Endoscopic Examinations in Children with Recurrent Abdominal Pain

by

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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.

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### 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 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.

### Materials and methods

A total of 62 children aged between 3-13 years presenting the symptom of recurrent abdominal pain (RAP) underwent endoscopical 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 culture, blood urea nitrogen and serum creatinine, serum transaminases, serum amylase, chest and plain abdominal rontgenograms. Upper 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

| Age Group | 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 | Total |
|---------------------|----------|----------|-----------|------|------|-------|
| No. of patients     | 10       | 14       | 13        | 3    | 1    | 21    |

#### Table 3: Endoscopic findings

| Age Group (Year) | 3 - 5 | 6 - 8 | 9 - 13 | Total |
|------------------|-------|-------|--------|-------|
| 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     |
| Pyloric spasm    | 2     | -     | 2      | 4     |
| 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 (6.40%), 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%).

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):

|         | 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 | Radiological appearance |
|--------------------|------------------------|
| Ulcer              |                        |
| Erosion            |                        |
| Polyp              |                        |
| Duodenitis         |                        |
| Gastritis          |                        |
| Esophagitis        |                        |
| Pyloric spasm      |                        |
| Normal             |                        |

Intestinal lesions were found in 41.64% of patients with psychosomatic difficulties (Table 6). Of 30 patients with normal endoscopic findings, 11 remained without any evidence of associated diseases (Table 7).

**Table 4: Functional and organic lesions**

**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     |

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

| Disease States | Psychosomatic | Allergy | UTI | Giardia | Epilepsi | TB (—) |
|----------------|---------------|---------|-----|---------|----------|--------|
| No of patients | 7             | 4       | 4   | 2       | 1        | 1      |

**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-
GASTRITIS AND DUODENITIS ARE OFTEN DIAGNOSEDgrund on endoscopic examination in children.

The possible underlying causes need to be further elucidated.

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 heterogenous. 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 gastro-duodenal mucosa represent a step in the continuation from normal to fullblown peptic ulcer disease. Abdominal discomfort may or may not 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 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 no 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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