Current Practice

Rectal Bleeding with Special Reference to Cancer of the Large Intestine

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According to the Registrar General's figures for 1965-66 deaths attributable to cancer of the rectum numbered 5,461 and those of cancer of the colon 9,152. It is probable that apart from those who die in their disease more than a third of that number are cured permanently by operation, so that these must be included if an estimate is to be made of the incidence of cancer of the large intestine, including the rectum. Of the cases of cancer affecting the colon over 60% occur in the pelvic or low descending portions. The vast majority of these and virtually all cases of cancer of the rectum will have as one of their presenting symptoms the passage of blood.

So each year some 14,000 patients suffering from cancer report rectal bleeding to their doctors. Unhappily this complaint is by no means always recognized as the herald of the disease it represents, and is too often lightly dismissed as being due to the presence of haemorrhoids. This attitude is wrong. Every case of rectal bleeding occurring in an adult should be suspected of being due to carcinoma of the rectum or lower colon until detailed history-taking and examination, and, when necessary, ancillary investigations have disproved the presence of this lesion. Only in this way will the incidence of the "missed case" be eliminated and its often fatal outcome be prevented.

Delay in Diagnosis

Delay in the diagnosis of cancer of the large intestine can be divided into two groups. Firstly, there is the "patient delay." This is the time which elapses between the patient's first observation of symptoms and the time at which he reports them to his doctor. Secondly, there is the "medical delay"—the time that elapses between the reporting of the symptoms to the date at which they are recognized as due to cancer and when definitive treatment is undertaken.

At the Gordon Hospital in London we have been concerned about the delay in each of these groups, and in particular the medical delay, for many years.^{1 2} It would have been reasonable to suppose, with the increase of knowledge of medical matters among the lay population, and with the more intensive education to which medical students are subjected, that in the

16 years intervening between the publication of those two papers the delays in both categories would have fallen dramatically. Such is not the case. Tables I and II show the extent of these delays in a recent consecutive series of 100 cases of cancer of the rectum and 100 cases of cancer of the colon referred to the hospital. The medical delay in rectal cancer is particularly disturbing, as the majority of these patients have tumours palpable on rectal examination. Moreover, the character of the bleeding from which these patients suffer is so often typical of the condition that the clinician should be forewarned about the need for the most careful rectal examination.

The prevention of deaths from cancer, except in those types associated with a definitive cause, can come only from early diagnosis. By sympathetic publicity, perhaps by emphasis on the danger of rectal haemorrhages even on television programmes, the patient delay could be reduced considerably; but the advocacy of such a course is difficult until the medical delay has been eliminated in the main. Haemorrhoids are known by all to be associated with bleeding: hence a high incidence of patient delay. Too often also the bleeding is dismissed by the clinician, be he consultant or practitioner, as due to this cause without further questioning or full examination. This is particularly so in the under-50's, in whom cancer of the large intestine is sometimes not considered. The Figure shows the age incidence of cancer of the rectum and of the colon, and, though it will be seen that the majority of cases occur in the decades above 50, the conditions are by no means rare in younger age groups.

Age incidence of carcinoma of the colon and caecum and of the rectum.

TABLE I.—Delay in Diagnosis. Cancer of Rectum

Patient delay	..	..	..	..	..	Average
Medical delay (22% of cases)	..	..	..	..	..	10.3 months
Quarter at hospital level	..	..	..	..	..	10.3 months

TABLE II.—Delay in Diagnosis. Cancer of Colon

Patient delay	..	..	..	..	..	Average
Medical delay (22% of cases)	..	..	..	..	..	7 months
Two-thirds at hospital level	..	..	..	..	..	7-8 months

Table III shows the effect of the medical delay in diagnosis as it affects the pathological staging of the disease, and therefore the prospects of survival. The "immediate" group is made up of those in whom there was no medical delay in establishing the diagnosis and subjecting the patient to operation. In these, although there has been patient delay, 20.5% had growths still

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confined to the bowel wall (A cases), with a prospect of survival with freedom from recurrence of over 90%. The corresponding figure for A cases in the medical delayed group was less than half—9%. At the other end of the scale in the C type cases, which are associated with a cure rate of at most 30%, the incidence in the immediate group is 30%, whereas in those subject to medical delay it is 64%. There are of course more B cases in the immediate group than in the delayed group, as these are the cases which, had they been delayed, would have reached the C stage. Similar comparative figures in cancer of the colon are shown in Table IV.

