

ORIGINAL ARTICLE

Endoscopic Examinations in Children with Recurrent Abdominal Pain

by

PITONO SOEPARTO

*(From the Department of Child Health, Airlangga School of Medicine
Dr. Soetomo Hospital, Surabaya)*

Abstract

Much difficulties are often encountered in finding the underlying cause of recurrent abdominal pain. Clinical features may vary from one patient to the other and occasionally from one episode to the next even in the same child. The recent development of fibre optic endoscopy may well prove to have a useful diagnostic technique, particularly in those children in whom other investigations are inconclusive.

The result of endoscopic examinations in children with recurrent abdominal pain comprising of 62 children aged between 3-13 years were as follows : erosion in 7 children, oesophagitis in 4 children, duodenitis in 3 children, spasm of the pylorus in 2 children, and normal findings were found in 30 children. Of the 30 patients with "normal" endoscopic findings, 7 had psychosomatic problems, 4 had allergy, 4 had urinary tract infection, 2 showed giardiasis, one had epilepsy, 1 was treated as pulmonary tuberculosis, where as in 11 patients organic as well as nonorganic abnormalities could not be found. There seem to be of no significant correlation between the endoscopic and upper gastrointestinal series findings. Endoscopy seem to be of a safe and reliable tool in the diagnosis of a number of organic intestinal lesions otherwise not detected by ordinary investigations.

Introduction

A child is said to have the syndrome of recurrent abdominal pain if at least three attacks of pain, severe enough to affect activity, have recurred during a period of 3 months or longer (Apley, 1975; Roy et al., 1975). The syndrome of recurrent abdominal pain may result from a number of conditions or as a manifestation of functional gastrointestinal illness with a varied and erratic history.

In the course of the nineteenth century it had become an almost unchallenged axiom that the study of disease should be approached from two completely different points of view: the organic approach or the psychological attitude. But modern psychosomatics has demonstrated that this distinction is not always in harmony with the observed facts: emotional processes can produce and influence organic illness, organic disturbances can produce mental disease. However, the differentiation between primarily organic and nonorganic disorder remains one of the basic trends of medical practice (Apley, 1975). Every

Materials and methods

A total of 62 children aged between 3-13 years presenting the symptom of recurrent abdominal pain (RAP) underwent endoscopic examinations. They had complained of at least three episodes of abdominal pain during a period of 3 months or longer.

Routine studies included: complete blood examinations, stool examinations for ova and parasites, urine analysis, urine cultur, blood urea nitrogen and serum creatinine, serum transaminases, serum amylase, chest and plain abdominal roentgenograms. Up-

physician should therefore make a careful and unbiased exploration of possible organic causes of recurrent abdominal pain as well as a search for areas which may be recognized as emotionally stressful.

Much difficulties are however often encountered in finding the underlying cause of recurrent abdominal pain. Clinical features may vary from one patient to the other and occasionally from one episode to the next even in the same child. Like other medical problems, recurrent abdominal pain in children has many underlying factors influencing each other, and in a large number of investigations attention has been focused on one to the virtual exclusion of the remainder.

The recent development of fibre optic endoscopy may well prove to have a useful diagnostic technique, particularly in those children in whom other investigations are inconclusive. The purpose of this study is to evaluate the results of endoscopic examinations carried out in children presenting with recurrent abdominal pain.

per gastrointestinal (UGI) series, electroencephalograms, intravenous pyelograms, ultrasonography were occasionally performed.

The diagnosis of food allergy was based on food elimination and challenge studies. The diagnosis of psychosomatic disturbances was established by the identification of definite psychologic or emotional abnormalities and confirmed by a psychiatrist. Family history in the form of interview was taken to provide solid information pertaining to the origin of the pain.

Results

Females predominated males in presenting symptoms of recurrent abdominal pain in a ratio of 2 : 1. They were evenly distributed among the age groups (Table 1).

