REMOVAL OF PORTIONS OF MALIGNANT TUMOURS OF THE RECTUM FOR CONFIRMATORY SECTION

BY

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The removal of portions of malignant tumours for confirmatory section is often desirable, but fraught with danger in many situations. It may be dangerous for anatomical reasons, as in the case of the pancreas, or owing to difficulty of access, or there may be danger of spreading the disease into healthy tissues—for instance, an incision into a cancer of the breast or a sarcoma of bone to obtain tissue for section is generally condemned. The rectum and lower pelvic colon, however, present a very favourable part of the body for this purpose: it can be easily reached by a sigmoidoscope without pain or the use of an anaesthetic, and malignant tumours here grow in such a way that portions may be removed from the lumen of the bowel without danger of perforation or serious hæmorrhage. The danger of disseminating the disease by removing a small piece of tissue from the surface of the growth must be almost negligible—very little greater than the danger involved in the passage of faeces over the growth.

INDICATIONS

The indications for this procedure in my opinion are as follows.

1. In operable tumours for which radical operation is proposed, if a piece is taken for section when the patient is first seen, the report should be available in a few days, before any extensive surgical operation is undertaken. This confirmation of the clinical diagnosis is welcome, and the rare errors in diagnosis may be disclosed. Occasionally, if a very highly malignant form of growth, such as a colloid carcinoma, is clearly revealed, the intention of performing a radical operation may reasonably be abandoned, since it is the almost universal experience that in this type of growth the results of radical operation are so bad as to render the hope of cure quite remote.

2. In all cases of carcinoma of the rectum for which radium treatment is proposed representative pieces of the growth should be taken for section. From a scientific point of view the necessity of establishing the diagnosis of malignancy by a section is evident: from a practical point of view there is the possibility that the histology of the growth may be of great assistance in deciding whether radium treatment should be undertaken or not. From a study of cases graded by Broders's index of malignancy, Rankin¹ considers that the highly malignant Grades 3 and 4 often react favourably to radium treatment, but constitute a class with a very bad prognosis after radical excision. He recommends removal of a piece of tissue by means of a cautery knife, with a view to grading the carcinoma before deciding on treatment. This method of attempting to assess the malignancy of rectal tumours is one which may prove of great value, although very often ulceration and infection of the growth at the point where tissue is removed may render the histological appearances difficult to estimate.

3. In ulcers of a doubtful nature a portion of the growing edge removed in this way may clear up the diagnosis.

4. In inoperable cases of cancer of the rectum the diagnosis of malignancy should, if possible, be confirmed by section. Patients sometimes survive for unexpectedly long periods with palliative treatment alone, or after colostomy has been performed, occasionally living so long

that the accuracy of the original diagnosis may be doubted. The following case may be quoted.

CASE REPORT

A woman, aged 47, attended the out-patient department of St. Mark's Hospital in October, 1920, complaining of pain in the lower abdomen and rectum, diarrhoea, discharge, and difficulty in getting her bowels to open. She was examined by my colleague, Mr. Norbury, who found an extensive growth in the rectum, with considerable fixation posteriorly: the clinical diagnosis was carcinoma of the rectum. She was admitted into the wards soon afterwards, under the care of Sir Charles Gordon-Watson, who confirmed these findings.

On October 28th, 1920, he opened the abdomen through a left rectus incision: the growth was felt from above and was found to be fixed posteriorly: there were palpably enlarged glands, but the liver was apparently free from secondary deposits. A left rectus colostomy was established. On November 8th, 3 c.cm. of cuprase were injected intramuscularly, followed a few days later by collosol selenium—5 c.cm. intravenously. These injections were repeated alternately at intervals of a few days, and on her discharge to the out-patient department Mr. Norbury continued them intramuscularly at intervals of a week at first, gradually extending to three weeks.

The improvement in the patient's general condition appears to have been progressive. A year after operation she was recorded as being very well and putting on weight. In February, 1923, Mr. Norbury described the case before the Subsection of Proctology of the Royal Society of Medicine.² The patient's general health was then excellent. She had had practically no discharge from the rectum for two years: no growth or ulceration could be seen or felt in the rectum. There was much narrowing of the pelvic colon just beyond the recto-sigmoidal junction. Nothing abnormal could be felt per vaginam.