TABLE III.—100 Patients (Carcinoma of Rectum)

Group	No. of Patients	Stage A	Stage B	Stage C
I Immediate	78	16 (approx. 20.5%)	39 (50%)	23 (30%)
II Delayed	22	2 (approx. 9%)	6 (27%)	14 (64%)

In Group I six cases had disseminated disease.
In Group II three cases had disseminated disease.

TABLE IV.—100 Patients (Carcinoma of Colon)

Group	No. of Patients	Stage A	Stage B	Stage C
Immediate	78	17 (approx. 22%)	41 (52%)	20 (25%)
Delayed	22	2 (approx. 9%)	9 (41%)	11 (50%)

In both Groups four cases had disseminated disease.

The disastrous effect of the failure to recognize the early symptoms of cancer of the rectum and colon—which so often include bleeding—is thus very apparent, and it is the essential purpose of this paper to suggest how these may be differentiated from the passage of blood from other causes.

Questioning the Patient

Nature of the Bleeding

When a patient complains of rectal bleeding he or she must be questioned very closely with regard to its nature and its characteristics. From the answers received it is often possible to determine whether the bleeding is due to a serious or to a minor cause. Failure to do this is often responsible for the medical delayed case.

Firstly, the colour of the blood which has been passed is important. Is the blood bright red or is it dark? A bright red colour means that the bleeding is arising from a low level. It may be due to an anal carcinoma, a low carcinoma of the rectum or a polyp, or proctitis or colitis, although most commonly it will be due to the presence of haemorrhoids, and, if associated with pain, a fissure. Further direct examination of the rectum will ascertain the cause. If, however, the patient states that the blood is dark, then it is almost certain that the bleeding is the result of a lesion other than haemorrhoids sited at a level in the bowel above the pile-bearing area. Blood which oozes from such a lesion is not passed immediately, and by the time the bowels are moved it has undergone deoxygenation and resulting colour change before it is observed by the patient. Such a patient must undergo full investigation.

Secondly, a direct question as to whether clots of blood have been seen must be asked. If they have it is again a near certainty that this blood arises from a lesion apart from haemorrhoids, though these may be present in addition. Always at the back of the clinician's mind must be the thought that if clots have been passed he is dealing with a cancer of the rectum or colon. It is true that a perianal haematoma—that is a blood clot immediately under the anal skin due to a rupture of a

perianal vein—may discharge blood clots noticed by the patient. This condition, however, is sudden in onset, painful, and readily recognizable on examination of the anus, and it is unlikely to be confused with true rectal bleeding and the passage of blood-clot during evacuation. Endometriosis affecting the colon may give rise to such bleeding, and inquiries should be made with regard to the relation of the blood loss to the menstrual cycle.

Thirdly, the patient must be asked whether the blood has been noticed to be mixed with the motion or to be adherent to the surface of the stool. When the faeces pass a lesion in the colon or rectum, often flecks of blood clot become adherent to the stool or even admixed with it, and an observant patient will often be able to give an answer one way or another to this direct question. If the question is not posed the patient is unlikely to comment on the matter. Should the answer be yes it is again almost certain that the symptom is not due to a minor condition such as haemorrhoids.

Fourthly, though the patient may not be complaining directly of rectal bleeding, symptoms such as breathlessness on exertion, tiredness and loss of energy, increasing pallor (sometimes only observed by friends or relatives), or of swelling of the ankles or legs, may all suggest blood loss. Among all the diseases which may cause this anaemia the possibility must not be forgotten that it is due to an otherwise "silent" cancer of the right side of the colon, particularly of the caecum or ascending colon or one in the stomach or on rarer occasions a similar lesion in the small intestine. Questioning along the lines suggested in the next section must be carried out. Severe anaemia can also arise from minimal although continued bleeding from haemorrhoids, but the possibility that a more serious lesion co-exists and is in the main responsible for the blood loss makes it imperative that in such cases a full investigation is not omitted. Only if this is negative should the appropriate treatment for the haemorrhoids and the secondary anaemia be given.

