Correspondence

Klebsiella pneumoniae

Sir,

We are grateful for the opportunity of replying to the letters of Drs Brewerton and Warren and Dr Eastmond, Professors Cooke, and Wright (*Annals*, 37, 298).

Both groups of authors point out the high incidence of *Klebsiella* present in hospital associated environments, on the hands of staff and in food. We were aware of these problems when our paper was submitted and would like to point out that the great majority of our patients were out patients who did not have meals in the hospital. Faecal samples were collected at home either the night before or on the morning of the visit and were handed over in a sealed specimen pot at the time of the assessment. In contrast, our control group did consist of a group of hospital associated volunteers and therefore, if anything, we have selected a control group whose findings are against us rather than in our favour. We hope to carry out a subsequent study on the faecal carriage rate in a non hospital population. We have also been studying a group of out patients with rheumatoid arthritis over the past year as a second control group and the overall faecal carriage rate of *Klebsiella* in this group is 45/205 (22%) a value lower than in the patients with active or probably active disease and comparable to the patients with inactive disease.

We do not have any data on the sero types of the organisms isolated and there is no clear evidence of a seasonal variation in isolation. Results of faecal cultures on patients or controls who received antibiotics were not included in our studies.

Drs Brewerton and Warren point out that the distinction between active and probably active patients is difficult and that a possible source of bias is that certain patient results may be included more than once in each particular study. We can only agree with their comments and point out that we have tried to adjust for some of these limitations by our second method of analysis where we have included both active and probably active patients into one group and where only one assessment and one faecal culture was compared at each 3 monthly interval. If the patient was assessed as active or probably active at any time during this period then an active score was given. If at any time during that 3 months a patient had a positive culture then the result was recorded as positive. Similarly, if several cultures during this period were positive it still only counted as one result. Our findings show that the combined active group had a significantly higher incidence of *Klebsiella*, 63% than the inactive group, 16% ($\chi^2=78.2$).

We described in our report that we had included a small number of patients who had associated diseases such as psoriasis or inflammatory bowel disease. These patients all had sacroiliitis or spondylitis. Eighteen

patients had symptoms of back pain and stiffness, peripheral joint involvement, and normal or suspicious sacroiliac joints on x-ray. All were B27 positive. We included these patients because we had particularly sought for young patients at the onset of their symptoms.

It may take several years for characteristic x-ray changes to develop at the sacroiliac joints. Several of the patients have been studied by sacroiliac scintiscanning and they show increased activity over the affected joints. We considered that on balance the inclusion of these patients was justified. Only a small number of patients had an episode of diarrhoea with an exacerbation of their disease.

In our section on sequential studies, we wish to point out that we selected all available inactive disease episodes at which a faecal culture was collected and at which an assessment of subsequent disease activity over the next three months was available. We had 196 episodes available for study in the 95 patients. On 35 occasions the cultures were positive and in 161 they were negative. An assessment of subsequent active or probably active disease was made on 41 occasions, 15 of these were in the *Klebsiella* positive episodes. These results are shown by our third method of comparison. Our figures show that about 15/35 (43%) of patients who have inactive disease assessed and who have positive cultures for *Klebsiella* go on to develop a clinical worsening as compared to (16%) who do not.

We do not wish to make any specific comments on the findings of Dr Eastmond and his group. It is clear that the criteria and methods used for the selection of patients into the various disease activity groups will decide whether a difference in carriage rate of *Klebsiella* between active and inactive disease can be confirmed.

Although we would agree in suggesting caution before attributing infection by *Klebsiella* as an aetiological factor in ankylosing spondylitis we believe that the crossreactivity hypothesis is the best and most comprehensive theory available at present to explain the cause of this disease and that further studies along these lines are justified.

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Subtle spine abnormalities in patients with back pain: fracture vs. congenital anomaly

Sir,

Sims-Williams *et al.* (*Annals*, 37, 262-265) recently reported the utilisation of stereoscopic radiography in 7

patients with back pain. They described small fractures of the posterior elements of the spine which were identified on stereoscopic x-rays which were either not visualised or visualised with difficulty on initial radiological examination. Although the authors are indeed correct that alterations of laminae and articular processes are frequently difficult to detect on routine examination, it should also be noted that these authors used only two views (anteroposterior and lateral) in examining their patients whereas in many institutions, the standard examination of the lumbosacral spine consists additionally of right and left posterior oblique and coned-lateral radiographs. The oblique x-rays are particularly useful in detecting abnormalities of the laminae and articular processes. Stereoscopy and tomography are certainly indicated in some circumstances, but in most individuals, these additional examinations are not necessary. A special anteroposterior radiograph obtained with 45° caudal angulation of the incident beam can be helpful in studying the posterior elements of the lumbar spine (Abel and Smith, 1977).

In the article by Sims-Williams *et al.*, the selected illustration is of interest. It demonstrates an oblique radiolucent line through the inferior articular facet of the third lumbar vertebra which is interpreted as a

fracture. Although this may indeed be a fracture, it is important that the physician be aware of a relatively common skeletal variation which may simulate this finding consisting of horizontal or oblique clefts in the inferior articular processes of the lumbar vertebrae (Baily, 1939; Buscher, 1941; Oppenheimer, 1942; Kohler and Zimmer, 1968; Epstein, 1969) (Fig. 1). These are most commonly observed in the second and third lumbar vertebrae and may be unilateral or bilateral in distribution. The separate ossicles which are created by these clefts generally contain a smooth margin and the entire ipsilateral inferior articular process may be more rounded than its counterpart on the opposite uninvolved side. Pathological examination of one of these defects has revealed a fissure line composed of hyaline cartilage without the histological features of a fracture (Hippisley, 1939). It would appear that this cleft represents failure of bony fusion of an ossification centre of the tip of articular process. The abnormality of the third lumbar vertebra which is illustrated by Sims-Williams *et al.* is not reproduced in optimal fashion. This cleft may be surrounded by bony eburnation and although it could represent a fracture line, one must also recognise that this appearance can be simulated by a congenital variation of the articular process.

Fig. 1 Normal variation of lumbar vertebra. On these anteroposterior (left) and oblique (right) radiographs, a separate ossicle (arrows) is identified at the tip of the inferior articular process of the third lumbar vertebra. Note its smooth edges and the normal appearance of the adjacent joint.

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