Section of Proctology

President H Gordon Ungley FRCS

Meeting February 25 1970

Short Papers

The Place of Local Resection in the Treatment of Rectal Carcinoma

by A York Mason FRCS
(St Helier Hospital, Carshalton, Surrey)

Abdominoperineal resection is now generally accepted as the standard treatment for carcinoma of the rectum. Looking at the St Mark's Hospital figures, one can understand this, because, over the past 30 years, the resectability rate has gone up to 93·1% of all growths, the operative mortality has fallen from 11·6% to 1·8% and the crude five-year survival rate is 55·1%. Radical surgery for lower two-third growths does, however, entail a permanent colostomy and permanent colostomies are not always well accepted. Some of the less happy results are being brought out in a survey by Brendan Devlin (personal communication). The high incidence of local recurrence, particularly for lower third growths, is another disquieting factor (Morson *et al.* 1963). These are but two reasons why I think it worthwhile considering whether any lesser procedure could be expected to give equally good results. I hope that this presentation of a personal series of 14 cases treated by local resection will stimulate reappraisal of our present treatment of growths of the lower rectum.

Considering first the very early growths, Morson (1966) made a very good case for local excision of early growths, confining it to invasive carcinoma which had spread by direct continuity to the submucosa but not beyond this point. These comprised only 3·3% of all rectal growths: 76 cases out of a total of 2,305 rectal cancers. This is a small and carefully selected group, but the results are of significance. Of these 76 cases 40 were treated by radical abdominoperineal resection with 1 operative death and 2 local recurrences; 36 were treated by local excision with no operative mortality and 1 local recurrence. Strict criteria were laid down for the selection of these cases but it seems to me that the case has been made for local excision. In the main, as Todd pointed out (1968), these very early growths treated by local excision were either malignant polyps or small sessile growths, small enough to be drawn up and removed by diathermy loop via an intact anus, usually through an operating sigmoidoscope. Unfortunately these very early growths comprise less than 4% of all carcinomas of the rectum and there seems to be no real prospect of finding more of them by earlier diagnosis. With no prospect of finding a higher proportion of these very small growths, it is reasonable to consider whether, with better access, larger growths could be treated by local resection.

Approximately 15% of all radically resected growths of the rectum turn out to be Dukes Type A. If these had been treated by adequate local excision, it is possible that the results would have been comparable with those of radical resection and 15% is much more significant than 3%. By including Dukes Type B cases, we would have for consideration approximately 50% of all rectal growths, and this represents a very worthwhile potential salvage group; however, if we are going to consider extending the indications for local excision beyond the 3% very early growths, there are at least two main problems. The first is adequate exposure and the second more accurate clinical assessment. Adequate exposure is the easier problem and will be dealt with first.

In June 1969, I presented a transsphincteric parasacral exposure which I had used over the previous nine years and which affords an excellent exposure of the interior of the entire rectum. Details of the anatomy of the exposure have already been published (Mason 1970), but Figs 1, 2 and 3, drawn from colour transparencies, supplement the original illustrations.

Fig 1 shows the levator ani and the pubo rectalis-external sphincter complex divided and marked by stay sutures. The fascia propria, together with

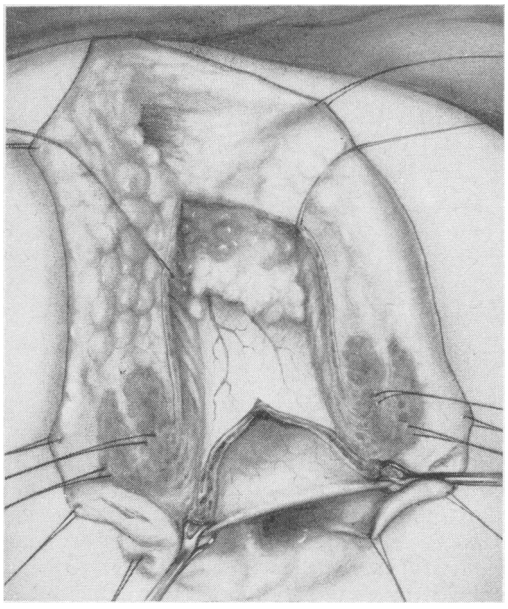

Fig 1 *Exposure of the rectum*

the muscle coats of the rectum and the internal sphincter have been partially divided to show the mucosa deep to these.

