Gastrointestinal Diverticulosis A Retrospective Analysis

Pages with reference to book, From 14 To 19

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Abstract

Of 114 cases of gastrointestinal diverticulosis, 60(52.6%) had small bowel, 48 (42.1%) large bowel, 5 (4.3 %) gastric and 1 (0.8 %) oesophageal diverticula.
Thirteen. percent cases in duodenal and 14% in colonic group were below the age of 30 years. Males predominated (3 : l)in cases with colonic diverticulosis.
Diverticulosis was more frequent in the upper (46.4%) and middle (40.3%) as compared to the lower (8.7 %) socioeconomic group.
High roughage diet and squatting position during defaecation may be the reasons for a low frequency of colonic diverticulosis in this series. (JPMA 35 14, 1985).

Introduction

Colon is the commonest site of diverticular disease in caucasians followed in order of frequency by duodenum, jejunum, and stomach but oesophageal diverticula are rare[1].
With variations in dietary habits and toilet practices in various countries the pattern of diverticular diseases is likely to differ. The present study was undertaken to determine the clinical features, distribution of diverticulae in gastrointestinal tract and its association with other diseases.

Material and Methods

A retrospective analysis of 114 cases of gastrointestinal diverticulosis seen over a period of 14 years at PMRC Research Centre was done. Apart from history and physical examination, investigations included Barium enema or upper G.1. series. Final diagnosis in all the cases was made on radiological findings. Socioeconomic status of each case was calculated on the basis or their own or family's profession. The dietary pattern and toilet facilities of each case was also calculated on the basis of their-socio economic status.

Results

Age and sex distribution and sex ratios are shown in Table I.

Table : I Distribution According to Age and Sex.

Age	Oesoph. M/F	Stomach M/F	S. Bowel M/F	L. Bowel M/F
0–19	–	–	0/2	1/0
20–29	–	–	5/3	6/1
30–39	–	0/1	6/3	4/2
40–49	–	1/0	9/6	9/2
50–59	0/1	–	8/4	5/4
60–69	–	0/2	3/7	5/2
70–79	–	0/1	2/1	6/1
80–89	–	–	1/0	–
Total:	1	5	60	48
M/F	0/1	1/4	34/26	36/12

Of 114 tases oesophageal diverticulum was seen in 1, gastric in 5, small bowel in 60 and colonic in 48 cases. Small bowel diverticula, especially the duodenal were more frequent than the colonic.
Maximum frequency of diverticula irrespective of the segment of bowel involved, occurred in the fourth decade of life. The disease was not infrequent in young adults. About 13.3% of cases with small and 14.5% with large bowel diverticula were below 30 years of age.
A strong female preponderance was noted in patients with gastric diverticula. Male to female ratio being 1 4 while the reverse was true in colonic lesions, i.e. 3:1. Itiere was no sex difference amongst the duodenal group (1.3:1).
Analysis of socioeconomic status revealed that 46.4% cases belonged to the upper, 40.3% to the middle and 8.7% to the lower socioeconomic group. Economic status was not known in 4.6% cases.
Symptoms are summarized in table II

Table: II Symptoms.

Symptoms	Oesophagus	Stomach	S. Bowel	L. Bowel	Total	Percentage
Abd. pain	1	3	50	35	89	78
Diarrhoea	–	2	20	21	43	37.7
Constipation	1	2	14	17	34	29.8
Flatulence	–	3	17	16	36	31.5
Nausea/Vomiting	–	2	18	10	30	26.3
Heart burn/W. brash	–	1	16	7	26	22.8
Mucus in stool	–	2	5	12	19	16.6
Blood in stool	–	–	2	5	7	6.1

.Common symptoms in the descending order of frequency were abdominal pain (78%), diarrhoea (37.7%) and constipation (29.87%) irrespective of the segment of bowel involved. Twenty three percent. of patients had heartburn and water-brash and two frank rectal bleeding with no other symptoms.

