A PLEA FOR THE EARLIER DIAGNOSIS OF ABDOMINAL EMERGENCIES *

BY

C. H. FAGGE, M.S., F.R.C.S.

SURGEON TO GUY'S HOSPITAL

In the treatment of an acute abdominal emergency which has passed beyond a certain stage in a patient whose condition is such that the natural powers of recovery have been put out of action by toxins elaborated within the paralysed bowel, we are, broadly speaking, as powerless as were those who were faced with the same problem forty years ago. It is true that prognosis in a majority of the conditions which are generally recognized as abdominal emergencies has much improved, but it is my thesis that this is due to earlier diagnosis—to the recognition of a morbid process in a stage which was not in those days regarded as a pathological state requiring surgical treatment, and not to any new epoch-making measures, either of manipulation or of therapy. That there is still room for improvement in prompt diagnosis must be admitted, even though some of us have had the fortunate experience to see cases of advanced peritonitis recover, and have perhaps attributed this to the use of the Fowler position, morphine, and rectal saline; and probably many will agree with me that the use of anti-gas-gangrene serum for such a patient, or for one suffering from acute obstruction of some days' duration, is of the greatest value at times.

This line of treatment, which we owe to one of the best pieces of surgical research of recent years, is entirely British, having been evolved by Williams of the Surgical Unit of St. Thomas's Hospital. In spite of some degree of success in conditions just spoken of, we must in our inmost hearts admit that the large number and the diversity of aim of the measures recommended for lesions such as paralytic ileus conclusively prove that we have no sure remedy for it, and must own that resections of gangrenous gut still show so high a mortality as to make any surgeon thoroughly dissatisfied with present-day methods.

For progress a contented mind is a drug of evil influence; the first step in the discovery of a new line of treatment is the appreciation that methods hitherto employed have not produced results which may be regarded with complacency. It is clear that the calls on our time debar, and that opportunities are lacking for most of us to embark on, research, quite apart from the fact that the research spirit, the critical mind, is given to very few, and, for this latter reason only, much that passes as research has very little practical value in our warfare against disease. But if this method is not at our disposal, we have abundant opportunities for clinical observation, and I submit it is by the use of this and a finer perception of the meanings of signs and symptoms of morbid conditions, that we shall be enabled to arrive at an earlier diagnosis of abdominal emergencies which up to the present have proved so obstinate to operative treatment. By this means the present heavy mortality will be appreciably diminished.

Visceral Pain

The first, and most important and also most informative, of the signs and symptoms which suggest an acute abdominal emergency is pain. Any severe abdominal pain lasting for a period which is expressed in terms of hours rather than minutes, and for which a definite and adequate cause cannot be found and demonstrated, should, in my judgement, be regarded as probably due to a surgical emergency, and the patient placed at once under such conditions that, when confirmatory evidence is forthcoming, operation may be undertaken without further delay.

In my Bradshaw Lecture (given in November, 1928) I made an attempt to formulate a mechanical theory for the production of the various axial rotations which take place in the abdomen. Many of these are pathological, and when investigating the subject I could not but come to the conclusion that such rotation of a mild degree must often take place without causing any grave result, in fact that a preliminary minor degree of torsion usually occurs several times before the process goes so far as to interfere with the vitality of the organ concerned. Such a minor rotation, which it is assumed may be corrected by a reversing of the same factors which caused it, must undoubtedly produce pain as its first symptom; this may be of short duration—for example, a few minutes. One naturally speculates as to whether some transitory severe pains may be of this nature. Many theories have been put forth to explain the nature of abdominal pain. This is of two types: local and referred. At present Hurst's† hypothesis that visceral pain is due to tension has more in its favour than any other theory. It is clear, too, that pain is only a superlative degree of the sense of fullness or discomfort which follows for a brief time the temporary distension, perhaps scarcely more than physiological, of any hollow organ such as the stomach. Pain is a manifestation of the degree and rapidity of production of visceral tension, and while it is produced only when there is increased motor activity, we are told by writers on the subject that it cannot be regarded as an exaggerated form of colic, which is attributed by Meltzer (1903) to a disturbance of the normal relaxation of the bowel below, which usually accompanies the contraction of the intestine when stimulated at any spot. To me it appears that the difference is only one of degree. Further, if we accept this association of visceral pain with increased motor activity we can understand why various forms of intestinal ulceration are usually painless. The conclusion that true visceral pain exists is inevitable, in spite of the contention of Lennander and others that the viscera are insensitive to mechanical stimuli, and that therefore pain must be a manifestation of inflammation or of traction on the parietal peritoneum and extraperitoneal connective tissue.

