

THE CHILD WITH ABDOMINAL PAINS

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THE CHILD WITH ABDOMINAL PAINS

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A Monograph in

AMERICAN LECTURES IN PEDIATRICS

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PREFACE

It was tempting to call this monograph 'Little Belly-Achers'. I insisted on a title which emphasizes the patient, not the symptom, and alternatives like 'Children with Recurrent Abdominal Pain' are long and unwieldy. I decided against 'Little Belly-Achers' partly because it carries a suggestion of irritation on the doctor's part. If there is any irritation with a complaint which is very common, seems to go on and on, and takes up so much time, it may be increased because of the many gaps in our knowledge. Of these the self-critical doctor is well aware when trying to make a diagnosis.

The studies brought together here are the result of attempts, often with the help of colleagues, to fill some of the gaps for myself. I confess that, as a paediatrician, I started with a bias towards organic causes (and organic cures); but the accumulating evidence gradually convinced me that in most cases an organic cause cannot be found. Moreover, an organic cause cannot explain the other disturbances which are commonly associated with recurrent abdominal pain.

The reader will notice that the studies described are interspersed with controls. They were part of the process by which I tried to assess the significance of variations from the normal, and the validity of diagnoses which are currently accepted. In the haul from these turbid waters I found many red herrings.

The book is in two parts. The first, containing the bulk of the original work, includes observations on: frequency; age and sex incidence; a long-term follow-up survey; the important family history; the diagnostic value of pain and associated phenomena; an appraisal of organic disorders, with indications for ancillary investigations; a review of intellectual and emotional factors; and an assessment of treatment by drugs (including a therapeutic trial) and by other methods. I am told that readers will be well advised to read the chapter summaries first. The second part of the book is largely discussion, though a few items of original work are incorporated where they fall naturally in place. It ends with a chapter on diagnosis and management which is, in effect, a summing up.

A friendly critic likened some of the case histories to the dazzling illustrations on seed packets, as compared with the humdrum specimens we usually see. They are not touched up or toned down, but are truly representative of what is found in children with recurrent abdominal pain.

Bristol, *February 1959*

JOHN APLEY

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Friendly colleagues have helped in some of the studies, and I am grateful to them. It is a pleasure to acknowledge my indebtedness to Dr Nora Naish for giving so much of her time to the collection of data; to Dr R. F. Barbour and Professor D. V. Hubble for their very valuable criticisms and warm encouragement; to Dr R. MacKeith and Professor R. Milnes Walker for many helpful suggestions in the preparation of the script; and to Professor A. V. Neale for the stimulating atmosphere which he engenders in the Department of Child Health, Bristol University, where much of the work was done.

The shortcomings that remain in this attempt to present 'The whole patient' are not theirs but mine.

VENTER PRAECEPTA NON AUDIT

(The belly will not listen to advice)

Seneca (Epistulae ad Lucillum **Epis. XXI, II**)

PART I

ORIGINAL INQUIRIES

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CHAPTER I

PROBLEMS OF RECURRENT ABDOMINAL PAIN IN CHILDHOOD

Clinical problems. Diagnostic difficulties

It is a common event for the family doctor or paediatrician to be called to a child who complains, not for the first time, of abdominal pain. He may have been sent home from school 'because his tummy ached' and the teacher thought he looked unwell. Probably he felt sick, and he may have vomited. Usually, by the time the doctor arrives the pain has gone; but, whether the child is fully recovered or not, the parents ask questions to which answers are difficult. Even if the pain persists, the doctor may still be in the awkward position of finding nothing definite on which to base a diagnosis. Asked where the pain is, the child vaguely puts his hand on the umbilicus. Asked what it feels like, he replies simply 'It hurts'. He may look pale, the tongue is usually clean, the pulse unaffected, and the temperature normal or somewhat raised. All that is to be discovered on examination is, as a rule, indefinite tenderness in the abdomen.