On examination, abdominal tenderness was present in 35%, hepatomegaly in 17.5%, anaemia and oedema in 4.3% and colon was palpable in 25% cases.

Table : III Sites of Diverticula.

Organ	Site	No	Percentage
Oesophagus	Mid Oesophagus	1	
Stomach	Cardio oesophageal junction	3	60
	Not known	2	40
	2nd part duod.	23	38.0
	3rd part duod.	4	6.6
Small Bowel	2 & 3rd part	1	1.6
	Not known	25	41.6
	Duod. + Jejunum	2	1.6
	Jejunum	2	1.6
	Colon + duodenum	3	5%
	Sigmoid	10	20.8
	Sigmoid + Desc. colon	8	16.6
	Transverse	5	10.4
	Transverse + Desc.	5	10.4
	Descending	4	8.3
Colon	Ascending + Trans.	4	8.3
	Sig + Descend.+ Ascend .	2	4:1
	Sig. + Ascending	1	2.0
	Descending + Hep. flex.	1	2.0
	Recto sig.	1	2.0
	Trans + sig.	1	2.0
	Not known	4	8.3
	Duodenum + colon	2	4.1

Table III shows different sites of diverticula, as seen on radiology. Cardio-oesophageal junction was the commonest site for gastric diverticulum (60%). In the small bowel 38.3% were in the 2nd part of the duodenum, while in 41.6% the site of diverticulum was not recorded. Most of the colonic diverticula were in the sigmoid colon (20.8%).

Association of diverticulosis with other systemic diseases is shown in table IV.

Table IV **Associated Systemic Diseases.**

Disease	Stomach	Duodenum	Colon	Total	%
H. H. + GOR + Oesophagitis	2	13	4	19	16.6
Asthma/Bronchitis	–	5	5	10	8.7
Diabetes Mellitus	1	5	3	9	7.8
Gall bladder disease	1	2	6	9	7.8
Duod. ulcer	1	3	2	6	5.2
Appendisectomy	–	2	3	5	4.3
Inguinal Hernia	1		2	3	2.6
Amoebiasis	–	2	1	3	2.6
Ascariasis	–	3	–	3	2.6
Pulmonary T.B.	–	1	1	2	1.7
Cirrhosis	–	–	2	2	1.7
Crohn's disease	–	2	–	2	1.7
Pancreatitis	–	1	–	1	0.8
Volvulus	–	1	–	1	0.8
Carcinoma stomach	1	–	–	–	–

H.H. : Hiatus hernia
G.O.R. : Gastro Oesophageal reflux

The diseases commonly associated were hiatus hernia, Oesophagitis and gastro-oesophageal reflux (16.6%). Other associated disorders were bronchial asthma and bronchitis (8.71%), gall bladder disease, diabetes (7.8%) and peptic ulcer disease (6.2%). One patient with gastric diverticulum had an associated duodenal ulcer, hiatus hernia, diabetes mellitus and gall stones; while another had carcinoma of the stomach.

The association of diverticular disease with other gastrointestinal disorders is compared with other reported series (table V).

Table V Disease Associated With Duodenal Diverticula.

Authors	Year	Total cases	Peptic ulcer		G. Bladder		Hiatus Hernia		Colonic divert		S. Bond divert	
			No	%	No	%	No	%	No	%	No	%
Spriggs and Marxer	1925	38	–	–	6	17	–	–	–	–	4	10.5
Horton and Mueller	1933	122	13	11	39	32	?	–	24	20	8	6.5
Beals	1937	41	4	10	15	36	–	–	5	26	–	–
Edwards	1939	80	9	11	–	–	–	–	17	21	–	–
Weintraub and Tuggle	1941	349	46	13	36	10	31	9	45	23	–	–
Warren and Emery	1943	103	35	34	–	–	–	–	–	–	–	–
Davis and Budd	1950	65	11	17	2	3	–	–	–	–	6	9.2
Andolf	1951	246	53	22	86	35	–	–	–	–	–	–
Cattell and Mudge	1952	25	–	–	–	–	–	–	9	33	1	4
Chitamber	1953	90	23	26	12	13	9	10	21	23	12	13.3
Forrest	1957	69	14	20	7	10	8	12	–	–	–	–
Jones & Merendino	1960	49	10	20.4	11	22.4	8	16.3	15	30	–	–
Willox	1969	18	–	–	9	50	–	–	–	–	–	–
Qureshi and Zuberi	1983	48	3	6.2	2	4.1	10	20.8	3	6.2	2	4.1

