Current Practice

CHILD CARE IN GENERAL PRACTICE

Recurrent Abdominal Pain and Vomiting in Childhood

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Every family doctor will recognize the following story and many variations on the same theme.

A boy of 9 is brought to see his doctor because for over two years he has had periods of abdominal pain. He says the pains are sharp and are felt across the middle of his abdomen around the umbilicus. They are not continuous but come on and off, lasting for three or four days at a time, intermittently. He feels sick when he has the pains, and used to vomit, though this has become less common lately. Recently the attacks have been associated with frontal headache, which is severe for two or three hours. He looks white and ill when the pain is coming on, but between the attacks he is energetic and tackles everything he does with exceptional vigour. The first time the symptoms were really bad he was admitted to hospital with a diagnosis of acute appendicitis, but the appendix was not removed, because by the time he reached hospital he was beginning to recover.

The doctor sees that the child's parents are anxious. They want to know what is causing the trouble and how it is going to be cured. They know of somebody else's child who had the same symptoms and who was put right in the end only by an operation—probably appendicectomy. Yet neither their own doctor nor the consultant who saw the child six months ago seems to be sure what is the matter with him.

Incidence

From Apley's (1959) careful studies of the subject it is known that recurrent abdominal pain occurs in one out of nine schoolchildren in the Bristol area, and there is no reason to think that the incidence differs much in other parts of the country. The age of onset of the attacks reaches a peak in both boys and girls at about 5 years, but, though the numbers beginning after that age steadily fall in boys, there is a striking increase again in girls between 8 and 10 years old.

Recurrent vomiting alone is rather less common, but some vomiting often goes with the abdominal pains. Fever, headache, and, more rarely, pains in the limbs are other associated phenomena.

Organic Causes

There have been several investigations designed to answer the question, "How often do these symptoms have a demonstrable and treatable organic cause?", and most of them agree reasonably closely. In Apley's series of children with abdominal pain, out of 100 cases extensively investigated in hospital only eight were shown to have a definite organic cause. These investigations included, among other things, barium radiographs of the alimentary tract, pyelograms, blood pictures, tuberculin tests, stool examinations, and electroencephalograms. The term "organic cause" as used here means a clearly recognizable state of disease in some organ or organs, within the limitations of our present knowledge. In

the future, other disorders, perhaps biochemical, may be added to the list of causes.

The fact that organic disease is exceptional in these children makes it none the less a serious matter to miss it. At the same time it is important not to subject every child to a full exhaustive investigation which may in itself perpetuate the problem by focusing undue attention upon it.

Fortunately, a really careful history and a thorough clinical examination, taking note of certain special points, can be reliable guides in deciding in which case further detailed investigations are necessary. Some knowledge of circumstances at home and at school may be of great value, and positive evidence of stress may be revealed, which will weigh in favour of a psychological origin for the symptoms. The careful examination is also of special value because, even if nothing comes to light, the fact that it has been done and has been seen to be done engenders confidence and makes it easier for parents to accept the fact that their child has no clearly defined or surgically treatable disease.

It is not always easy to be sure of one's clinical findings when the child is apprehensive (perhaps tending to cry) and the parents are projecting their own anxiety upon him. To have enough time to take it slowly is the first need, and once the child is calmer it is useful to draw away his attention from himself by talking and asking questions about his family while palpating the abdomen.

Differential Diagnosis

Certain organic diseases may cause recurrent abdominal pain and vomiting, and when these symptoms are present the following conditions should be considered.

The Doubtful Appendix

When recurrent abdominal pain is the principal feature there is a tendency on the part of parents and also of many doctors to blame an inflamed appendix, or an appendix which is hyperactive due to blockage of its lumen, giving rise to "appendicular colic."

Perhaps because this particular anxiety is relieved once and for all by removal of the appendix there is a widespread belief that recurrent pain is often cured by the operation in spite of rather doubtful pathology in the organ itself.

This is a difficult matter to prove or disprove, but the general view of those surgeons with most experience of paediatrics is that repeated bouts of pain over a period of months or years are not often attributable to an inflamed appendix. However, acute appendicitis in early childhood can sometimes be a difficult diagnosis to make with certainty. To miss it until a late stage is to endanger the child's life; hence the fact that the experienced surgeon is prepared to

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"look and see" at times, with the knowledge that once in a while the diagnosis will be wrong. This principle does not, however, apply to most periodic abdominal pain, with or without vomiting, unless there are some clear signs that the appendix is involved. The pointers are prolonged bouts of continuous pain for an hour or more with persistent localized tenderness, usually but not always in the right iliac fossa, associated with resistance on palpation.

Urinary Tract Disorders

Chronic urinary infection is now known to be surprisingly common in childhood, and recurrent abdominal pain and vomiting are possible symptoms of it, even in the absence of frequency and dysuria. Pain confined to one side of the abdomen on a number of occasions is enough to raise the suspicion of some abnormality in the urinary tract—perhaps obstructive leading to hydronephrosis—and justifies further investigation with a pyelogram.