If he knows the family well the doctor may appreciate that this is not an isolated disturbance. Not only has the child had pain before but, as likely as not, the mother or father has a history of a similar complaint — there may even be an abdominal scar to show for it. He may realize that the child, and indeed the family, tends to be over-controlled or 'to get worked up'. Usually, and shrewdly, he decides that he can afford to await developments — but he must often feel doubts. Was his reassurance completely justified? Is he overlooking an early acute appendicitis? — should he have carried out further investigations or sent the child to hospital? — was sedation the best form of treatment? And if there is, as he expects, a quick recovery, what of the future?

These interrelated problems — of aetiology, clinical diagnosis, indications for investigation, methods of treatment, and prognosis — are even commoner than is generally realized: at least one school child in ten suffers from recurrent abdominal pain (p. 17). Moreover, as the discussion on prognosis and natural history indicates (p. 12), the disorder is far from being so self-limited (or benign) as is currently accepted.

DIAGNOSTIC DIFFICULTIES

Diagnosis passes through phases which reflect changing medical fashions. Fifty years ago Still (1909) wrote: 'I know of no symptom which can be more obscure in its causation than colicky abdominal pain in childhood', and listed various causes. The commonest he thought to be some form of 'indigestion', then followed: undigested vegetable matter, threadworms, simple constipation, nervous bowel, renal disorders, tuberculous adhesions or caseating glands and appendicitis. In the second edition (1912) of his book he added 'abdominal epilepsy', also on evidence which by modern standards is open to criticism. Some of these possibilities have been discarded, others retained or revived, while new ones are added from time to time. Among the hardy perennials are worms, chronic or 'grumbling' appendicitis and mesenteric adenitis. Among more recent crops of diagnoses are allergy, emotional disorders, virus infections, hypoglycaemia, the periodic syndrome and abdominal migraine; others, like dietary or dental faults and acidosis, are at present out of favour.

Like other medical problems, that of recurrent abdominal pain has many facets, and in a large number of investigations attention has been focused on one to the virtual exclusion of the remainder. Even in the small number of more comprehensive inquiries, however, there is often apparent a tendency to selection of cases and, a very conspicuous omission, an absence of 'controls'.

Accurate criteria on which to base diagnosis have not been clearly established. In consequence doctors tend to vacillate between two extremes: simply to dismiss recurrent abdominal pains as an insoluble problem or, alternatively, to indulge in diagnostic aids without adequate justification. It is interesting and instructive to speculate on possible reasons for the diagnostic difficulties.

By training, and perhaps by inclination, most clinicians seize on an abnormal physical sign almost with a feeling of relief. An abnormality which can be seen, felt, or heard affords the same sort of satisfaction as playing games: the pitch is marked out and the rules are known; the linesmen are our technical colleagues (laboratory and X-ray) and the referee is the morbid pathologist. From this attitude certain consequences derive.

History-taking. The form of history-taking which clinicians customarily adopt in practice is biased towards eliciting evidence of organic disease. But in dealing with children suffering from recurrent abdominal pain its shortcomings are repeatedly made evident. In the large majority of cases a history limited in this way proves unproductive, and a considerable broadening of the approach is clearly essential.

Physical examination. In practice, the attempt to make a diagnosis often leads, not unnaturally, to repeated and more thorough physical examinations. But extremely few children with recurrent abdominal pain have a clinically detectable physical abnormality (Chap. v).

Even if one is found, however, diagnosis can become more, not less, difficult; for some of the abnormalities may mistakenly be considered to explain the pains, though in fact they do not. I refer to such conditions as grossly defective teeth or poor posture, which may be termed 'false positives'. They may be corrected or neglected: the pains may cease or persist. Too often an abnormality is accepted as causative without proof.