Table 1 : Age and sex distribution

	3 - 5 years	6 - 8 years	9 - 13 years	Total
Female	14	14	12	40
Male	6	11	5	22
Total	20	25	17	62

Most patients experienced recurrent abdominal pain less than one year, there remains 21 patients of whom the precise time of onset of symptom was uncertain (Table 2)

Table 2 : Duration of illness

Duration of illness	3 - 5 mo	6 - 8 mo	9 - 12 mo	2 yr	3 yr	?
No. of patients	10	14	13	3	1	21

Table 3 : Endoscopic findings

	Age group (Year)			Total
	3 - 5	6 - 8	9 - 13	
Endoscopic findings :				
Esophagitis	2	2	—	4
Gastritis	3	1	3	7
Duodenitis	1	1	1	3
Erosion	1	4	2	7
Ulcer	1	2	2	5
Polyp	2	—	2	4
Pyloric spasm	—	2	—	2
Normal	10	13	7	30
Total	20	25	17	62

It shows in Table 3 that among 62 endoscopic examinations, esophagitis was found in 4 patients (6.4%), gastritis in 7 (11.29%), duodenitis in 3 (4.83%), erosion in 7 (11.29%), ulcer in 5 (8.07%), polyp in 4 (6.45%), spasm of pylorus in 2 (3.23%) and normal finding in 30 (48.39%).

Table 4 : Functional and organic lesions

	Age group (Year)			
	3 - 5	6 - 8	9 - 12	Total
Functional	10	15	7	32
Organic lesion	10	10	10	30
Total	20	25	17	62

Organic lesions constituted nearly half of the endoscopic findings of patients with recurrent abdominal pain. There appeared

to be no significant correlation between the result of UGI series and endoscopic findings.

Table 5 : Endoscopic findings related to UGI series

Endoscopic finding

Ulcer	1						2	
Erosion								
Polyp			1		1			
Duodenitis	1							
Gastritis	4						1	
Esophagitis	3	1						
Pyloric spasm		1		1				
Normal	6	1		3			4	
	Normal	Pyloric spasm	Esophagitis	Gastritis	Duodenitis	Polyp	Erosion	Ulcer

Radiological appearance

If the patients were grouped into functional disturbances (pyloric spasm, normal endoscopic finding) and organic lesions (esophagitis, gastritis, duodenitis, erosion, ulcer, polyp), the following will be obtained (Table 4) :

Intestinal lesions were found in 41.64% of patients with psychosomatic difficulties (Table 6). Of 30 patients with normal

endoscopical findings, 11 remained without any evidence of associated diseases (Table 7).

Table 6 : Endoscopic findings of patients with psychosomatic disturbances (N = 12)

	Normal	Gastritis	Duodenitis	Erosion	Ulcer
No of patients	7 (58.33%)	1	1	2	1
		(41.64%)			

Table 7 : Disease states of patients showing no abnormalities on endoscopy

	Psychosomatic	Allergy	UTI	Giardia	Epilepsi	TB	(-)
No of patients	7	4	4	2	1	1	11

UTI : Urinary tract infection

TB : Tuberculosis

Discussion

A study of recurrent abdominal pain comprising 48 Indonesian children has previously been done by Soeparto et al. in 1981 which was based mainly on diagnostic UGI series. Of 48 patients studied, only 13 (27.08%) showed intestinal lesions on X-ray. Compared to 48.39% of the present study, conventional barium radiological studies of the upper gastrointestinal tract may of less diagnostic value compared to endoscopical examination, since intestinal mucosal lesions are frequently shallow (Marrone and Silca, 1984; Bendig, 1983). There seem also of no significant correlation between UGI series and endoscopical results. The limitations of barium contrast

studies versus endoscopy have also been demonstrated in several studies (Bendig, 1983). Fibre optic endoscopy helps not only to establish with greater certainty than before the presence or absence of ulcers in dyspeptic patients, but it has also facilitated such diagnosis as "gastritis" and "duodenitis" (Lagarde and Spiro, 1984).

The syndrome of recurrent abdominal pain may result from a number of conditions which are mostly difficult to determine. A compelling model proposed by Barr divides children with recurrent abdominal pain into three groups : "organic", "dysfunctional" and "psychogenic" (cited from Levine 1984). The ex-

act cause of the syndrome in the present series remains incompletely understood although intestinal lesions were visible in nearly half of the cases endoscopically.

