Detection of *Helicobacter pylori* in Gastric Biopsy Samples by Polymerase Chain Reaction with a Simple DNA Extraction Method

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ABSTRACT

We have established a PCR assay for the detection of Helicobacter pylori in gastric biopsy specimens with primers specific to adhesin subunit gene. The minimum amount of H. pylori DNA that could be detected was 0.4 pg. Seventy-two antral biopsy specimens were taken from patients with gastritis and/or duodenal ulcer. H. pylori was found in 58.3%, 44.4% and 54.2% of patients according to the results of histology, urease test and PCR assay respectively. The sensitivity and specificity of PCR assay, compared to histology technique were 66.7% and 63.3% respectively. Samples diagnosed to be positive for H. pylori by both histology and urease test were only 85% PCR positive. Specimens that were negative in both tests were also PCR negative (72%).

DNA was extracted by two methods: the Chelex chelating resin method and the Qiagen DNA Mini Kit. The sensitivity and specificity of the PCR assay, using the Chelex-extracted DNA as templates were 85.7% and 85% respectively as compared to those extracted with the kit.

Key words: *Helicobacter pylori*, Polymerase chain reaction, Gastric biopsy, Adhesin subunit gene, Chelating resin

INTRODUCTION

Helicobacter pylori (H. pylori) has been recognized to play an important role in the pathogenesis of gastritis and peptic ulcer disease (Goodwin et al., 1997). The eradication of *H. pylori* has become an accepted therapy in order to prevent the relapse of the disease (NIH consensus statement; 1994).

There are several methods described for diagnosis of *H. pylori* infection. Endoscopy is used to obtain biopsy material for histological sections that are stained with Giemsa. Another biopsy-based technique is to culture the bacteria, but this is demanding as the organism is fastidious and its growth occurs at best after 3 days. *H. pylori* produces an enzyme urease