CORRESPONDENCE

Correspondents are asked to be brief

Acute Appendicitis and Salmonella Infections

SIR,—We agree with Dr. J. V. Dadswell (24 March, p. 740) that while the true incidence of appendicitis associated with salmonella infection of the bowel is not known, it is probably higher than is generally realized. Now that the summer months are approaching, with increased travel abroad, particularly to Mediterranean resorts, we would like to draw further attention to the combination of appendicitis and salmonella infections, as illustrated by the following case which occurred in June last year.

Two days after returning from holiday in Ibiza Spain, a 24-year-old married woman, eight weeks pregnant, began to complain of abdominal pain, vomiting, and diarrhoea. Within 24 hours the pain localized to the right iliac fossa. She was mildly febrile (temperature 99·2°F (37·3°C), pulse 100/min) and had tenderness and guarding over the appendix. At operation the appendix was mildly inflamed and faecal impaction of the terminal ileum was observed. Appendicectomy was performed. She was discharged from hospital one week after her operation. Later the same day she was readmitted complaining of colicky abdominal pain and diarrhoea. There was no pyrexia. Physical signs of early obstruction were present and conservative treatment was undertaken with intravenous fluids and suction. She did not respond to this regimen, and a laparotomy was performed 36 hours later. At operation the terminal ileum was distended proximally and adherent to an abscess in the appendicular stump region. The adhesions were divided and a peritoneal drain inserted. Bacteriological examination of the pus grew a mixture of *Escherichia coli* and a *Citrobacter* species. Her postoperative course was uneventful and she was discharged home 14 days later. Within two days she was again admitted with a pelvic abscess some 6-7 cm in diameter presenting in the left iliac fossa. This was incised and drained. Bacteriological examination of the pus yielded *Salmonella typhimurium*. This organism was subsequently isolated from her stools. Initial treatment with ampicillin was changed to co-trimoxazole when the results of antibiotic sensitivity tests were known. Her final recovery occurred approximately six weeks after the start of her illness, but not before a further complication in the form of abortion. The *Salm. typhimurium* isolated was phage type U 129, a type frequently found in Spain.

Thus while operation must be carried out if there are clinical indications, it is well to remember that such patents can on occasion have a stormy passage on their way to eventual recovery, particularly with *Salm. typhimurium*.

Within the same month a further case occurred in a 14-year-old Asian boy. He presented with the typical picture of acute appendicitis and at operation an acutely inflamed appendix was removed. At no time was there any diarrhoea or history of diarrhoea. Progress was satisfactory for the first 48 hours after operation, but then a low-grade pyrexia ranging between 99 and 100°F (37·2 and 37·8°C) became evident. By the sixth day the appendicectomy wound was seen to be mildly inflamed and tender. Since he was allergic to penicillin, a course of tetracycline was started. Three days later a small collection of pus localized in the wound. Bacteriological examination of the pus showed *Salm. saint-paul*. The wound slowly dried and healed, his temperature settled, and he was discharged 14 days after his operation. The organism was not subsequently isolated from a stool sample.

In conclusion, may we suggest that in all such cases of suspected appendicitis where the history is suggestive of intestinal infection, or where the postoperative course after appendicectomy is not typical, stools be submitted to the laboratory for bacteriological examination for intestinal pathogens, preferably before antibiotics are prescribed?

We thank Mr. H. B. Young and Mr. W. R. S. Hutchinson, the consultant surgeons, for allowing us to quote the clinical details of their patients
—We are etc.,

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Pulmonary Disease after Amitriptyline Overdosage

SIR,—Drs. A. J. Marshall and K. C. Moore (24 March, p. 716) reported the case of a patient who died from diffuse pulmonary consolidation after ingesting an overdose of amitriptyline. They thought it likely that this was a direct effect of the drug and suggested that the mechanism might be specific inhibition of surfactant production. We do not think it necessary to invoke such specificity of action to explain the findings in their patient. We have previously reported similar complications, albeit with a happier outcome, in a 26-year-old woman who was unconscious from an overdose of quinalbarbitone.[1]

We would suggest that pulmonary consolidation may develop in any unconscious patient in whom there is a prolonged disturbance of the normal pattern of breathing. The absence in such a patient of intermittent deep inspiration may impair the regeneration of the pulmonary surfactant layer,[2] and absorption-collapse develops distal to closed airways in the dependent zones of the lungs. From the account given by Drs. Marshall and Moore, we infer that objective assessment of respiratory function was not made in their patient until the sixth day of admission, when the changes we have described could have resulted in extensive secondary damage to the lungs.