The main complaint of some patients may be of the passage of mucus, which again on questioning they may reveal to have been blood-stained from time to time. The excessive passage of mucus is particularly associated with the presence of a villous papilloma. On occasions the loss of mucus may be sufficiently great to produce electrolyte deficiencies and symptoms resulting therefrom, such as mental, cardiac, or gastrointestinal disturbances. A certain dampness of the anus may accompany the presence of haemorrhoids or anal warts, but the discharge is unlikely to be blood-stained. In cancer mucoid discharge is uncommonly the most prominent complaint, and although slime may have been observed by the patient it is the haemorrhage of which he or she complains. However, when a small growth is giving rise to an intussusception the resulting engorgement of the affected part of the colon may well give rise to a pink-coloured mucus discharge.

In young children the passage of blood may be due to juvenile polyps, which are never precancerous and which tend to disappear with the growth of the child. Small children may, however, suffer from rectal prolapse, which may cause bleeding. In such cases the mother may well have noticed that the bowel extrudes, and she should be questioned along these lines. If the mother should comment that the child has pain on defaecation associated with bleeding it is likely that anal abrasions are the cause. In the older child with bleeding the question of familial polyposis arises, and inquiries into the family history must be made.

Finally, the doctor may be called to a patient who has had a sudden rectal haemorrhage of such severity, with the passage of altered blood and often of clots, that urgent hospital admission is required. Such haemorrhages may occur in certain of the blood dyscrasias or from bleeding associated with ulceration occurring in a Meckel's diverticulum. Usually, however, the

haemorrhage is associated with diverticulosis, though in the younger patient an angioma may be responsible. It is rare that a cancer presents with an initial gross haemorrhage. Urgent blood transfusion and complete investigation of the patient will be necessary.

Alteration in Bowel Habit Associated with Rectal Bleeding

Every patient who complains of the passage of blood or in whom an anaemia suggests that bleeding has occurred must be questioned carefully about bowel habit. Minor alterations suggest that the haemorrhage is associated with a lesion which may possibly be malignant. Alternating constipation and diarrhoea are still the accepted attributes of carcinoma of the large intestine, but they are really the signs of incipient obstruction and therefore of very advanced disease. It is not for these symptoms that the clinician should wait in establishing a diagnosis.

An observant patient may well reveal on questioning that his bowels, previously opened at breakfast time, may now not be opened until later in the day. Another may have noticed that his bowel actions have increased to twice a day from a normal once. Others may reveal that though they have taken purgatives in the past larger doses are now required to produce the same effect, and there are those who may comment that they have recourse to these medicines from time to time whereas previously no purgatives were taken. A sensation of inadequate bowel evacuation is common in cancer of the bowel, and without realizing the significance of the act the patient may return to the lavatory after an initial evacuation. Without questioning these minor changes will not be revealed. Every patient who presents with rectal bleeding must be asked the question, "Have you had recently any alteration whatsoever in what to you is your normal bowel habit?" An affirmative answer suggests the presence of something more than a trivial rectal lesion, though in the case of a fissure the pain induced by a bowel action tends to make the patient constipated. Such conditions as ulcerative colitis or Crohn's disease will of course have diarrhoea as a major presenting symptom in addition to the haemorrhage.

Other Symptoms Possibly Associated with the Bleeding

Again, these may not be mentioned by the patient. Inquiries must be made about any abdominal pain. In cancer this may be of a griping type, but more commonly it is vague and more of a discomfort than actual pain. It is by no means always referred to the site of the lesion, and a patient with a growth in the pelvic colon may well complain of upper abdominal distress. Because of this a cancer may well be missed. The patient may be subjected to a barium meal and a cholecystogram, the essential sigmoidoscopy and barium enema being ignored because of the paucity of symptoms referred to the large intestine. Definitive pain over the region of the pelvic colon is more frequently a symptom of diverticulitis rather than of carcinoma.

