Patients receiving the short-acting anticoagulants require only small doses of vitamin K₁ to restore the blood prothrombin to a safe therapeutic level. In nearly all cases 5 to 15 mg. will be sufficient, and it is rarely necessary to exceed 15 mg.

Patients receiving the long-acting anticoagulants require larger doses of vitamin K₁ if the desired effect is to be achieved, but 10 to 25 mg. will usually be enough. The larger doses of vitamin K₁ should be given if haemorrhage has actually occurred or if the patient is desperately ill, especially if there are signs of shock and heart failure.

In cases of frank haemorrhage in which it is not intended to continue with anticoagulant therapy 25 to 50 mg. of vitamin K₁ should be given. The larger dose should be administered to patients who had been given the long-acting anticoagulants and also to the more seriously ill patients.

Response to vitamin K₁ therapy should be assessed by estimation of the blood prothrombin six to eight hours after the initial dose of vitamin K₁. If an appreciable rise in the prothrombin level has not occurred a larger dose of vitamin K₁ must be given.

I wish to thank Roche Products Ltd. for the generous supplies of the vitamin K₁ used in this work.

REFERENCE

Toohy, M. (1952). *British Medical Journal*, 2, 687.

Medical Memorandum

Orthograde and Retrograde Intussusception

Although it is stated that 80% of cases of intussusception occur in patients under 2 years of age, this was not my experience in North Szechwan, China. A number of cases were seen in adults of all ages and some in older children, but none in infants or young children. Although sometimes there was obvious cause such as a pedunculated tumour of the ileum or inflammatory swelling of a mobile caecum, often none was found. The following two cases were different from usual in that both also had retrograde intussusceptions. Although such a condition is not unknown, it seems uncommon enough to merit reporting.

CASE 1

A man aged 24 was seen in the out-patient department on October 31, 1949, complaining of abdominal pain for a little more than a month. He was admitted with a diagnosis of intussusception. Amoeboma was thought to be a possible cause, and therefore general treatment and a course of emetine injections were prescribed. This seemed justified by improvement in symptoms and resolution of the palpable mass, but one week later acute symptoms recurred with an enlarging mass in the right upper abdomen.

Laparotomy was performed under general anaesthesia. There was an intussusception of the terminal 3 in. (7.5 cm.) of ileum into the caecum and ascending colon, almost to the hepatic flexure. In addition there was a reverse intussusception of about 3 in. of the right half of the transverse colon, thus leaving a small length of normal colon at the hepatic flexure. Both intussuscepta were reduced with comparative ease; a lump about the size of a walnut could then be felt in the caecum. An end-to-side ileo-transverse colostomy was then performed. Three weeks later, under spinal anaesthesia, right hemicolectomy was performed, from which the patient made a good recovery.

On macroscopic examination of the specimen the wall of the caecum was found to be much thickened; there was no ulceration or definite tumour. Unfortunately, microscopical examination was not possible.

CASE 2

A boy aged 11 was admitted on November 3, 1951, with a diagnosis of intussusception and acute intestinal obstruction for about one day. During the previous six weeks he had been seen at intervals in the out-patient department complaining of abdominal pain and a lump. Apart from slight distension and poor nutrition, no definite physical signs had been noted. Ascariasis had been treated successfully, and the possibility of tuberculous peritonitis (which is common in the district) had been considered.

On admission he was seriously ill and dehydrated; the abdomen was distended and there was a large firm mass on the left side: this seemed to be a large mass in the left hypochondrium, with a smaller one rather lower and a small gap between. The apex of the intussusception could be felt about 1 in. (2.5 cm.) within the anal canal.

After saline infusion, laparotomy was performed under general anaesthesia (ether with an Oxford vaporizer). Considerable difficulty was experienced in determining the true condition—namely, an intussusception starting in the terminal ileum and traversing the whole colon to the anus; and also a secondary reverse intussusception of the primary intussusception (all three layers) starting about the middle of the descending colon and extending back to the middle of the transverse colon, thus making the big mass palpable before operation. The apex of the intussusception could be reached only with the help of an assistant pressing digitally per anum, but even then reduction could not be effected. With considerable difficulty the secondary intussusception was first reduced by combined movements—digital dilatation of the secondary intussusceptions, pressure on the secondary apex, and gentle traction. When this was eventually reduced the primary intussusception was reduced with great ease. The gut was carefully examined, but, apart from deep congestion, oedema, and plastic exudate, there was no obvious pathological condition to account for the intussusception, nor was there serious question of viability. The whole colon from caecum to rectum was exceedingly mobile with long mesenteries. The colon was replaced in the approximate anatomical position and the abdomen closed.

The patient made an uninterrupted recovery; two and a half months later he was well and obviously gaining weight.

COMMENT

Aetiology.—The cause in Case 1 was thought to be inflammatory thickening of the caecum, but in several such cases I have wondered whether the caecal thickening was primary or secondary to the intussusception. Histological examination has not been possible. In Case 2 it was obviously a chronic condition with partial resolution over a period of several weeks, possibly initiated by ascariasis; the exceptionally mobile colon can be regarded as a facilitating factor. Disordered peristaltic movements seem the only explanation of the retrograde intussusceptions, though not a complete one.

Treatment.—The remittent course of both these cases raises the question whether intussusception ever undergoes complete reduction spontaneously. At operation one often finds that reduction is comparatively easy except for the last inch or so. Is this the condition during symptomatic remissions? If so, then earlier exploration is called for. In Case 2 the diagnosis was missed and operation delayed till it was almost too late, because insufficient importance was attached to the boy's description and no lump was felt when he attended the out-patient department. It is not usual to do anything to prevent recurrence unless there is an obvious removable cause. Such has been my practice, except that resection, immediate or delayed, has been done in cases with a suspicious lesion in the caecum. This course was successfully followed in Case 1. In Case 2 nothing was done beyond replacing the colon anatomically, in the hope that the exudate would form some anchoring adhesions. The condition at operation precluded anything further, and the subsequent course seemed entirely satisfactory.

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