Referred Pain

In addition to local visceral pain as a manifestation of disease, we recognize the phenomenon of referred pain. Ross termed visceral pain "splanchnic," and referred pain "somatic"; the latter, first described by John Hilton as "sympathetic pain," is now generally explained as being referred to a cutaneous area which is innervated by the same spinal segment as the viscus affected. The intensity of such pain varies with many factors, and unfortunately we can never lose sight of the fact that "the threshold of stimulation" may be lowered by many conditions, not necessarily functional, so that the estimation of such pain is by no means a correct index of the severity of the patient's condition. Visceral pain is located to the position of the organ concerned—for example, pain resulting from an inflamed gall-bladder may vary in position with that of the gall-bladder itself. This is denied by Hurst. It is true, as we shall see later, that there are exceptions to this plan, but when we are told of pain over a certain organ we usually conclude that disease of the subjacent organ is the cause of the pain, and in general this is correct. Associated with visceral pain is deep tenderness; this is found over the same area as the pain: possibly of the same causation as referred pain are hyperaesthesia (or superficial tenderness) and rigidity. The two latter are presumably manifestations of spread to the somatic fibres of the spinal segment involved with lowered resistance to such stimuli, and naturally are found affecting the two

* Substance of a paper read before the Croydon Division of the British Medical Association.

† Goulstonian Lectures on the Sensibility of the Alimentary Canal, London, 1911.

layers of the abdominal wall sensitive to pain: (1) the skin, and (2) the muscle layers.

I have purposely discussed the phenomenon of pain at some length because I feel that unless we have some knowledge of the method of its production and of its significance we can form no reliable estimate of its diagnostic worth.

Vomiting: Shock

Vomiting is usually an early sequel of acute abdominal pain: it follows so shortly the first symptoms that it cannot be due either to the spread of inflammation to the visceral peritoneum or to mechanical causes such as ileus. Its origin must be reflex, and it can probably be explained as a reflex excitation of the motor segments controlling the stomach. In nature this vomit is merely gastric contents, is often small in amount unless medicine has just been taken, and cannot be expected to occur more than once or twice.

As a general rule symptoms and signs of shock are absent at this stage of an abdominal emergency (apart from internal haemorrhage—for example, ruptured ectopic gestation). I would not go so far as to accept Moynihan's view that in the early hours of an acute abdominal emergency shock does not occur, but would remind you that it is usually absent; in fact, every one of us must have seen such a severe condition disclosed at an early abdominal operation as to evoke the spontaneous remark, "Why was there no shock?" To this I have always given the second-best answer to any question, "I do not know."

Distension: Visible Peristalsis

Distension cannot be expected at the stage in which a diagnosis should be made—and I wish particularly to emphasize this point because textbooks, in an endeavour to omit nothing which may possibly occur, tend to convey erroneous ideas and an inaccurate clinical picture. When distension is present in an acute case, usually after forty-eight hours, and never in the first twenty-four, it is commonly due to paralytic small gut obstruction (ileus) and indicates peritonitis. Far less frequently it may be seen in acute small intestine obstruction, but again only at a stage when the diagnosis has or should have been made on other evidence.

Visible peristalsis indicates hypertrophy of the muscular coats, and therefore occurs only in chronic obstruction: we should not be misled by seeing the normal peristalsis of bowel through a thinned abdominal wall.