All patients should be asked whether they have noticed any distension of the abdomen. If such has been the case, and it is associated with rectal haemorrhage or its manifestation in the form of anaemia, the probability of a carcinomatous lesion is high.

Other complaints, such as loss of weight, well-being, and energy, or of appetite may all help the clinician in arriving at a diagnosis of neoplasm. On the other hand, the patient who is putting on weight and whose appetite is good is likely to be suffering from diverticulosis as the cause of his rectal haemorrhage if its origin is not in the anal canal. Finally, questions should be asked about any disturbances of micturition. It is only in the advanced case of cancer when the

growth is invading the bladder wall that these are likely, but in an inflammatory condition such as diverticulitis, Crohn's disease, or ulcerative colitis, and more rarely tuberculosis, amoebiasis, or actinomycosis, the infection may spread to the bladder and symptoms of cystitis result.

This suggested scheme of questioning the patient is time-consuming in the reading, but in actual practice takes but a few minutes to apply. At the end of it a practised doctor is well on the way to making a tentative diagnosis, which may be confirmed by the ensuing physical examination. He will already have a very good idea of whether the rectal bleeding is the result of haemorrhoids or is due to a more grave cause.

Examination of the Patient

A general assessment of the patient must be carried out, but here only the abdominal and rectal examinations are discussed.

The abdomen should first be observed. Some degree of distension may be apparent, perhaps associated with slight eversion of the umbilicus. Peristaltic waves may be seen. While these in the very thin patient are not necessarily of significance they are in the patient of normal physique, in whom they suggest a degree of obstruction. Percussion of the abdomen is important. Hyperresonance, particularly over the caecum, will again suggest a degree of obstruction even though it is not apparent on inspection of the abdomen. Careful palpation should then be carried out in the search for any abdominal mass.

We prefer to examine the rectum, using the left index-finger for the palpation, with the patient lying on the right side. While a cancer of the rectum or anal canal is palpable with equal facility with the patient lying on either side, the right lateral position has the advantage that a neoplasm of the pelvic colon tends to fall on to the examining finger and not away from it, as happens when the patient is examined in the left lateral position. Thus a growth in this part of the colon may be palpable through the rectum, particularly if the colon is pushed downwards on to the examining finger by the other hand pressing on the abdomen, whereas in the left lateral position it could be missed. Haemorrhoids, too, become more easily palpable using this position, and diverticula, if filled with faecoliths, may also be felt. Finally, a rectal examination is never complete without examining the finger-stall for the presence of blood. Proctoscopy may help in differentiating bleeding from haemorrhoids from that associated with proctitis, but on the whole this diagnostic examination is unrewarding. Far more is learnt from a painstaking digital rectal examination than from proctoscopy.

Investigations

The clinician should now be able to place the patient into one of three categories. Firstly will be those whose bleeding is obviously the result of a minor lesion—usually haemorrhoids. Secondly are the patients in whom it is apparent that the cause of their symptoms is a major one, the diagnosis of which may have been already made. Thirdly are the patients in whom there is doubt about whether the cause is a trivial or a serious lesion. It is particularly in the latter category that the fullest investigations are required. Sigmoidoscopy comes first. Although no actual lesion may be seen, sometimes a fleck or two of blood perhaps adherent to the wall of the bowel or to a particle of faeces may be visualized. Such an observation will make it almost certain that there is a lesion, though sited beyond the limit of the instrument. A barium enema is essential, but it must be appreciated that even when the Malmö technique is employed lesions such as early carcinoma or polyps can escape detection. Localized segmental colitis can also

exist and be productive of symptoms in the presence of a normal x-ray. A barium meal and follow through may be required in cases where there is the suggestion that the lesion giving rise to the haemorrhage lies in the small intestine. Where these investigations prove negative occult blood should be tested for in three specimens after appropriate preparation of the patient.