The concept that psychogenic factors are triggering events in the production of the pain is generally accepted. However, it is not clear as to whether this response reflects a genetic or an acquired susceptibility, or both in the child. Though the gastrointestinal tract seems to be the target organ receiving the brunt of emotional input, a generalized disturbance of the autonomic system may exist (Roy et al., 1975). The importance of psychogenic elements in the genesis of the syndrome was also put forward by several authors (Girdany, 1953; Chapman et al., 1956; Lam, 1984). It is further suggested that emotional distress could be the primary and through C N S stimulus as the end pathway may markedly affect gastric motility, hypersecretion and finally to "gastritis" and duodenitis" (Lagarde and Spiro, 1984). The present study showed that of 12 patients presumed to have psychogenic disturbance, 5 (41.64%) have intestinal lesions on endoscopy.

There remain however 11 patients (17.74%) of whom neither endoscopic abnormalities nor associated diseases could be detected. The possible underlying causes need to be further elucidated.

Gastritis and duodenitis are often diagnosed empirically and without adequate substantiation. The diagnosis should be reserved for inflammation of the gastric or duodenal mucosa and should be made only by endoscopy or mucosal biopsy. There is some controversy over whether gastritis and duodenitis are indeed responsible for dyspeptic symptoms. In a study Creenlaw et al. in 1981 (cited from Lagarde and Spiro, 1984) found that 41 percent of patients with classic symptoms of duodenal ulcer disease

had endoscopic and/or histological evidence of acute gastroduodenitis but no visible ulcer crater. This raises the question whether they precede, are a component of, or result from peptic ulcer disease (Bendig, 1983). A few prospective studies support on the other hand the progression of "duodenitis" to frank ulcer disease (cited from Lagarde and Spiro, 1984).

Peptic disease has though to be a rare occurrence in childhood although the actual incidence and prevalence is unknown. But recent developments in fibre optic endoscopy have increased the awareness of most pediatricians and shed new light on this assortment of disorders (Bendig, 1983). The etiology of ulcer is heterogeneous. Hyperacidity is an important factor in the genesis of ulcer and may be associated with stressful life events. In the presence of hyperacidity, the mucosal reparative processes do not operate normally. Once hyperacidity is removed or reduced, these processes operate normally and healing occurs (Lam, 1984). Children with peptic ulcers do not often have the classic symptoms ascribed to this disorder in adults. Children may have chronic abdominal pain, recurrent vomiting or occult gastrointestinal bleeding. A number of peptic ulcers may be missed by X-ray examination but can be diagnosed by endoscopy. The prognosis for ulcers cases in children appears to be good, although in older children symptoms tend to recur more frequently and persist into adult life (Goldberg, 1957; Christie, 1976).

Regarding the erosion the answer is not clear as to whether a grossly visible or histologically evident erosion in the gastroduodenal mucosa represent a step in the continuation from normal to full-blown peptic ulcer disease. Abdominal discomfort may or may not be related to the erosion of the gastroduodenal mucosa (Lagarde and

Spiro, 1984).

Polyps of the gastrointestinal tract may cause recurrent episodes of abdominal pain (Dickson, 1977; Arey, 1975). Juvenile polyps are common tumors of the gastrointestinal tract in early life. The polyps are usually located in the rectum, less frequently in the sigmoid colon and uncommonly in the more proximal colon, the small intestine or the stomach. They are usually solitary.

The other disease causing recurrent abdominal pain is esophagitis. It may be associated with hypersecretion with or without evidence of hiatal hernia or poor gastroesophageal sphincter control (Levine and Rappaport, 1984). Signs that are peculiar to children with esophagitis, especially those of the immediate preschool and

early school age are personality disorders. Esophagitis may also be a symptom in children who experience incompetence of the gastroesophageal sphincter.

Although endoscopy has become a more sensitive and specific modality than standard X-ray techniques, there remain many causes possibly playing a role in recurrent abdominal pain which are beyond the reach of endoscopy. Such underlying causes can sometimes only be detected by roentgenogram. Endoscopy is therefore not meant to be a first-line diagnostic procedure but rather to complement X-ray studies. Apart from diagnostic value, endoscopy may also be regarded as a psychological approach to convince both the parents and child that no real organic disease is in fact present.

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