

with allowing more protected time for training to encourage more London principals to become trainers; providing more political solutions for primary care in London; and improving the marketing of general practice to medical students and junior doctors in London. Thirdly, recommendations from the course organisers included increasing the general practice component of training to 18 months; encouraging more flexibility in part-time training; making it possible for all registrars to undertake a component of their general practice time in an urban practice; and creating more academic and research posts in London to encourage registrars not currently wanting to become principals to continue working in the inner city.

Government funding for educational flexibility in the London initiative zone over the next two years will enable some of these issues to be addressed. In addition, data on numbers of general practice registrars need to be collected and collated in a more uniform way; this should be partially addressed by the new reporting mechanism, but this will need to be monitored. Finally, any recommendations for vocational training cannot be viewed in isolation from the wider demands of general practice in inner London, in particular immediate improvements in safety for doctors

in high risk areas and long term measures to tackle inner city social deprivation.

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## Measles and rubella misdiagnosed in infants as exanthem subitum (roseola infantum)

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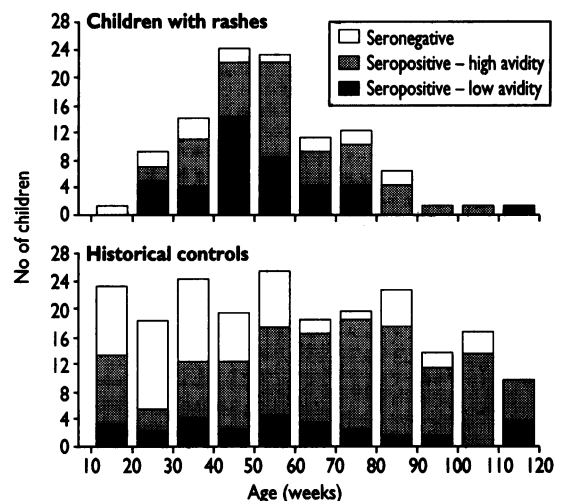
Human herpesvirus-6 is widespread throughout human populations, with primary infection usually occurring in infants aged 40-60 weeks.<sup>1</sup> Primary infection may be asymptomatic but where there is disease the classic presentation is of the common childhood illness exanthem subitum (roseola infantum).<sup>2</sup> This begins with a sudden fever of about 40°C perhaps accompanied by febrile convulsions; the child appears surprisingly well with few other clinical findings apart from leucopenia. The fever resolves after three to five days coincident with the sudden appearance of a finely macular rose rash that may be transient but usually persists for two days. The exanthem is prominent over the thighs and buttocks, where each macule is sometimes surrounded by a fine halo. Despite detailed descriptions, however, exanthem subitum tends to be confused with measles and rubella.<sup>3</sup> Two recent studies have shown that measles and rubella are themselves commonly misdiagnosed,<sup>4,5</sup> with only 11% of clinical cases of measles in infants under 1 year being validated by laboratory tests.<sup>4</sup> To investigate whether many of the misdiagnosed cases of measles and rubella in early childhood were in fact exanthem subitum, serum samples from children under 2 years old with rashes shown not to be measles or rubella<sup>4,5</sup> were tested for laboratory evidence of recent primary human herpesvirus-6 infection.

### Subjects, methods, and results

A single serum sample was collected from each of 103 children aged 10-120 weeks notified as having clinically diagnosed measles<sup>4</sup> or rubella<sup>5</sup> (67 and 36 children respectively). Samples were taken a mean of 30 days after the onset of illness and were known not to contain IgM specific for measles, rubella, and human parvovirus B19<sup>4,5</sup>—the cause of "fifth disease," another

common childhood exanthem. An indirect immunofluorescence test for human herpesvirus-6 IgG was used to detect low avidity antibody.<sup>1</sup> The results were compared by using logistic regression with those previously obtained with control samples from randomly selected children of the same age.<sup>1</sup>

Of the 103 children with rashes, 88 (85%) were seropositive for human herpesvirus-6, and of these 40 (39%) had low avidity antibody; in both cases the highest numbers were at about 50 weeks (figure). The proportion of serum samples with low avidity IgG was significantly higher in the children with rashes than in the historical controls (age adjusted odds ratio=3.68, 95% confidence interval 1.96 to 6.88,  $P < 0.001$ ). Among children aged under 1 year, 27



Antibody status and age distribution of the children with rashes and of the historical controls

of the 54 (50%) who were seropositive had low avidity antibody; overall the proportion seropositive for human herpesvirus-6 was significantly higher in the study children than in the controls (54/63 (86%) *v* 47/94 (50%); age adjusted odds ratio=5.78, 2.44 to 13.7,  $P < 0.001$ ). Of the 52 samples from study children obtained within 30 days of illness, 29 (56%) contained low avidity human herpesvirus-6 antibody compared with only eight of the 43 samples (19%) taken after 30 days ( $P = 0.0005$ ;  $\chi^2$  test with Yates's correction).