All these investigations may prove negative, or perhaps the barium enema may show a few diverticula to which the haemorrhage could be attributed. In other cases a definite region of diverticulitis even with associated spasm may be reported. Nevertheless, if the story which the clinician has extracted from the patient suggests a more sinister cause for his or her symptoms, every investigation must be repeated after an interval of six weeks, the sigmoidoscopy then being carried out under anaesthesia. Anaesthesia is desirable, as it is possible as a result of the muscular relaxation induced to visualize a further few centimetres of the colon than is usually possible in the unanaesthetized patient. Often this second series of investigations will make a diagnosis certain. However, there will still be cases in which the results are again negative, or others in which doubt exists with regard to the interpretation

of an abnormality, particularly in the differentiation of diverticulitis and carcinoma. If the patient's symptoms persist at the time of these second investigations, and these doubts exist, a laparotomy must be undertaken. Seldom will such an operation be proved to have been unnecessary.

REFERENCES

- ¹ Aylett, S. O., *Practitioner*, 1949, **162**, 502.
² Rowe-Jones, D. C., and Aylett, S. O., *Lancet*, 1965, **2**, 973.

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TODAY'S DRUGS

With the help of expert contributors we print in this section notes on drugs in current use.

Bacitracin and Polymyxins

These are much the most important antibiotics formed by bacteria, the source of most others being fungi. Nearly all the compounds in this group are products of organisms of the genus *Bacillus*, the Gram-positive sporogenous aerobes, among which the only pathogen is the anthrax bacillus. Bacilli are widely distributed in nature, and any unduly exposed culture plate is likely to be contaminated by one of them. In structure all these antibiotics are polypeptides, usually cyclic, differing in the amino acids and sometimes other constituents of which they are composed.

The first of these antibiotics to be adequately studied was gramicidin, but this proved to be too toxic for any form of systemic use. Several others have had to be discarded for the same reason. Even those used therapeutically possess the same disadvantage in different degrees.

Bacitracin

This antibiotic derives the second half of its name from Margaret Tracy, a child in a New York hospital with a septic compound fracture, from whose wound the organism forming it was cultivated. Its growth was found to be highly inimical to that of pyogenic cocci. Bacitracin rapidly gained an important place in systemic therapy, although there were always two schools of thought about the degree of risk involved in its use. Such use is now very exceptional, but various forms of local application remain important.

Antibacterial Activity

This is directed mainly at Gram-positive cocci, although *Neisseria* spp. are also susceptible. The most sensitive organisms are haemolytic streptococci of group A, so much so that a simple bacitracin disc test serves to distinguish them

from other streptococci. Others of different groups and of other streptococcal species are sensitive to a lesser and variable degree, as also are staphylococci. The effect is strongly bactericidal.

Pharmacology

Bacitracin should be prescribed in units, and the unit is much larger than that of other antibiotics: its weight equivalent is about 14 μ g. An intramuscular dose for an adult should not exceed a daily total of 100,000 units divided into three or four individual doses. Excretion, which is entirely renal, is slow and far from complete, much of the antibiotic being apparently degraded in the body; hence an adequate blood level can be maintained as described. Various forms of injection (including intrathecal) into infected areas are also possible. There is no absorption after oral administration.

Toxic Effects

Pain at the injection site can be mitigated by adding procaine. The main toxic effect is on the kidney: parenteral treatment always causes albuminuria with casts. If treatment is continued it may then lead to oliguria and a rise in blood urea. The lesion responsible is degeneration of the epithelium of the convoluted tubules. This can unquestionably resolve completely if treatment is stopped before it has gone too far or if the dose given is moderate. Pre-existing renal disease naturally enhances the danger.

Clinical Applications

Bacitracin was discovered long before most other antibiotics, and for some years it was used for treating septicaemia and other severe septic states when penicillin was inapplicable or had failed. Subsequent discoveries have removed almost all necessity for such use, though even recently bacitracin has been mentioned as part of a combination found necessary for treating a particularly resistant endocarditis.