Fig 2 shows a carcinoma of the rectum clearly visualized by this exposure. This growth is approximately 3 × 4 cm in diameter, situated on the anterior wall of the rectum, its lower edge being approximately 6 cm from the anal verge. Growths on the posterior half of the rectum can be brought into view by mobilizing the rectum from the front of the coccyx and sacrum, the superior hæmorrhoidal vessels being demonstrated and ligated if necessary. With this sort of exposure, the limits of the growth can be seen and a full-thickness diathermy excision carried out between paired stay sutures placed around the periphery of the growth under direct vision and with full control of bleeding. Fig 3 shows the carcinoma being lifted out, suspended on the inner circle of stay sutures. It also shows the cavity left after removal of the growth.

Growths on the anterior wall are the easiest to demonstrate, but growths on the posterior and lateral walls are easily brought into view by mobilizing the rectum.

The second problem, that of accurate clinical assessment of a growth, is much more difficult. Site, size, mobility and histological grading of the growth are the most important factors to be taken into consideration in the selection of cases suitable for local excision.

Site: This is of importance because, although it is possible via this exposure to remove growths up to the rectosigmoid junction, the most suitable growths are those situated in the mid and lower thirds because these carry the highest incidence of local recurrence even after radical resection.

Size: Although there is some correlation between size of growth and extent of spread, this is obviously only a very rough guide. Some very small growths have already spread beyond the rectal wall, whereas comparatively large growths, up to 5 cm in diameter, may still be confined to the rectum; however, these larger growths create technical problems because of their size and, in my limited experience, 4 cm diameter should be accepted as the upper limit.

Mobility: Mobility is a rough guide to the depth of invasion and of lymphatic spread. Morson (1968) has shown that, until penetration of the bowel wall has taken place, the chance of lymphatic metastasis having already occurred is low, 10% of those confined to the submucosa and 12% of those with full thickness invasion.

Histological grading: Histological grading is a significant factor in trying to assess further spread of the growth. Those of high grade malignancy (Broder's 3 and 4), even when small, are likely to have spread beyond the rectal wall and should perhaps be treated more radically. Unfortunately it is in this highly malignant group that even radical surgery fails, and a case could be made out for palliative local surgery and adjuvant therapy.

Frozen tissue section: This is of the greatest value in determining, during the course of operation, the peripheral spread and depth of penetration of a growth. In addition it is often possible to find an adjacent lymph node for frozen tissue section.

The problem of more accurate assessment of a growth has not been solved but, in practice, it is suggested that if one finds a reasonably mobile carcinoma of the rectum, 4 cm or less in size, situated in the lower two-thirds and shown histologi-