The colonic diverticulosis was associated with hiatus hernia in 20.8%, peptic ulcer disease in 6.2% and gall bladder disease in 4.1%.

Complications of diverticular disease included diverticulitis in 2, perforation of rectum, paracolic abscess and ischiorectal abscess in one case each. Past history of intestinal obstruction was present in one case.

Discussion

Pattern of diverticular disease reported from various countries may differ not only due to dietary and other factors but also due to differences in the facilities available for diagnosis. Diverticulosis is diagnosed mainly on radiology, endoscopy and autopsy. Autopsies are not done in Pakistan and radiological investigations in hospital patients are done only when strongly indicated. It is therefore likely that figures for diverticular disease reported here may be an underestimation of the actual frequency. Differences in the dietary and toilet habits might have influenced the distribution Qf diverticulae in this Study. Unlike western studies[1] duodenal diverticula were more frequent than those in the colon.

Diverticulosis is a disease of elderly and is rarely seen below 30 years of age[2]. If 30 years is taken as the dividing line then 14.5% cases in this series were below this age.

The disease is about equally distributed in both sexes but male predominance is also not uncommon.[3,4] In the present study a strong female predominance was noted in gastric and male in the colonic group. Less frequency of colonic diverticula in females can also be due to the refusal of most females to undergo barium enema.

Sigmoid colon is the main reservoir of faeces until defaecation. The high occurrence of diverticulae in the sigmoid colon is probably due to prolonged stasis[5,6]; twenty one percent cases reported here had

only sigmoid and 16.6% sigmoid and descending colon diverticulosis.

The association of colonic diverticulosis with hiatus hernia and cholelithiasis is commonly known as Saint's triad.[7] Its incidence varies from 0.4-14%.[8,9] The frequency of hiatus hernia was higher (20.8%) than 9-16.3% reported in other series[10,11] and gall bladder diseases much lower (7.8%) than 10-50% observed by others.[10,12] Association with peptic ulcer disease was observed in 7.8% in this study and 10-34% by others.[13,14]

Colonic diverticula were associated with duodenal diverticula in 6.2% and duodenal with colonic in 4.1% which is far less than 20-33% in the colonic[15,16] and 4-13% in duodenal group. [16,17]

As complete radiological examination of gastrointestinal tract and cholecystogram are not done as a routine in all the cases, the exact association of diverticular disease in various parts of G.I. tract and the frequency of saints triad could not be determined.

Two factors likely to predispose colonic diverticulosis in young Pakistani adults of high socioeconomic group are highly 'refined diet[18,19,20] and the posture acquired during defaecation. Highly refined low residue diet stays for a longer time in sigmoid colon and results in constipation. Sustained bowel contraction increases the intraluminal pressure which is further aggravated by the great effort required during defaecation resulting in formation of diverticula. High residue diet in lower socioeconomic group probably protects them from developing diverticular disease.

The posture acquired during defaecation also seems to have some effect. Squatting over the Pakistani style commode facilitates complete and rapid evacuation of the bowel. As the lower socioeconomic group tends to use this type therefore they are less likely to develop the disease. The western style of commode is said to produce constipation and delayed bowel clearance because the rectum does not fall in line with the anal canal.

With rapid westernization and changes in the dietary and toilet habits the frequency of gastrointestinal diverticulosis is likely to increase in the urban communities of Pakistan.

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