

**Relation between Ascorbic acid level in gastric
Juice and Helicobacter Pylori infection
in Patients with acid peptic diseases**

Thesis
Submitted for partial fulfillment of
Master degree in Internal Medicine



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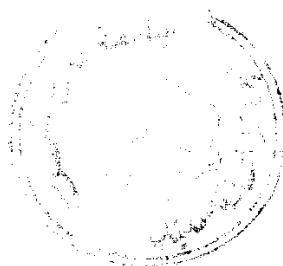
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1998



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REVIEW OF LITERATURE

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HISTORICAL BACKGROUND OF HELICOBACTER PYLORI INFECTION

Krientz, (1906) was the first discoverer of the spiral bacteria which were isolated from the stomach of a patient with gastric cancer and this was confirmed later by others, including Freedberg and Barron who in 1940 describe spirochetes in gastric mucosa of 13 out of 35 patients undergoing gastric resection for ulcer or carcinoma.

Interest in gastric spiral bacteria waned until 1975 when *Steer and Colin-Jones* reported the presence of bacteria on gastric mucosa under the mucus layer in association with gastritis but they were absent from normal stomach.

However, recently in 1983, *Warren and Marshall* recognized the significance of gastric spiral organisms and identified the previously detected curved bacilli on the gastric epithelium of the majority of patients with active chronic gastritis by the Warthin Starry silver stain.

The genus campylobacter

The genus name campylobacter is derived from the Greek word meaning curved organisms.
The genus are gram -ve and 0.2-0.5 um in width and 1.5-5.0 um in length.

.....*Review of literature*.....

The organisms are actively motile, and possess a single unipolar flagellum or bipolar flagella.

The genus campylobacter includes several species widely distributed in nature as both pathogens and saprophytes for both animal and man. (*Simbert, 1978*).

Taxonomy and classification

Five different species are listed in Bergeys manual 1974.

- 1- C. Fetus
- 2- C. Jejuni
- 3- C. Coli
- 4- C. Sputarum
- 5- C. Consisus

Other newly described organisms include:-

- | | |
|------------------------|-----------------|
| 1- C. Fecal | 2- C. Ioridis |
| 3- C. Cinaedi | 4- C. Fennellia |
| 5- C. pylori | |
| 6- C. Hypointestinalis | |

(*Weissfeld and Kaplan, 1987*)

The new organisms were originally called campylobacter like organism (CLO), then it was changed to campylobacter pyloridis (C. Pyloridis) then to campylobacter pylori (C.pylori) while more recently they were named Helicobacter Pylori (H. Pylori) *Maddoks, 1990*.

.....*Review of literature*.....

The specific epithet of *C.pyloridis* was grammatically incorrect, so the name was changed to *C.pylori* (*Marashall,Goodwin, 1987*).

The ultrastructure of *C.pylori* and its fatty acid composition were found to be very different from that of campylobacters, so a new genus name was require, *Helicobacter Pylori* has been suggested as a recent name, it reflects the two morphological appearance of the organism being helical in vivo and often rod-like (bacter) in vitro

A Scope on *Helicobacter pylori* regarding

- 1- Microbiological and Histological characters
- 2-Methods for its detection

MICROBIOLOGICAL AND HISTOLOGICAL CHARACTERISTICS OF *HELICOBACTER PYLORI*

1- Microbiological characteristics of *H. pylori*

A- Morphology:

* **Light microscopical examination:-** In examination of fresh specimens of gastric mucosa, *H. pylori* appeared as a slender, curved, spiral rods with two or three curves (S.shaped) and occasionally appeared in a semi-circular configuration gram -ve rods (*Jones et al, 1985*).

H. pylori are transformed to coccoid forms under unfavorable circumstances like other helicobacters (*Langen-Berg et al,1986*)

.....3.....

.....*Review of literature*.....

*** Electron microscopical examination :-** It revealed a structurally homogenous population of organisms, has an average diameter of 0.5 μm (max. 0.9) (*Phillips et al 1984*)

H. pylori were described as they characteristically exhibited one to five flagella at one pole, although dividing cells may have flagella at both poles. (*Taylor et al, 1987*)

H. pylori was recently reported to form a flagellar sheath, thus differing from all other known campylobacter species. (*Goodwin, Mc Culloch et al, 1985*)

In general, bacterial flagella consist of three parts:-

- 1- The filament
 - 2- The hook
 - 3- The basal structure
- (*Macnab, Airawa, 1984*)

Each flagellum has its own flagellar sheath, which at its end carries a club shaped thickening, the filament doesn't seem to be extended to a club.

At the distal end the sheath narrows for a short distance,, this narrowing seemed to be more fragile than the rest of the sheath since already after centrifugation, electron microscopical examination reveals many isolated terminal clubs.