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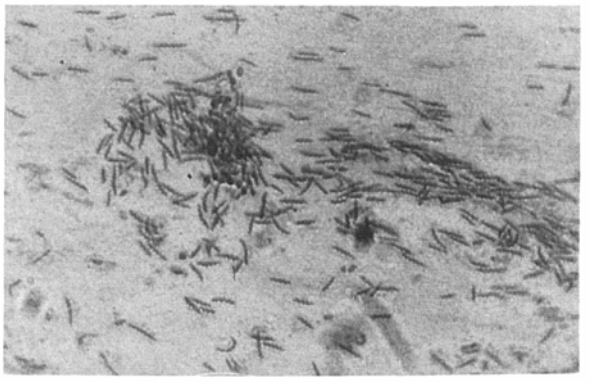

**Figure 1**

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## Presence of Spiral Bacteria *("Gastrospirillum hominis")* in the Gastric Mucosa

Our group of microbiologists and gastroenterologists has done studies of *Helicobacter pylori* (1) infection in the human stomach over a period of four years (2, 3). We investigated 917 patients to determine the prevalence of *Helicobacter pylori* in the gastric mucosa by microbiological methods (Gram stain of tissue smears, tissue biopsy, urease test, culture). We found unusual spiral shaped organisms in 11 patients on gram-stained smears (Figure 1). In some of these patients biopsy specimens were examined histologically on gram-stained sections, these spiral bacteria being seen in the neck of the pyloric glands and on the mucosal surface. No intracellular or submucosal bacteria were seen. All patients suffered from chronic active gastritis of type B. On light microscopy (x 1000) these spiral bacteria were seen to differ from *Helicobacter pylori* and the genus *Wolinella* and were very similar to spiral (corkscrew-like) organisms often observed by other investigators in several mammals (4). Our organisms had from four to eight tight spirals and measured up to 8 µm (range 3.5–8 µm). Attempts to obtain cultural evidence of these bacteria using various media and atmospheres, including tissue cells, were negative in all cases.

Although many reports of *Helicobacter pylori* in gastric biopsy specimens have been published since 1983, only few authors have described these spiral organisms (5–10). These organisms are morphologically similar to the spiral-shaped bacterium from the cat stomach described by Lee et al. (11). That bacterium was successfully cultured with detection of urease activity. The biopsy urease tests were negative in all our specimens except in one case of double infection with spiral organisms and *Helicobacter pylori*. It is interesting to note that in repeatedly spiral organism positive biopsy specimens from another two patients before the start of therapy only *Helicobacter pylori* was detected. All patients received antibacterial treatment (bismuth compounds + amoxicillin or metronidazole) and in all cases there was complete eradication of the spiral organisms and the clinical symptoms of gastritis resolved. Whether the organisms have a possible pathogenic role is unclear. The association with gastrointestinal disorders may indicate that these spiral organisms are pathogenic for the gastric mucosa.

As a result of electron microscope studies performed by McNulty et al. (7), the bacterium has been allocated a species within a new genus *Gastrospirillum* with the suggested name *"Gastrospirillum hominis"*, despite failure to culture the organism in vitro.

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## Direct Detection of *Pneumocystis carinii* in Fresh Bronchoalveolar Lavage Specimens

Rapid, sensitive and specific methods for the diagnosis of *Pneumocystis carinii* pneumonia and early institution of therapy are necessary to improve the prognosis of infected patients.

Bronchoalveolar lavage (BAL) or sputum induction should be used to obtain adequate material for the identification of *Pneumocystis carinii* (1). A variety of staining procedures have become available for visualizing cysts and/or trophozoites such as Giemsa, Gomori methenamine silver, toluidine blue O and, more recently, immunofluorescence using monoclonal antibodies (2, 3). Other techniques are available for diagnostic or biological research purposes including Papanicolaou, acridine orange and diamidino-phenylindolo/propidium-iodide stains (2, 4), and fresh examination using special light microscopic techniques (5, 6). All methods require special set-ups for staining and observation, (2–6), several processes to concentrate specimens (7) and time for staining and observation of slides.

Direct examination of specimens (i.e. blood, stools, urine, skin biopsies) is routinely used in parasitology for diagnostic purposes. Examination of fresh specimens was first described by Ruffolo et al. (5) and Walzer (2) for detection of *Pneumocystis carinii* cysts in lung homogenates from infected animals using a phase or Nomarski-interference contrast microscope and bright field with oblique illumination, and subsequently by Olling (6) and Savoia and Caramello (8) using a dark and bright field respectively for examining specimens from patients with pneumonia.

We evaluated bright field microscopic examination of fresh specimens obtained by BAL from 34 HIV-1 antibody positive patients. Bronchoalveolar lavage was performed using an adult fiberoptic bronchoscope (Olympus BF type 20), the tip of the bronchoscope was wedged in a subsegmental bronchus chosen on the basis of the roentgenographic findings. Bronchial wash specimens (20–30 ml) were obtained after washing with 50–100 ml of saline solution.

Briefly, at least 20–30 ml of BAL were centrifuged at 200 x *g* for 15 min. Digestion of the specimen was performed only in the case of mucinous material (Sputasol, Oxoid, UK). The pellet was used to prepare standard glass slides (4–5 ml of BAL/slide on average) for wet mount preparation and standard stains (Giemsa, Gomori methenamine silver, toluidine blue O) and indirect im-