

***Campylobacter* enteritis in Chelmsford**

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Summary

During one year, out of 1829 faecal specimens examined at the Chelmsford Public Health Laboratory, campylobacters were isolated from 109 (6%), 21 of the positive cultures were from hospital in-patients and 3 were from hospital staff. The remaining 85 isolates were from specimens sent in by general practitioners.

The authors' figures show a marked season variation with most of the infections occurring from June to September. The highest incidence (36%) was in the 20 to 30 age group, 99% of patients had diarrhoea, usually watery, occasionally explosive, and 9% had visible blood in their stools. Eighteen per cent. of patients had abdominal pain, 5 of the 21 hospital in-patients underwent abdominal surgery. Fifty-nine faecal specimens were examined microscopically and 30 of these had blood and pus cells or pus cells alone. Three patients had rectal biopsies showing a non-specific colitis, 11 patients had recently been abroad.

Introduction

Campylobacters were first recognized as causing infection in man by Vinzent, Dumas and Picard, (1947), although they had been known to cause abortion in sheep and cattle since 1913 (McFadyean and Stockman, 1913). King (1957) described a distinct group of campylobacters with a high optimum temperature growth, isolated from the blood of patients with diarrhoea. These 'related campylobacters' caused infection in otherwise healthy people. Butzler (Butzler *et al.*, 1973) was the first to isolate campylobacters from the faeces of patients with diarrhoea.

Campylobacters were, however, regarded as a rare cause of diarrhoea in humans until Skirrow (1977) isolated campylobacters from 7.1% of unselected patients with diarrhoea. He stated that related campylobacters were probably the commonest bacterial cause of diarrhoea in man. He described

a distinctive clinical illness, characterized by severe abdominal pain and observed the spread of infection within households, from children and sick dogs. Ten out of 803 of his patients had apparently acquired the infection abroad.

Patients and methods

A calendar year from 1 October, 1977 - 30 September, 1978, was taken for study. The figures were analysed for seasonal variation, age distribution and symptomatology. Nearly 20% of the specimens were from hospital in-patients and their notes were reviewed in greater detail. The selective techniques described by Skirrow (1977) were used for examining faecal specimens.

Results

A total of 1829 faecal cultures was requested in the year under study. Campylobacters were isolated from 6% (109) of these, salmonellae less than 3% (48), pathogenic *Escherichia coli* just over 1% (21) and parasites from 2%. Shigellae were isolated from only 9 patients.

There was a marked seasonal variation in the incidence of disease, most infections occurring throughout the months June to September, with fewer cases throughout the rest of the year (Fig. 1).

Age distribution

The majority of isolates were from young adults although amongst hospital patients a higher proportion were infants (Table 1).

Symptomatology

Although the characteristic history was one of watery diarrhoea sometimes with blood, abdominal pain and occasional vomiting, other symptoms such as joint pains, upper respiratory tract infection and

rashes were described (Table 2). General practitioners often requested investigation for persistent or recurrent symptoms.

The symptoms, signs and investigations of 20 of the hospital patients are shown in Table 3. Five patients (nos 7, 10, 12, 15, 19) had plain abdomen films showing dilated loops of bowel with fluid levels, 2 patients (8, 20) had normal barium enemas.

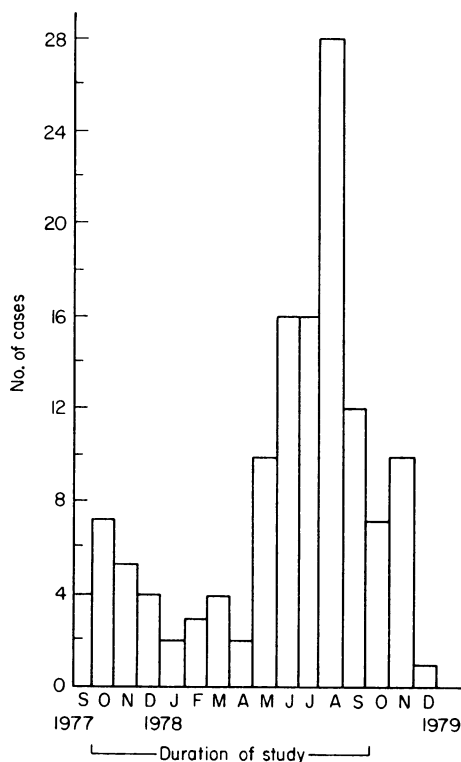


FIG. 1. Seasonal variation of *Campylobacter* enteritis.

Three patients (14, 15, 16) had rectal biopsies which showed non-specific inflammation, and one (no. 16) had a repeat rectal biopsy which was later reported as normal after treatment with erythromycin. Five patients had operations (4 appendicectomies and one laparotomy). Only one appendix, which was thought to be normal at operation, was found to have evidence of inflammation histologically. Two patients reported joint pains, 2 upper respiratory tract

symptoms, one had been admitted following a rigor, and one child was admitted following a febrile convulsion. A pyrexia was found in 66% of hospital cases.

Stool microscopy

Fifty-nine of the 109 specimens were examined microscopically and pus cells or blood and pus cells together were found in 51% of these (Table 4).

TABLE 2. Symptoms of patients with *Campylobacter* enteritis (comparison of symptoms of in-patients with group as a whole)

Symptoms	GP patients	Hospital patients %	Total %
Watery diarrhoea	82	16 (76)	98 (90)
Bloody diarrhoea	6	4 (19)	10 (9)
Vomiting	20	11 (52)	31 (29)
Abdominal pain	8	12 (57)	20 (18)
Fever	4	14 (67)	18 (16)
Joint pain		2	2
Jaundice		1	1
Urticaria	1		1
Cough and cold		2	2
Febrile convulsion		1	1
No details	2		2
*Foreign travel	11	1	12

* 6 North and Central Africa, 4 Mediterranean, 1 Middle East, 1 Belgium.

