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Immunoperoxidase method for detection of immunoglobulins

We have appreciated the letter by Sells and Burton in this Journal (1980;33:98).

We agree that the sections lift and are lost during the immunoperoxidase reaction in spite of the use of adhesives such as amilopectin, albumin, and chrome alum. Furthermore, in our experience, it is very difficult to keep the sections on the slides when an argyrophilic method is used after bleaching for melanin or employing Lee's method for oestrogen receptors (*Cancer* 1979;44:1).

We have developed an adhesive which is very simple to prepare and is also resistant to proteolytic digestion. It consists of a polyurethane adhesive (Quick set, USM Chemical SpA, Milan) which is formed in two parts; 0.3 ml of each part (1+2) is diluted in separate tubes with 20 ml of acetone. The two solutions are mixed together when needed, and the slides are immersed in the freshly made solution. The adhesive dries immediately, and the sections stick without any further treatment. The mixed solution keeps for

2 hours at room temperature and for 4 hours at 4°C.

All possible staining procedures can be performed on these sections without any obvious interference by the adhesive.

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β -lactamase production by *Campylobacter jejuni*

There is very little information now available about the incidence of β -lactamase producing strains of *Campylobacter jejuni* among human isolates. Severin¹ in Holland reported β -lactamase production by 57 (92%) of 62 human isolates by the chromogenic cephalosporin method. We therefore decided to undertake a retrospective study of the incidence of β -lactamase production among strains of *C. jejuni* isolated over a 12-month period from human stools. Two simple laboratory methods were used, the starch-iodine paper² and the chromogenic cephalosporin substrate.³ In addition, minimum inhibitory concentrations (MIC) of ampicillin for each of the strains were determined.

Identical strains isolated from family outbreaks were included only once. A total of 76 strains of *C. jejuni* were studied, of which 73 (96%) had been stored in liquid nitrogen for varying periods not exceeding one year. Strains were inoculated on to Oxoid blood agar base with 7% lysed

horse blood and incubated under appropriate conditions.⁴

Minimum inhibitory concentrations of ampicillin for all 76 strains were determined by 2 μ l spot-inoculation on Oxoid Diagnostic Sensitivity Test agar incorporating doubling dilutions of ampicillin. These plates were then incubated for 48 hours under identical conditions. The inoculum was derived from an overnight culture of the test strain suspended in Bloodgrow (Medical Wire and Equipment Co (Bath) Ltd, Potley, Corsham, Wilts, UK) and incubated in 10% CO₂ atmosphere at 37°C and diluted so that there were 10⁶ to 10⁷ organisms/ml.

Of the 76 strains of *C. jejuni* tested for β -lactamase production, four (5.3%) gave positive results; identical results were obtained by both methods. The Figure shows the MIC of ampicillin of 72 strains was 25.0 μ g/ml or less; all these strains were negative when tested for β -lactamase. The MIC of the four β -lactamase producing strains was 50.0 μ g/ml or more.

Our finding of an incidence of 5.3% from human stools differs markedly from the 92% of Severin's study. There may thus be a much higher prevalence of β -lactamase producing strains of *C. jejuni* in Holland. Severin also reports that 30 (48%) of 62 strains were sensitive to 5.0 μ g ampicillin/ml, this figure being similar to our own findings, but sensitivities to higher concentrations of ampicillin were not given.

We noticed that it was difficult to interpret the colour change with the chromogenic cephalosporin substrate method because of the pigmented nature of the colonies when picked off agar

Sensitivity of 76 strains of *C. jejuni* to ampicillin