

## “HUMAN CAMPYLOBACTERIOSIS - AN UNDERDIAGNOSED ETIOLOGY OF BACTERIAL DIARRHEA IN INDIA.”

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**Abstract :** High prevalence of campylobacter in domestic animals leads to contamination of environment through their excreta. Data relating to human campylobacteriosis is rare in India; prevalence of 22% has been reported from Ludhiana (Punjab), amongst the 2661 children with diarrhoea; culture facility of this bacteria is rather inadequate. The infection manifests with self limiting diarrhoea in immunocompromised host. This review discusses the morphology culture characteristics and pathogenicity of campylobacter infection; in relation to diarrhoea in children.

### INTRODUCTION

Campylobacter enteritis is the commonest form of acute infective diarrhoea in the developed countries<sup>1</sup>. In UK, the annual incidence of human Campylobacteriosis is 870 per million population, but the true figure is 10 fold higher. In US, Campylobacter has a 4-35% isolation rate in patients with acute gastroenteritis. The species Campylobacter jejuni accounts for 80-90% of total Campylobacter infections and C. coli for 7%. The other species causing Campylobacteriosis is C. lari which was previously known as Nalidixic Acid Resistant Thermophilic Campylobacter (NARTC) Campylobacteriosis is a zoonosis. Domestic animals are considered to be reservoir of infection of which poultry has been incriminated as the principal source of human Campylobacteriosis<sup>2</sup>. High carriage of Campylobacter spp in domestic animals contaminate the environment through their excreta<sup>3</sup>. Rearing of domestic animals is very common practice in India particularly in the rural areas<sup>4</sup>. The data relating to human campylobacteriosis is sparse in India. Chattopadhyay et. al. isolated the Campylobacter species from diarrhoeic handlers of domestic animals using Butzler's medium and found an incidence of 16.6% among them. Shohba et.al. conducted a study on 2661 diarrhoeic patients and found an incidence up to 22% in Ludhiana. Chattopadhyay et.al. showed isolation of different Campylobacters from domestic animals and their handlers. Carriage state of Campylobacters was highest in chicken (39.3%) followed by pigs (37.1%) Human isolation rate was 7.1%. Indian literature on campylobacteriosis is relatively scanty possibly because of the fact that the bacteria require a special atmospheric condition i.e. micro-aerophilic atmosphere which consists of 5% O<sub>2</sub>, 10% CO<sub>2</sub> and 85% N<sub>2</sub>; this facility is not available in most of the Microbiology laboratories even in the teaching hospitals, and diagnostic centres. Although, some non-cultural techniques have been developed but they are very costly and also not available easily and naturally its use is beyond the scope in a developing country like India. The manifestations of campylobacteriosis is more or less similar to other causes of bacterial diarrhoea like salmonellosis & shigellosis and the campylobacter's are sensitive to commonly used drugs used to treat diarrhea. The diarrhea due to campylobacteriosis is often self limiting in immunocompetent individuals. Thus many cases of campylobacteriosis remain undiagnosed because of the reasons stated above.

### MORPHOLOGY

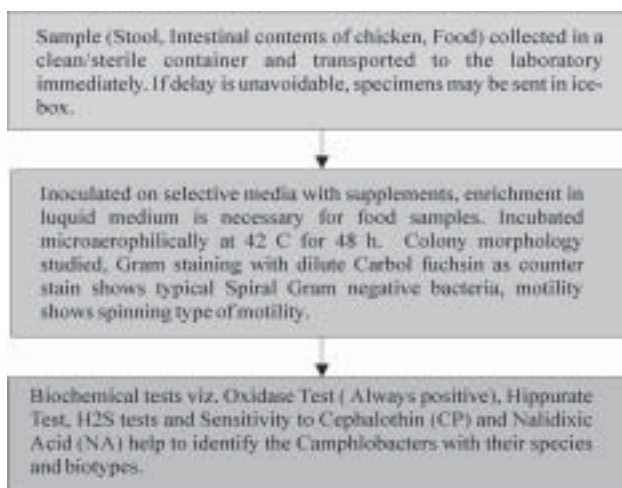
The thermophilic campylobacters viz C jejuni, C coli and C lari are the main species responsible for human campylobacteriosis, of

which C jejuni accounts for 90-95% of infection in most parts of the World. campylobacteriosis is a zoonosis and domestic animals particularly the poultry are the main source of infection. Campylobacters are small, spiral, gram negative rods with a single flagellum at one or both poles which endows the bacteria with exceptionally rapid motility.

### CULTURAL CHARACTERISTICS

Campylobacters are unusually sensitive to oxygen, yet oxygen is essential for growth, so micro-aerophilic conditions must be provided for their cultivation. They grow best at 42- 43°C. They do not form spores, but undergo coccal transformation under adverse conditions. Many selective media like Butzler's media, skirrow's media, campy BAP media, Preston's media have been developed for culture of different Campylobacter species. Enrichment media like Preston medium can also be used for enrichment prior to inoculation onto solid media. Food samples following dilution are inoculated directly onto the solid medium like Butzler's medium with growth and antibiotic supplement for selective isolation of Campylobacters. Similarly, stool samples are also inoculated either directly or after enrichment in liquid medium onto the solid plates. The inoculated plates are incubated micro-aerophilically in a closed jar at 42 C for selective growth of different thermophilic Campylobacter species. Two distinct colony types have been described. One type is non- haemolytic, flat, glossy to dark grey and effuse with tendency to spread along with direction of the track of the

### Isolation and Identification (Flow Chart)



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