Indications for Operation

What is the evidence?—a patient with a few hours' acute abdominal pain followed by vomiting; but if confirmatory proof is still considered wanting the patient is kept in bed and a half-hourly pulse chart ordered. This practice is not universal, as it should be, for, apart from the pain, the most valuable sign is a rising pulse. If after two to three hours the pulse is rising, the abdomen *must* be opened at once. A rise within half an hour of admission may be ignored, as this is often accounted for by such washing as is necessary, the giving of a plain soap enema, or purifying the abdomen; the last is not done, nor is morphine given, in wards under my control, until a provisional diagnosis has been made. I have so far been intentionally vague, and have purposely mentioned no sign or symptom which would concentrate attention on any particular organ. Shall we say that one-third of abdominal emergencies are obvious, one-third doubtful, and one-third impossible of diagnosis? If we are going to save the impossibles certainly, and a fair percentage of the doubtfuls, operation, assuming that it is necessary, must be done in this stage before vomiting has become frequent, before there is any distension, before abdominal movements have ceased, or the abdominal

facies indicates unhesitatingly the patient's grave state. All these signs mean peritonitis, which in most cases is preventable.

In urging immediate exploration under such circumstances I would state at once that I do not regard acute cholecystitis as an emergency; as a rule the pulse, if it has risen before admission, falls when rest is assured, but if in doubt I would prefer to operate on a mistaken diagnosis, being glad to find only a swollen thick adherent gall-bladder, when perhaps an acute gangrenous appendix was expected. Abdominal examination on the patient's admission may disclose the scar of a previous laparotomy, and the presence of this with a history of acute pain would compel me in every case to investigate at once; for acute obstruction due to kinks, angulations, etc., can be easily relieved, provided the bowel above the obstruction has not become paralysed beyond hope of recovery. In the more serious condition, where a band or other structure threatens the vitality of an intestinal loop, we must realize that once circulation in the veins has ceased, recovery of the intestine is impossible; thus resection with all its horrible sequels and its extremely grave prognosis is inevitable.

In spite of the fact that in a sense it weakens my present thesis, I feel bound to admit the relative rarity of acute small intestine obstruction as compared with acute inflammatory conditions which spread to the peritoneum and so induce ileus or small gut paralysis. As a result of this the bowels cease acting and enemata produce no effect, so that an erroneous diagnosis is often made of acute intestinal obstruction when the condition is really one of peritonitis, following acute appendicitis, diverticulitis, etc.; the converse mistake is, in my experience, never made. Of all abdominal emergencies at least 50 per cent. result from acute appendicitis. It has always been my habit, when summoned by my house-surgeon to an emergency, to endeavour at once to disprove his diagnosis; but he who persistently diagnoses acute appendicitis is rarely wrong, and when he is, it is probably better for the patient, and certainly better for the house-surgeon's mental training, to have made the mistake than to have been right.

Beyond the evidence that has already been referred to, I place in the diagnosis of acute appendicitis the greatest reliance upon localized rigidity; when present, this involves the right lower rectus and obliques, and may be absent when the appendix lies in the pelvis. It is also absent or much diminished for the first few hours after the appendix has perforated, but as a rule is present before the initial abdominal pain has migrated to the right iliac fossa, which it usually does in from six to twelve hours after its onset. Even although in acute salpingitis there may be much more pain on one side or the left side alone may be affected, there are in this condition a rigidity of the lower abdomen on both sides and often a similarly placed sense of fullness, and the patient as a rule has no aspect of severe illness. Much can be learnt from a description of the pain—its constancy, its severity, and, if it ceases, the manner of its passing off. The pain of acute obstruction is variable—spasmodic—as is that of colic. No pain equals in severity that of perforation of a hollow viscus. The pain due to colic subsides quickly and is suddenly gone, quite unlike that of acute inflammation—for example, appendicitis.

Finally, if these evidences are accepted which lead, as I have said, in one-third of acute abdominal emergencies to a correct diagnosis, and in perhaps another third to an inkling of the morbid condition present, there still remains one-third in which, I submit, only by prompt intervention can a favourable result be assured. If the doubtful cases are included—and many of them must be—my plea becomes of greater import.