It is frequently believed that the absence of albumin excludes a urinary infection. This is a myth which needs exploding. In every case of recurrent pain, with or without vomiting, proper examination of the urine is the one essential investigation, and its importance cannot be over-stressed. Examination of a mid-stream clean specimen of urine less than three hours old, with a microscope, to look for significant numbers of pus cells is the simplest and most reliable test. Preferably the number of cells per c.mm. of uncentrifuged urine should be counted, using a simple counting chamber as for cerebrospinal fluid. Over 10 cells per c.mm. is good evidence of urinary infection. The finding of a positive culture from an ordinary specimen of urine is not in itself enough to rely upon, for often the organisms growing are contaminants.

Recurrent Obstruction in the Alimentary Tract

Where vomiting is a prominent feature of the attacks it is wise not to forget about the possibility of recurrent obstruction, in spite of the fact that it is very uncommon. Such obstruction can be due, for example, to congenital malrotation of the intestine, "reduplication" of intestine, a Meckel's diverticulum with an obstructing band, recurrent intussusception, or even Crohn's disease. Here abdominal distension at the time of the attack is the clinical feature which might lead to further investigation, at least by straight radiography at the time of an attack.

Rarer Causes

Peptic ulcer, usually thought of as a disease of adults, probably affects children more often than is generally recognized. Even so it is an exceptional cause of such a common recurrent symptom as abdominal pain. The symptoms and clinical signs are not so characteristic as in the adult, but epigastric tenderness can usually be found and, if persistent, may justifiably lead to a barium meal radiograph.

Even rarer causes of recurrent abdominal pain and vomiting are lead poisoning, porphyria, hypoglycaemia, acholuric jaundice, and diseases of the spine with referred pain. The other features of these disorders are fortunately usually sufficiently prominent to make a diagnosis possible on ordinary clinical grounds, provided they are kept in the back of the mind as possibilities.

Intracranial Disease

The other disorders which ought never to be forgotten when repeated vomiting is the main symptom without abdo-

minal pain are those which result in increased intracranial pressure—particularly the cerebral tumour or subdural haematoma. If headache is an associated feature there is the more need to keep such a diagnosis in mind, though it is fortunately a great deal more likely to turn out to be migraine. Any child with such a history should be examined for early neurological signs (particularly papilloedema and slight ataxia) on the first occasion. If no signs are found it is as well to repeat the examination after an interval of a month or so. Only in this way can one hope to avoid missing the exceptional child with serious intracranial mischief and yet also avoid embarking too lightly on frequent upsetting and time-consuming investigations. It is worth remembering, however, that a plain radiograph of the skull is one simple investigation which can help in early diagnosis without much disturbance to the child.

The signposts, then, which point towards an organic cause worthy of further investigations in any child with one or more of the recurrent symptoms of abdominal pain, vomiting, and headache are (1) a general deterioration of health including persistent loss of energy, appetite, and weight; (2) urinary symptoms (frequency and dysuria); (3) unilateral abdominal pain; (4) persistent pallor; (5) abdominal distension in the attack; (6) persistent localized abdominal tenderness, or a mass; (7) unsteadiness, giddiness, or any abnormal neurological sign.

"The Periodic Syndrome"

If nothing is found which points towards organic disease, how can the symptoms be explained? This pattern of recurrent symptoms has been familiar for a great many years to those who work with children. It is useful to have a name for it, provided that one fully accepts it as a purely descriptive term and not a diagnosis. Perhaps "the periodic syndrome" is as good a name as any. There have been numerous others which have tended to vary depending on which symptom has predominated in the group of cases described, or what disorder has been thought to be responsible—for example, the terms "cyclical vomiting," "acidosis," and "abdominal migraine."

Cameron (1946) in his beautifully written book, *The Nervous Child*, drew attention to the fact that the sufferers from the syndrome often conformed to a certain physical and emotional type. They were the children labelled as "highly strung" by their parents; more than an average amount of energy and emotional tension was a feature of all their activities, and, having expended their limited reserves, they flopped. These views have been well borne out by many others who have studied the problem, and the important role which emotional stress can play in the causation of the attacks has been clearly demonstrated.

For a period the individual patient tends to present a consistent picture in each attack with one of the symptoms predominating. Over a longer time the pattern may change—as in the illustrative case history at the beginning of this paper—and headaches may replace abdominal pain, or fever may cease to be a feature, while pains in the limbs are substituted.

There is often a family pattern too which seems to determine what particular form the child's reaction to stress may take. The child with recurrent abdominal pain is very much more likely than the average child to have a parent with a peptic ulcer. Migraine is outstandingly common in near relatives.

Apley (1959) has demonstrated the surprising fact that, though the symptoms may change, many children do not, as is so often thought, grow out of their attacks altogether after puberty. Recurrent vomiting does usually cease, but abdominal pains may continue into adult life, and "sick head-

aches" or migraine attacks often start after a long interval of freedom.