Finally, we would draw attention to the inadequacy of measurement of minute ventilation as an index of overall respiratory function in patients who are unconscious from drug overdose.

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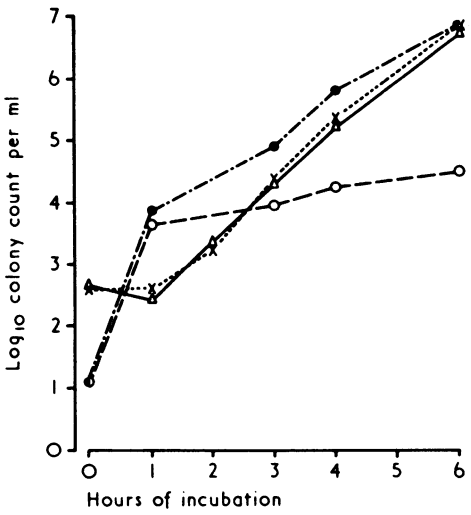
1 Collins, J. V., and Goulding, R., *Guy's Hospital Reports*, 1971, **120**, 31.
2 Bendixen, H. H., Egbert, L. D., Hedley-White, J., Laver, M. B., and Pontoppidan, H., *Respiratory Care*. St. Louis, Mosby, 1965.

Significance of Milk pH in Newborn Babies

SIR,—Dr. V. C. Harrison and Mr. G. Peat (2 December 1972, p. 515) reported: (1)—That breast milk has a mean pH of 7·29. (2)—That reconstituted and sterilized preparations of cow's milk had a mean pH of 6·51. (3)—That when the pH of such a preparation of cow's milk was raised to 7·4 by the addition of sodium bicarbonate its capacity to support the growth of *Escherichia coli* was reduced to about the same level as that of breast milk. (4)—That newborn infants fed with Similac the pH of which had been raised from 6·7 to 7·2 by the addition of either bicarbonate or trometamol gained weight more rapidly than those fed with untreated milk and had stools which were more acid and in which lactobacilli outnumbered *E. coli*. These findings suggest that merely raising the pH of a cow's milk feed confers on it some important virtues of breast milk. If this be true, it could be of great benefit to alter the formulation of all proprietary infant foods to provide for a pH of 7·2 on reconstitution.

In the experiments on the growth of *E. coli* in milks, a 6-ml sample was inoculated with about 200 organisms and viable counts were done at five intervals up to seven hours. After a remarkable increase in the first hour the counts rose only slowly in breast milk and cow's milk brought to pH 7·4 and were of the order of 10,000/ml at the seventh hour, but the final count in cow's milk at its original pH was 66,000,000/ml. It is quite unexpected that raising the pH of a slightly acid nutritive fluid to that commonly adopted for culture media should have the effect of reducing the rate of bacterial growth in it to this enormous extent.

These experiments were done with 20 samples of breast milk and 20 of "reconstituted sterile cow's milk." Whether the counts in table II and in the figure are means of all these results or those of a single representative experiment is not stated, but since the make or makes of cow's milk preparations



Counts of *E. coli* O111/B4 in Cow and Gate dried milk during six hours of incubation at 37°C, Harrison and Peat's results included.
●=Harrison and Peat's results (without buffer), O=Harrison and Peat's result with buffer), X=Cow and Gate (pH 6·8), Λ=Cow and Gate (pH 7·3).

are unspecified, the experiments cannot in either case be exactly repeated. We have repeated them with dried milks in common use for infant feeding in this country, together with Similac, the preparation used in the authors' feeding tests. Their technique was followed exactly, including the use of *E. coli* O111/B4 as test organism, except that experiments were terminated at six hours and that viable counts were done in pour plates of McConkey's medium, which gives more exact results than the drop method of Miles *et al.* (To test the reproducibility of these counts, eight separate dilutions and platings were made of a milk after six hours' incubation; average and maximum deviations from the mean were 25 and 40% respectively.)