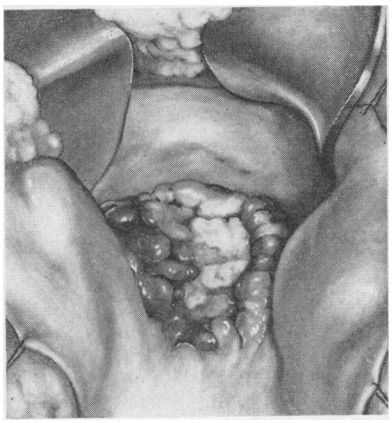

Fig 2 *Carcinoma visualized through this exposure*

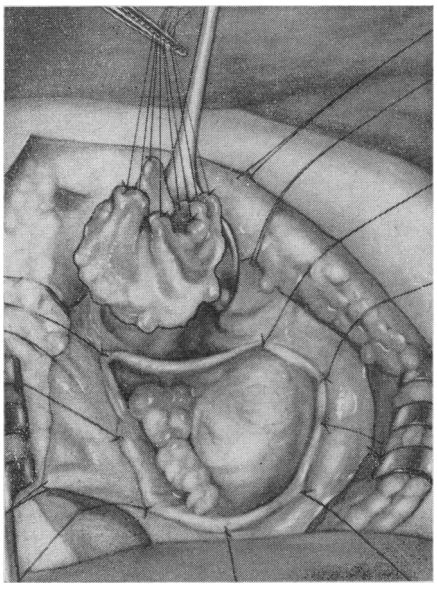

Fig 3 *Cavity left after diathermy excision of growth*

cally to be moderately to well differentiated, then it should be exposed by dividing the sphincters and assessed more carefully after exposure. One can look upon this exposure as an extension of the clinical examination. If at any stage it becomes clear that the case is not suitable for local excision, one can proceed to radical perineo-abdominal resection. Alternatively one can wait for the results of paraffin sections and carry out a planned radical resection of choice later.

Results

Over the past seven years, I have used this exposure for local resection of muscle-invading carcinoma of the rectum in 14 cases. Excluded from this series are those cases which could be defined as very early carcinoma, penetrating only to the submucosa. All the cases in this series had partial or full thickness penetration of the muscle coats.

Also excluded are those cases found at transsphincteric exposure to be too large for local excision and treated subsequently by radical resection.

The results are summarized in Table 1. The early results have been good. Although many of the patients were elderly and of poor risk, they all recovered quickly from operation. There have been no deaths and virtually no complications. None has required even a temporary colostomy and all have full anal continence with normal defæcation.

The number of cases is too small and the follow-up period too short to draw significant conclusions about the long-term results. However, one patient

Table 1

Transsphincteric exposure and local excision in invasive carcinoma of rectum (14 cases)

Survival (years)	*No. of cases*	*Present state*
7–8	1	Well; no recurrence
4–5	1	Local recurrence 1½ years; resected. Well; no recurrence 2½ years later
3–4	3	1 Local recurrence 2½ years; resected. Well; no recurrence 1½ years later
		2 No recurrence
2–3	4	No recurrence
1–2	3	No recurrence
0–1	2	No recurrence

remains fit and free from recurrence 7½ years after resection. He is now aged 94 and leading an active life. One patient resected nearly 5 years ago had a local recurrence 18 months later. This was excised and she remains well 2½ years after this second excision.

Of the 3 patients resected more than three years ago, 2 remain free from recurrence; one had a local recurrence 2½ years later but it was possible to do a second resection.

This local recurrence rate of 13% is high, but if it does not rise above this level it would be acceptable, being comparable with that following radical resection for carcinoma of the rectum: 10% for all rectal growths and 14·5% for growths of the lower third (Morson *et al.* 1963). With more experience in assessment and selection of cases, with improvements in technique and possibly with adjuvant therapy, it might be possible to reduce this incidence of local recurrence. Both these recurrences were in the pararectal tissues and I do not know whether they were due to cell implantation or to inadequate excision. In one case the primary growth was well differentiated and I suspect that the recurrence was due to cell implantation at the time of operation. The second was a poorly differentiated growth and the cause could well have been inadequate excision.

Tumour cell implantation must be considered a hazard of this form of local excision and I do not know the best answer to this problem. In all the later cases I have washed out the bowel before exposure and the wound before closure with oxychlorosene. Attempts to assess the value of this and similar cytotoxic drugs have not been very rewarding, but oxychlorosene seems to have no ill effect and is probably worth using. I have considered sealing the surface of the tumour, as can be done for example, during the excision of a melanoma of the skin, but have not found any satisfactory method.

Adjuvant radiotherapy: Both cases with local recurrence were given supervoltage radiotherapy after excision of the recurrence and this caused no discomfort. Its place remains to be decided; reports are conflicting and results difficult to assess. So at present it is preferred to keep radio-

therapy in reserve for those cases with local recurrence requiring a second excision.