By no means always can significant emotional stress be shown to be responsible for these attacks and clearly the extent to which it is blamed depends on the orientation of the doctor towards or away from psychiatry. The proof of its significance can, in the long run, be made only through seeing the effect of relieving tension on the symptoms. Unfortunately, this is not simply achieved, because the stress is inherent in the circumstances of the child's life, which are not always amenable to alteration without a more harmful upheaval. Nevertheless to be able to recognize some of the causative factors is valuable, because it makes "therapeutic listening" by the doctor possible while the parents or child unburden themselves. Often it is possible to modify attitudes at home or at school to the child's benefit, though it may be advisable to ask for the help of a children's psychiatrist when the problem seems more than usually complex.

Treatment

Provided that they are not used indiscriminately, and every attempt has first been made to establish a treatable cause (organic or otherwise), it is not unreasonable to use dietary measures or palliative drugs as a means of reducing the number of attacks.

If vomiting predominates there is value in reducing the intake of fat to a minimum and substituting extra carbohydrate in the form of sugar-sweetened drinks at regular times. Milk can be rationed to about half a pint daily and should not be the fat-enriched Jersey or Guernsey variety. Cocoa and chocolate, stodgy puddings, and pastry are all best avoided.

There are some cases where a continuous small dose of phenobarbitone, 15 mg. (gr. $\frac{1}{4}$) twice daily, or prochlorperazine (Stemetil), 5 mg. twice daily, over a period of several months for a 7- to 10-year-old child is effective in reducing attacks.

When there is recurrent spasmodic abdominal pain the antispasmodic group of drugs—for example, propantheline (Pro-Banthine), 15 mg. thrice daily—can also be helpful.

Treatment of the attack itself depends on its nature and severity. Some children with a tendency to recurrent vomiting can quickly become dehydrated and ill in a severe bout with subsequent hypochloreaemic alkalosis. Though the condition is usually self-limiting before any very serious effects have time to accrue, the episode can be rendered less alarming by the use of certain measures in good time. Small drinks of water (1–2 oz. (30–60 ml.)) flavoured with a fruit-juice concentrate, and with half a teaspoonful of salt added to each 10 ounces (300 ml.), should be given half-hourly. Provided that the diagnosis is not in doubt the vomiting can be checked by a single intramuscular injection of perphenazine (Fentazin). Promethazine hydrochloride (Phenergan) is useful both as a sedative and an anti-emetic, in dosage of 0.25 mg./lb. (0.5 mg./kg.) body weight daily. Only very occasionally is vomiting so severe as to require parenteral fluid and electrolyte replacement.

To summarize: recurrent abdominal pain and vomiting in childhood are symptoms which require careful evaluation in every individual case. In a few, something in the history or examination may lead to finding truly causative organic disease. In others, such definite reasons for emotional stress are unfolded that it becomes possible to relate the symptoms to it and to use appropriate means of alleviating them. In others again, a reason for the symptoms is difficult to establish, but the pattern of the attacks, the associated symptoms, and perhaps the family history make it possible to recognize a familiar clinical entity which can safely be managed at home with the help of palliative treatment and an open mind.

REFERENCES

- Apley, J. (1959). *The Child with Abdominal Pains*. Blackwell Scientific Publications, Oxford.
Cameron, H. C. (1946). *The Nervous Child*, 5th edition. Oxford University Press, London.

TO-DAY'S DRUGS

Principles of Prescribing (2)

Last week's "To-day's Drugs" article dealt with the general principles of prescribing. The article this week discusses the prescribing of proprietary drugs and the various laws governing prescribing.

Pharmaceutical preparations listed in the *B.P.*, *B.P.C.*, and *B.N.F.* are freely prescribable on the statutory form E.C.10. However, the practitioner may decide that ordering a particular proprietary preparation is more appropriate to the needs of an individual patient. How can he choose a suitable preparation from the large number that are available? The task of assessing proprietary preparations has been made much simpler by the reports of the Standing Joint Committee on the Classification of Proprietary Preparations. This committee has reviewed and classified proprietary pharmaceutical preparations (see *Classification of Proprietary Preparations*, 1959. H.M.S.O., London). The method of categorization is shown below:

Category N.—New drugs of proved value which are not yet "standard." (The term "standard" is intended to mean preparations described in the *British Pharmacopoeia*, *British Pharmaceutical Codex*, and *British National Formulary*).

Category S.—All preparations whose active therapeutic constituents are identical with or modifications of those of "standard" preparations. Elegant preparations of drugs in

category N. Mixtures of drugs in category N with drugs in category S.

Category P.—Preparations which are not "standard" for which prima facie evidence of therapeutic value is presented, but which the committee cannot accept as of proved therapeutic value without further evidence, which must be provided within a period stipulated by the committee.

Category O.—Preparations not "standard" which in the committee's view have not been proved of therapeutic value.

Category H.—Preparations which are a combination of drugs in category O with those in categories N, S, or P.

Drugs in categories N, S, and P may all be prescribed on Form E.C.10, provided that the S category drugs have not been designated as foods, toilet preparations, or have been advertised to the public. Doctors are discouraged from prescribing drugs in categories O and H. There is, however, no absolute restriction on the prescribing by a general practitioner of any drug which he considers to be necessary for the treatment of his patient.

Prescribing and the Law

The Dangerous Drugs Acts and Regulations lay down certain rules governing the prescribing of dangerous drugs. The word "dangerous" in this context means drugs liable to cause addic-