Final counts in duplicate experiments with six milks at their original pH and adjusted to about pH 7·3 are shown in the table. In all milks growth proceeded at a closely similar rate in the two samples, graphs of the counts being almost superimposable. Those obtained in one of the milks (Cow and Gate Dried Milk) are shown in the figure, which includes the results of Dr. Harrison and Mr. Peat for comparison. None of the final counts differ significantly except those in Cow and Gate Prepared Feed, which show an approximately three-fold difference between those at pH 6·52 and at 7·38. This is the only result even faintly resembling those reported by Dr. Harrison and Mr. Peat. We therefore contest their conclusion that raising the pH of a cow's milk preparation "has a bacteriostatic effect on specific *E. coli* in vitro."—We are, etc.,

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Brand of Milk	Original pH.	pH after adjustment with 4·2% sodium bicarbonate.	Counts per ml. after 6 hours
Similac	6·6	7·29	29×10^4 $21{\cdot}8 \times 10^4$ $32{\cdot}8 \times 10^4$ 23×10^4
Cow and Gate Prepared Feed	6·52	7·38	12×10^5 14×10^5 39×10^5 44×10^5
Trufood Prepared Feed ..	6·67	7·27	86×10^5 79×10^5 40×10^5 35×10^5
S.M.A. Prepared Feed ..	6·54	7·32	21×10^5 79×10^5 40×10^5 36×10^5
Cow and Gate Dried Milk	6·8	7·3	60×10^5 57×10^5 65×10^5 54×10^5
S.M.A. Dried Milk ..	6·54	7·27	15×10^5 $22{\cdot}4 \times 10^5$ 38×10^5 $13{\cdot}9 \times 10^5$
Harrison and Peat's results	quoted as range 5·6–6·95	7·4	6×10^5 $1{\cdot}9 \times 10^4$

The Consultant in Mental Handicap

SIR,—Your leading article (24 February, p. 435) referred to the apparent reluctance of doctors to enter the subspecialty of mental handicap and suggested that teachers, psychologists, and social workers might be invited to fill the gap.

In fact the number of consultants in mental handicap has expanded in the past 10 years, although there are still not enough to meet the recommendation of one consultant to a population of 200,000 made in the Royal Medico-psychological Association's memorandum on "Future Patterns of Care for the Mentally Subnormal."[1] The number of psychologists, social workers, and teachers prepared to work with the mentally handicapped is gradually increasing, but still remains below that needed to do justice to the problem.

Clear definition of the role of the doctor specializing in mental handicap is not easy. Consultants in this specialty cannot claim any unique skills, but they possess a combination of knowledge and experience which confers on them a distinctive expertise and ability in the diagnosis and treatment of mentally handicapped patients. These doctors are more familiar than others with that particular body of knowledge customarily subsumed under the title of mental deficiency, mental subnormality, or mental handicap. They use this knowledge to provide a consultative service for family doctors, their patients, their families, social services departments, education authorities, and other institutions. Most of them are involved in teaching about mental handicap to medical, nursing, and other students and to lay audiences. They may pursue research into mental handicap.

The consultant in mental handicap has access to beds for mentally handicapped patients and, through the hospital and specialist services, to skills which can assist in the assessment and management of these patients. He takes clinical responsibility for these patients and acts as responsible medical officer within the meaning of the Mental Health Act. He has usually accepted the mentally handicapped of all ages as a group of patients in whom chronological age has little relevance and who need life-long care and supervision. Because the hospital for the mentally handicapped is ideally a therapeutic community the consultant in it has generally been more involved in administrative matters than many of his colleagues. The consultants in this work have an ethos of their own: they receive sympathetically patients whom others often appear to find it beyond their abilities and resources to help. The consultant in mental handicap works more frequently at a practical level with human relationships rather than with the application of technology. He is co-ordinator of the multidisciplinary team which brings its skills to bear