On day 3 two blood cultures taken on the day of admission were each reported to be growing a Gram-negative coccobacillus, subsequently confirmed to be *M. (kingella) kingae*, sensitive by disc diffusion susceptibility testing to chloramphenicol, tetracycline, gentamicin, carbenicillin, ampicillin, tobramycin, and polymyxin B. The patient became afebrile on day 4. The skin lesions and left knee joint resolved, and repeat blood cultures were sterile during a 14-day course of the combined antibiotics.

Human strains of *K. kingae* have been isolated from nose, throat, blood, joint fluid, and bone.¹ One isolate was obtained from the blood of a child with congenital heart disease and endocarditis.² The organism has also been recovered from patients with pharyngitis, laryngitis, and an eyelid abscess, as well as from routine nose and throat swabs.³ In this case, the severe stomatitis, whether or not caused by *K. kingae*, may have provided the portal of entry for the organism. The cutaneous and articular

manifestations might have been the result of haematogenously disseminated infection to skin and periarticular tissues. Such a syndrome is a recognised feature of disseminated infection due to *Neisseria gonorrhoea* and has been reported in an adult with sepsis caused by *Moraxella osloensis*.⁴ Moreover, *Moraxella* sp. have been reported to cause sepsis,⁵ and septic arthritis in children.⁶⁻⁷ *Neisseria*, *Moraxella*, and *Kingella* genera are all members of the family of Neisseriaceae. The genus *Kingella* has recently been separated from the genus *Moraxella* by its haemolytic activity and characteristic biochemical reactions. However, definition of the exact role of *K. kingae* as a human pathogen will depend on further clinical experience, better laboratory recognition, and reporting.

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Conservative care of the newborn baby

Sir,

Much criticism has been made of Dr Hughes-Davies's report¹ on the comparison of conservative and intensive care of the newborn baby. Much of this criticism centres on the unsatisfactory nature of his comparisons of mortality rates for very low birthweight babies at Salisbury with those for England and Wales, his Wessex neighbours, and University College Hospital, London.²⁻³

I should like to suggest that his study can be criticised merely on the grounds of the small size of his sample.

The only direct comparison of the figures for matched groups that he makes is that of the first-week mortality of babies with birthweights between 751 and 1000 g and gestational ages of less than 30 weeks, between his unit in Salisbury and that in UCH, London. There was no significant difference in mortality.

It is important, however to establish how high or how low the Salisbury mortality would have to be to show a statistically significant difference from that at UCH. It is possible to do this using a 2×2 contingency χ^2 test.

Keeping the UCH mortality figures for this group of babies and the total number in the same group at Salisbury constant, different proportions for the live and dead subgroups in Salisbury can be substituted.

Table Comparison of different possible levels of mortality at Salisbury, with the observed mortality at UCH

Observed mortality of 76%

	Lived	Died	Total
Salisbury	5	16	21
UCH	8	32	40

then $\chi^2 = 0.0003$, $P > 0.05$.

Hypothetical mortality of 52.4%

	Lived	Died	Total
Salisbury	10	11	21
UCH	8	32	40

then $\chi^2 = 3.8094$, $P > 0.05$.

Hypothetical mortality of 100%

	Lived	Died	Total
Salisbury	0	21	21
UCH	8	32	40

then $\chi^2 = 3.2381$, $P > 0.05$.

Out of a total of 21 babies in Salisbury, 16 died, a mortality of 76%. χ^2 for the observed figures compared with those at UCH is 0.0003, $P > 0.05$. If 11 out of the 21 babies in the Salisbury group had died, that is a mortality of 52.4%, then $\chi^2 = 3.8094$, $P > 0.05$. If all 21 Salisbury babies had died, a mortality of 100%, the $\chi^2 = 3.2381$, $P > 0.05$. So, with this sample size, a mortality in Dr Hughes-Davies's unit of anywhere between 53% and 100% would not have been significantly different at the 5% level from the results obtained at UCH.

In summary, it is possible to ignore any criticisms of the nature of the comparisons of mortality made by Dr Hughes-Davies. With this sample size, the range of mortality possible at Salisbury, without it differing significantly from the mortality at UCH, is so great as to make impossible any conclusions about the comparative merits of the methods of care.

I thank Professor Tizard for his help and encouragement.

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Prostaglandin synthetase inhibitors and pulmonary hypertension

Sir,

In response to the paper by Wilkinson *et al.*¹ on persistent pulmonary hypertension in 3 neonates after maternal treatment with a prostaglandin synthetase inhibitor (naproxen) we describe twins who were exposed *in utero* to the largest recorded dose of indomethacin.

A 28-year-old gravida 2, para 1, had a Shirodkar suture inserted during the 26th week of a twin pregnancy because of a dilating cervix. Continuing cervical dilatation and increased uterine activity resulted in the stitch cutting through the cervix despite venous infusion of beta sympathomimetics. The patient, a doctor who was aware of the potential side effects of prostaglandin synthetase inhibitors, was given indomethacin 100 mg rectally with immediate reduction in uterine activity and no further dilatation of the cervix. A total dose of 500 mg indomethacin was given rectally over 48 hours. Subsequently the patient treated herself with indomethacin 25 mg orally as required until the 35th week of the pregnancy. The total dose of indomethacin was 1900 mg.

Spontaneous rupture of the membranes and vaginal delivery of live boys weighing 3.09 kg and 2.69 kg occurred at 37 weeks. Both babies breathed spontaneously at birth and were pink in air at one minute. Examination showed no abnormality in the cardiovascular or respiratory system. At the age of 12 months they remain healthy.

We thank Mr P J Murphy and Dr D W Warrell for allowing us to report on their patient.

References

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