Acknowledgment: The illustrations were prepared by Miss J Dewe.

REFERENCES
Mason A York (1970) *Proc. roy. Soc. Med.* **63**, Suppl. p 91
Morson B C
(1966) *Proc. roy. Soc. Med.* **59**, 607
(1968) *Brit. J. Surg.* **55**, 725
Morson B C, Vaughan E G & Bussey H J R
(1963) *Brit. med. J.* ii, 13
Todd J (1968) *Acta gastro-ent. belg.* **31**, 228

Prognosis in Diverticular Disease of the Colon

by T G Parks FRCS
(Royal Victoria Hospital, Belfast, BT12 16BA)

Diverticular disease, which can be demonstrated in more than one-third of elderly persons, is by far the commonest pathological entity affecting the colon. The majority of patients with this condition remain symptom free throughout life, so that the overall prognosis is much better than suggested by impressions gained from a study of hospital-treated patients. Since the degree of significance of the disease process varies widely in patients seen and treated at hospital, inpatients comprise a more uniform group for study.

The views expressed in this communication are based on a review of 455 inpatients treated in the Royal Victoria Hospital, Belfast, over a fifteen-year period. The length of follow up varied from one to sixteen years. Two-thirds of the patients were managed conservatively and one-third had surgery performed either initially or subsequently. These proportions are similar to those reported by Fallis & Marshall (1950), Kyle (1968) and others. It must be stressed that the pattern of disease discussed is that of the more severely affected patients.

Several factors should be taken into account in trying to assess the prognosis in an individual patient. Some of these are briefly discussed.

Age of patient: Elderly patients often suffered from concurrent disease, had a limited resistance to the complications associated with diverticular disease and were sometimes unable to cope with the stresses of surgery. Two-thirds of those who died amongst the patients reviewed were in their eighth and ninth decades on presentation at hospital.

Symptomatology: Pain confined to the left lower quadrant was associated with a better prognosis than pain of a more widespread nature. Disturbances of normal bowel function carried a worse immediate and long-term prognosis. Clinical features of a serious nature included nausea and vomiting, persistent urinary symptoms, abdominal distension and a mass palpable abdominally or rectally. Distressing symptoms, especially abdominal pain and constipation, sometimes occurred in the absence of inflammatory complications, and the muscle abnormality which is an integral part of diverticular disease seemed to be the main basis for the disturbances in some patients.

Duration of symptoms: The length and nature of the history prior to presentation at hospital had an important bearing on the outcome. Half the patients reviewed by the author were in good health until within one month of referral to hospital, and indeed many had symptoms for only a few hours or days before presentation. It was among those patients who had symptoms for less than one month that peritonitis accounted for 80% of the deaths which occurred during the first hospital admission. These findings contrast with those of Bartlett & McDermott (1953), who stated that there was sufficient warning that the disease existed in a recurrent or persistent form for a considerable time before complications developed. In the present series, many patients presented as acute abdominal emergencies without having had previous symptoms referable to the colon. In such patients lack of adhesions presumably allowed for widespread contamination of the peritoneal cavity when perforation occurred.

Conversely, patients who had symptoms for a prolonged period before presentation and whose surgical treatment was more often on an elective basis had a better outcome.

Extent of disease: While the sigmoid region of the colon was involved in 96% of patients, other segments were affected in 35% of cases either with or without sigmoid involvement. Prognosis seemed closely related to the pathological developments in the sigmoid and distal descending colon and had little relationship to more proximal disease. Spontaneous complications were as common in patients with distal colonic disease as in those with total colonic involvement although persistent symptoms occurred more often in the latter group. These findings conflict with Ransom's (1954) view that the incidence of complications is directly proportional to the number of diverticula. In the present series it was noted that when operation was required it was almost invariably for lesions in the distal colon, and if disease in this segment was eradicated the proximal colon was seldom the seat of any severe symptoms or complications, with the exception of bleeding. This compares