She was kept under observation, and in July, 1924, a hard swelling was noted in the posterior rectal wall. The injections of cuprase were begun again, and in October, 1925—when I took her over—she had received the large total of 156 c.cm. of copper preparations (cuprase and Crookes's collosol cuprum) and 140 c.cm. of collosol selenium. She was then in very good health; there was no sign of any active growth in the rectum, and all that remained of the former mass was some induration posteriorly, possibly extrarectal. She remained under my observation, and finally, in October, 1928, a barium enema was found to pass freely from the lower colostomy opening to the anus, so I recommended her for readmission for closure of the colostomy. This was done by Mr. Milligan. She was discharged on April 2nd, 1929, and remains in good health, ten years after first coming under operation.

The history is a long one, and the result is very remarkable. Unfortunately, however, there is no microscopical diagnosis of the original condition. Clinically, there is no doubt whatever that the condition was a carcinoma, the splendid result being obtained by the colostomy and by Mr. Norbury's intensive treatment with cuprase and selenium. The sceptic, however, may consider that the condition was a granuloma, which time, aided by the colostomy, has healed. A piece of the tumour taken for section in the early days would have enabled a complete and incontrovertible report of the case to be published.

METHOD.

The instrument recommended is Brüning's forceps fitted with hollowed cutting ends 0.5 cm. in diameter. The example illustrated (Figs. 1 and 2) was obtained from D. Simal, 26, Rue des Écoles, Paris, and can be recommended as a very efficient and smooth-working pattern. The shaft is adjustable in size and is fixed in practice at such a length that the working end will project about two inches through the selected sigmoidoscope. Care must be taken that the milled screw governing the wire cable is tight, otherwise, when dealing with a scirrhous type of growth, the jaws may be found not to close with sufficient strength to be effective. I have

recently had a slightly larger cutting end made with a diameter of 0.8 cm., which I consider to be an improvement, since it enables larger pieces of growth to be removed.

FIG. 1

FIG. 2

FIG. 1.—Photograph of Brünig's forceps.

FIG. 2.—A near view of the working end of the instrument.

When a clear view of the growth has been obtained through a sigmoidoscope, the Brünig's forceps is passed down, and representative portions of the surface or edge of the tumour are nibbled off. I have obtained good specimens from tumours at varying distances from the anus,

FIG. 3.—Fragment of a carcinoma of the rectum removed with Brünig's forceps: distance 20 cm. from the anus. Laparotomy revealed an inoperable growth with extension to a loop of adherent small intestine.

the highest being at 24 cm. There is no difficulty in taking portions from these distant tumours, apart from the occasional one of passing a sigmoidoscope to these lengths. The pieces of growth come away uncrushed, and are transferred at once with a needle to the formalin-

fixing solution. It is generally advisable to remove three to six pieces, which can later be embedded together, cut, and mounted. Thus on each slide several sections of the tumour will be available for study. The sections are compact and generally give an extremely good idea of the histology of the growth.

RESULTS

By means of this forceps forty cases, diagnosed clinically as carcinoma of the rectum, have been investigated. The tissue removed at the first trial has been sufficient to establish the microscopical diagnosis of malignancy in

FIG. 4.—Fragment of a carcinoma of the rectum at 10 cm. from the anus. Diagnosis confirmed later after perineal excision.

thirty-nine cases. Figures 3, 4, and 5 show representative sections of this series as seen through the low power of the microscope. Only one case caused some difficulty: this was that of a young girl, aged 15, who had a massive growth of a scirrhus type filling the pelvis and obstructing the rectum. At the first attempt to remove tissue for section I found the growth so hard that only small pieces of tissue could be removed, and these on section were found to be normal mucous membrane. At a second trial I passed a smaller sigmoidoscope to a higher level and

FIG. 5.—Fragment of a carcinoma of the rectum 15 cm. from the anus. Diagnosis confirmed after perineal excision.

succeeded in obtaining some larger pieces of growth, which clearly proved the condition to be a columnar-celled carcinoma. Thus the diagnosis of malignancy has been established microscopically for the entire series of forty cases.