TABLE 4. Microscopy of faecal specimens positive for *Campylobacter*

Findings	Total no.	% of specimen examined
No abnormality	28	47
Blood and pus cells	30	51
<i>Entamoeba histolytica</i> cysts		
Total examined	59	

Discussion

The survey supports Skirrow's description of a distinctive clinical illness with profuse watery diarrhoea and colicky abdominal pain. In addition, the authors found that fever was common, particularly among in-patients. Vomiting occurred in 29% of patients, but was not profuse. As might be expected, a higher proportion of in-patients had bloody diarrhoea, vomiting and abdominal pain than did

TABLE 1. Age distribution of patients with *Campylobacter* enteritis

Age in years	< 1	1-10	11-20	21-30	31-40	41-50	51-60	61-70	> 70	Not known
GP patients	1	12	9	31	12	10	4	2	0	8
Hospital patients	4	1	2	6	2	1	0	1	3	

TABLE 3. Clinical details of 20 in-patients

Case	Age	Symptoms and signs				Temp. (°C)	Other	WBC ($\times 10^3$)
		Diarrhoea	Vomiting	Abdominal pain				
1	10 days	—	—			38	Respiratory distress syndrome. Prolonged neonatal jaundice	10.6
2	9 weeks	+	+			—	Dehydration Abdominal distension	23.3
3	8 months	+ blood	—			39	Cough and cold	14.5
4	10 months	+	—			38	Febrile convulsion	11.3
5	6 years	+ blood mucus	+			38.6		
6	11 years	+	+			37.6		5.4 ESR 11
7	18 years	+ blood	+	Supra-pubic		38	Joint pains	11.8 ESR 98
8	22 years	+	+	Colicky Right iliac fossa		38.6		5.6
9	22 years	+	—	Colicky Right-sided		37.6		8.3
10	23 years	+	+	Colicky Lower abdomen		37.7	Dehydration	15.6
11	24 years	+	—	Colicky Loin and central		37.8	Cough, sore throat	11.5
12	25 years	+	—	Colicky Lower abdomen		37.8	Rigors	13.4
13	29 years	+	+	Colicky umbilical Right iliac fossa		38.2	Wife had diarrhoea and vomiting	14.8
14	32 years	+	+	General		37.6	Joint pains	9.5
15	35 years	+	+	Right upper quadrant		—	Recurrent symptoms Haemoptysis Recent visit to Nigeria	9.5
16	45 years	+	—	Right iliac fossa		—	History of 'irritable bowel'	13.8 ESR 17
17	62 years	+	+	Colicky		39		10.9 ESR 22
18	70 years	+	+	—		—	Dehydration	5.3
19	78 years	+	—	—		—		5.0 ESR 29
20	89 years	+	—	—		—	Recurrent symptoms Abdominal distension	11.3 ESR 12

the group as a whole. As in previous reports (Guerrant *et al.*, 1978; Pearson *et al.*, 1977) urticaria and joint pain (Berden, Muytjens and Van der Putte, 1979; Pearson *et al.*, 1977) have been noted in association with *Campylobacter* enteritis. There was also a marked seasonal variation in the incidence of infection supporting a previous survey in Sweden (Lauwers, De Boeck and Butzler, 1978).

The site of infection has been thought to be the ileum and jejunum (Cadranel *et al.*, 1973) and one case was shown to have a narrowing in the ileum on small bowel meal. It was interesting however to find evidence of a colitis in 3 of the rectal biopsies from patients with *Campylobacter* infection. This suggests that the lesions are by no means confined to the small bowel and may well be the cause of

Results of investigations				
Bacteriology	<i>Campylobacter</i>	Radiology	Operation	Histology
<i>Staphylococcus albus</i> throat swab and blood culture	+			
	+			
	+			
	+			
Mid-stream urine sterile Few RBC	+	Intravenous pyelogram – 'Physiological stricture R. ureter'		
Blood culture – <i>Klebsiella</i>		Retrograde normal		
	+	Dilated loops bowel + fluid levels. Local inflammatory ileus	Appendicectomy normal	Early acute appendix
	+	Gas large and small bowel Barium enema normal		
	+	Fluid levels	Appendicectomy normal	Normal
	+		Appendicectomy normal	Fibrosed appendix
	+	Normal		
	+	Fluid levels	Appendicectomy normal	Fibrosed appendix No inflammation
	+			Rectal biopsy 'scattered polymorphs scanty eosinophils. No granulomata mild active proctitis'
	+	Fluid levels caecum and terminal ileum		Rectal biopsy 'oedematous rectal mucosa; chronic inflammation; crypt abscesses; no ulceration'
	+	Small bowel meal; 4-cm long stricture suggestive of Crohn's disease	Laparotomy; No Crohn's disease; Injected serosa	Rectal biopsy 'intense chronic inflammation; crypt abscesses; no granulomata; ulcerative colitis'
	+			
	+	Abdominal loops; small bowel with fluid levels		
	+	Barium enema normal		

the non-specific colitis often seen in gastroenterology clinics. There has been a recent report of 11 patients with similar findings (Lambert *et al.*, 1979).

Despite the inherent defects of a retrospective survey of this kind based in part on the incomplete data given on many of the request forms, the authors conclude that their results confirm previous findings and have also brought to light the diversity of

symptoms and signs associated with *Campylobacter* infection. The finding of histological abnormalities in the mucosa of the large bowel has only recently been recognized and the finding of microscopic blood and pus in >50% of the specimens examined suggests that inflammation of the large bowel is a common occurrence with *Campylobacter* infection.

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