Ancillary investigations. Sometimes, especially in children attending hospital, the next stage is to set out on a witch-hunt of ancillary investigations. Appetite may grow with what it feeds on. If one test is negative more and more may be invoked. Even if a test is admittedly inconclusive it is sometimes accepted *faute de mieux* and a complete structure of disorder erected on this foundation. Furthermore, some of the abnormalities revealed by ancillary investigations are on a par with the 'false positives' of physical examination. Thus, the detection of worms in the stools, radiological evidence of calcified tuberculous lymph nodes in the abdomen, or reports of abnormal electroencephalographic tracings, may be actively misleading. They should not be accepted as indicating a cause for the symptom without knowing what is found in symptom-free children, and the whole context of what might be elicited from the individual child.

Results of treatment. Finally, the apparent success of a particular form of treatment, i.e. the cessation of pain, must not be uncritically accepted as proof either of the diagnosis or the theory of causation. The history of this complaint follows a recognized pattern in that a succession of different remedies has seemed for a time to produce 'cures'; in retrospect their effectiveness appears to depend largely on the doctor's conviction that he is right.

CHAPTER II

MATERIAL AND METHODS OF INQUIRY

Criteria. Hospital Series, School Series and School Control Series. Additional material. History, examination and ancillary investigations

The type of case to be included under the term 'recurrent abdominal pain' was defined, and the criteria were applied to the main groups of children studied in hospital or at school.

Criteria

Those included were children who had complained of at least three episodes of pain, severe enough to affect their activities, over a period longer than three months. Those excluded (a very small proportion of the number seen) were: children under the age of 3 years, those in whom pain had not recurred during the year prior to being questioned, and those who came unattended by a parent.

These criteria were defined, first, to ensure a reasonable degree of accuracy in the history; and, second, to eliminate, on the one hand, trivial disturbances (such as isolated digestive upsets) or, on the other, serious diseases (including occult infection) which would be expected to become manifest within the time limits set. In the event, the limitations imposed rarely raised any difficulties as regards selection of cases.

Data were obtained from two main groups of children (additional material is indicated on p. 7).

Hospital Series

The first group will be referred to as the Hospital Series.

A comprehensive study was made of a hundred consecutive children referred to hospital with recurrent abdominal pain as the main symptom.

There are, however, two obvious disadvantages of such a method by itself: children referred to hospital form a selected group, and a valid comparison with healthy controls is not feasible.

School Series and Controls

For these reasons, in a second group (termed the School Series) a limited study of unselected school children was undertaken. This also provided material for assessing the incidence of the complaint.

Under the aegis of a City Local Authority, children from Primary and Secondary Modern schools regularly attend with a parent for routine Medical Examinations. For a period of more than a year, at some of these clinics chosen at random, all children attending (and their parents) were questioned regarding the occurrence of abdominal pain. Each child in whom the criteria set out above were satisfied was included in the School Series.

The child not complaining of abdominal pain, whose name happened to be next on the list of those attending, was examined and included in the Control Series. The number of controls was, however, augmented by adding further children at random, as often as time permitted, and by including a small number below school age who by chance had come with their parents.

The investigation was concluded when 1000 children with their parents had been questioned, and has been reported in full elsewhere (Apley and Naish, 1958). The material is summarized in Table I.

TABLE I

SCHOOL SERIES AND CONTROLS: CASE MATERIAL

	<i>Total</i>	<i>Boys</i>	<i>Girls</i>
Preliminary questioning	1000	528	472
Detailed questioning and examination:			
Children with recurrent abdominal pain*	108	50	58
Controls	312	155	157

* Thirteen children whose pains had ceased more than a year previously have been excluded here and from the calculations of incidence.

CHILDREN WITH PAIN

In both the Hospital Series and the School Series the history was taken and the clinical examination carried out on identical lines.

Family history. In eliciting the family history special attention was paid to the occurrence of abdominal pain in other members of the family, as well as to migraine, epilepsy, allergic, 'nervous' and other disorders.