Two villous tumours have also been investigated by the Brünig's forceps. Clinically they were very different. One was a soft sessile mass seen at 15 cm. from the anus; the sections indicated a simple villous tumour. The other was a soft friable mass in the lower rectum of a young man, with a massive submucous infiltration extending up the wall of the rectum; clinically, an infiltrating malignant tumour seemed inevitable, and this was proved to be the case on laparotomy, when massive deposits of colloid carcinoma were found in the great omentum and were proved microscopically. The sections of the primary tumour removed by means of this forceps from its surface do not clearly prove its malignancy: this case indicates some of the difficulties and fallacies involved in an attempt to assess the malignancy of a rectal growth by this method—the surface appearance may be different from the condition at its base.

My routine practice now in my out-patient clinics at St. Mark's Hospital is to take pieces for section from every new case of rectal cancer, so that by the time the patient is admitted to the wards the written report on the section is available for inclusion in the in-patient notes, and the

diagnosis is established whatever the subsequent line of treatment may be.

SUMMARY

The method described is effective in enabling a histological diagnosis to be made for cancers of the rectum that can be seen through a sigmoidoscope. The pieces for section are taken from the edge of a malignant ulcer or from the surface of a nodular or fungating growth. It is not suggested that this method will be of assistance in determining the malignancy or otherwise of a simple tumour, such as an adenoma or papilloma, which may be suspected of having undergone malignant change.

I must acknowledge my indebtedness to Dr. R. Bensaude, in whose rectal clinic at the Hôpital St. Antoine, Paris, I first saw the forceps used as described above; to my colleague Dr. Cuthbert Dukes, pathologist to St. Mark's Hospital, for his interest in these cases; and to my surgical colleague Mr. L. E. C. Norbury, for permitting me to refer to his remarkable case.

REFERENCES

- ¹ Rankin, F. W.: *Surg., Gynecol. and Obstet.*, 1929, xlix, 193.
- ² Norbury, L. E. C.: *Proc. Roy. Soc. Med.*, Subsection of Proctology, 1922-23, 67.

A METHOD OF EXCITING INCIPIENT MOVEMENT IN WEAKENED AND PARALYSED MUSCLES

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Though differing widely in their pathology, fractures, cases of anterior poliomyelitis and of spastic paralysis present certain difficulties in the early treatment for restoration of function which are much diminished by the application of the principle of giving exercises by the use of unopposed movements—movements of a type much easier than usually described in textbooks, and based on the idea of primary relaxation.

The restitution of movements in a fractured limb, and the muscular re-education necessary to restore voluntary movement to a paralysed group of muscles, present great problems, because of the many mechanical and physical factors which militate against recovery in the earliest stages. The incipient return of power remains concealed for a time, until it reaches such a magnitude that it is capable of overcoming that resistance which may be opposed to it. Until then neither the patient nor the medical gymnast is aware that any recovery has taken place.

The methods described here, which have been used very successfully in the massage department of St. Mary's Hospital for the last six years, aim at eliminating all checks to the activity of the weakened muscles by counterbalancing the weight of the limb, inducing a relaxation of the opponent muscles, and finally counteracting almost entirely inertia, friction, and gravity. This allows the feeble minimal efforts of the affected muscles to act, not in the stationary limb, but in association with pendulum movements, maintained by the operator at first and later by the patient. The apparatus necessary for this purpose is an overhead bar with ball-bearing pulleys, through which run adjustable ropes and slings (Fig. D). By this means the faintest return of power is allowed free play, the activity of the muscle contributes to its more rapid recovery, and the patient, persuaded by the wide range of movement into thinking that he

is accomplishing more than is actually the case, is encouraged to exert every effort without the usual fear of pain, thereby hastening restoration to normal function.

APPLICATION TO RECENT FRACTURES

As complete relaxation as possible must be attained. This is practicable only if the patient's mental attitude is free from anxiety and the fear of sudden movements,

FIG. A.—Showing a fracture of the humerus put up in adduction, and having exercises in the antero-posterior plane of movement.

or movements beyond the range of his capacity. Jerky or irregular movements, or those not evenly graduated in force, will cause pain and spasm beyond voluntary control.

The limb is hung by adjustable slings from a horizontal bar, and is then gently swayed up and down, from side to side, or back and forward as the particular case demands, all opposing forces being counterbalanced as exactly as possible (Fig. A). Perfect support can thus