#### Comment

It was impractical to identify primary human herpesvirus-6 infection by testing for IgM since this antibody may also be detected in recurrent infections. We therefore chose our antibody avidity test, which we had previously used successfully to detect primary infection,<sup>1</sup> since low avidity antibody is invariably produced briefly after the first encounter with a particular antigen. The present results suggest that the test is most reliable within 30 days of onset of illness and therefore failure to detect low avidity antibody later does not necessarily exclude recent primary infection.

The higher proportion of study children than controls with low avidity human herpesvirus-6 antibody is evidence that the rash was in many cases exanthem subitum. This conclusion is strengthened by the observation that the age distribution of study children who had low avidity antibody was remarkably like that of exanthem subitum as described in Juretić's classic paper.<sup>3</sup>

The proportion of children under 1 year who were seropositive for human herpesvirus-6 was also higher in study children than controls, suggesting that in some cases, although the serum sample was taken too late for detection of low avidity antibody, the rash was nevertheless exanthem subitum.

This study confirms the importance of human herpesvirus-6 as a cause of rashes in young children and shows that many cases of exanthem subitum are misdiagnosed on clinical grounds as measles or rubella. Laboratory confirmation is essential to ensure the effectiveness of measles and rubella surveillance programmes.

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## A MEMORABLE PATIENT WHO CHANGED MY PRACTICE

### The danger of familiarity

I always feel uneasy when an acquaintance or relative presents a medical problem. Their tales of previous medical encounters can be so bizarre as to make you ponder the flaws in our communication skills that engender such confusion. Apart from the intrusion into your free time, the familiarity compromises history taking, examination, and thereby the clinical impression.

After my father had complained of an increasingly tender nose for some years, my response was to recommend that he should see his general practitioner, who would be best equipped for examination and follow up. Unfortunately, my stepmother developed a subsequently fatal recurrence of breast cancer and thoughts about his own health were put to one side. I found him still symptomatic six months later and this time insisted he contact his doctor, who prescribed antibiotic cream and asked him to return if there was no improvement. When he continued to have problems I made a special trip to see him and this time packed my auroscope. There was a heavily crusted perforation of the anterior nasal septum and I immediately contacted the local ear, nose, and throat consultant and his general practitioner.

I was cursing myself, furious that I had not assessed my own father months earlier; time which might be crucial if this was the neoplasm it seemed to be. The surgeon, however, was reassuring; perforations are commonly benign and associated with infection. The relief on my father's face was obvious and he admitted that he had been worried about the possibility of cancer.

When the surgeon saw the lesion for himself he made a clinical diagnosis of squamous cell carcinoma and confirmed it with biopsies a few days later. This devastat-

ing news not only rekindled my anger at myself but made me wonder how I had failed to communicate my fears about such a diagnosis over the telephone. Should I have been more insistent that he be seen immediately?

My concern now is to ensure that my father understands what is happening to him. Not just what the diagnosis means, but what to expect from a potentially uncomfortable programme of radiotherapy.

There were several lessons learnt from this memorable patient. Why did he wait so long to consult his general practitioner about a problem which he was sure meant cancer? Why did he not keep his follow up appointments? In retrospect it was not just a lack of time or inclination to look after himself following his bereavement. There was clearly an element of denial fuelled by the misapprehension that a diagnosis of cancer would result in the same rapid deterioration that he had seen in his wife. It is my great regret that I failed to appreciate such a common reaction and that despite being ideally placed to intervene, our close relationship obscured the clinical picture and delayed diagnosis for so long.

To avoid repeating such an unsettling personal experience I resolved not to provide cursory assessments or hasty opinions for those casually seeking medical advice. Instead, I will offer to conduct a full history and examination, recommending that they consult their general practitioner.

As well as satisfying my conscience this approach has had the advantage of putting off one or two persistent opportunists who have made social gatherings more like open surgery.—CALUM LYON is a general practitioner in west Yorkshire