Personal history. The personal history was obtained from the mother as well as from the child. An accurate description of pain in children may be difficult or impossible to obtain, but detailed inquiries were made regarding several aspects in particular. They included the time and mode of onset of the attacks of pain, and any changes occurring subsequently; their site, character, duration, time of occurrence and periodicity; and any

predisposing and alleviating factors. Associated phenomena like vomiting, headache, pyrexia and pallor, and sleepiness after attacks were noted. An attempt was made to gauge the severity of the pain, and its effect on the child's activities, as well as the child's reaction to pain in general. Questions were asked about diet and appetite; dizziness, blank turns, faint spells, fits and other obvious indications of epilepsy; psychological disturbances, and evidence of emotional tension, both at home and at school.

Examination. The physical examination was detailed and as complete as possible. A number of children in the Hospital Series were again examined during an attack of pain, when particular attention was paid to the child's general appearance, the site of the pain, the size of the abdomen, the abdominal wall, the presence of bowel sounds and the plantar reflexes. The psychological status and the intellectual status were estimated, and the assessment checked where possible by reports from the school authorities.

Ancillary investigations. It is generally agreed that over-investigation may prove harmful. Nevertheless, organic disease should be promptly excluded or confirmed, and for this purpose 'screening' investigations may be necessary. One of the objects of the present study was to try to determine the indications for specific investigations. A large proportion of those carried out was found to be unnecessary, and would not be advocated in everyday practice. What William Penn termed 'a wantonness in inquiry' must be avoided. The very small number which were found to be essential are indicated on p. 78.

The ancillary investigations carried out in the Hospital Series are summarized in Table VI. Routine procedures were: Mantoux test (1/1000), urinalysis (macroscopic and microscopic), blood count, electroencephalogram (E.E.G.), and plain radiograph of the abdomen. Some additional investigations were carried out as 'pilot' surveys. Thus, in a proportion of cases the following were done: stool examination and rectal smear (for ova, worms and oesinophils), urine examination (for porphyrins), liver function tests, skin and serological tests (for brucellosis), pyelography, radiology of the intestine with complete barium follow-through examination (both between and during attacks of pain). With the weight of accumulating evidence some of these were abandoned as routine even for the purpose of the survey, and were subsequently employed only for specific indications.

In theory it might have seemed more satisfactory to carry out similar investigations on children in the School Series. In practice, however, this was considered to be not only impracticable but also undesirable. The only ancillary investigation carried out in the School Series was electroencephalography (E.E.G.).

Controls

The method of selection of controls in the School Series has been outlined (p. 5). In those selected a detailed history was obtained and clinical examination carried out in the same way as for the children with pain. In a high proportion of these controls an E.E.G. was obtained, but no further investigations were carried out.

In the Hospital Series the results of some examinations and investigations (e.g. plain radiograph of the abdomen, E.E.G., intelligence assessment, etc.) were compared with those obtained from children attending hospital for some reason other than abdominal pain. They will be discussed under the appropriate headings. A therapeutic trial will also be described.

COMPARISON BETWEEN SCHOOL SERIES AND HOSPITAL SERIES

The children forming both the School Series and Hospital Series were drawn from working and middle-class families in a large city, with a population approaching half a million and negligible unemployment. The Hospital Series included in addition a small proportion of patients from the surrounding country districts. From the inquiries made, milk-drinking habits appeared to be similar in the two groups, and the investigations done excluded the possibility that predominantly rural diseases (e.g. brucellosis) might have weighted the Hospital Series unduly.

A comparison of the data from the School Series and the Hospital Series showed only a few minor differences, the significance of which will be discussed later. In brief, the Hospital Series included proportionately more children in whom attacks of pain were severe, more 'only children', rather more with epileptiform E.E.G.s, and fewer girls in the pre-pubertal age-group. Under the major headings of family and personal history, and physical, mental and psychological status, the data from the two groups showed a close similarity, and the material forming the two Series did not differ in any important respect.

Additional material

Some additional smaller groups of cases were investigated for special purposes. They are described in the text, where they fall naturally in the sequence of investigations and discussion. Examples are: (1) long-term follow-up survey (p. 13), (2) calcification of mesenteric nodes (p. 28), (3) E.E.G. in children with pain and in controls (p. 29), (4) virus studies (p. 58), (5) pains in epileptic children (p. 64).