A Lecture

ON

CANCER: WITH SPECIAL REFERENCE TO EARLY DIAGNOSIS*

BY

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The more complicated the problem the easier it is to confuse the issues involved, and to give false values to the various factors concerned. The age-long attempt to solve the problem of cancer has resulted in the collection of a vast number of facts concerning it and in a voluminous literature, and with such a mass of information it is not difficult to make either of these mistakes. In this connexion, and before going on to discuss the general problem, I should like to stress the fact that much of this literature is concerned with the results of animal experiment, and I think that this is a field where one is likely to be misled by the reports and statements of specialized workers who pursue their efforts in a direction which is sometimes only distantly related to the problems with which we clinicians have to deal. I do not want to be misunderstood: much of the experimental work done has an importance which cannot be overestimated, and has contributed most valuably to our knowledge. That the cure of cancer may be found before its cause is a consideration that is sometimes overlooked, and, while acknowledging the debt which the clinician owes to the experimental worker, it must be remembered that the clinical interpretation of the results obtained is often difficult, and sometimes even misleading. We will confine ourselves on this occasion, therefore, mainly to what, after all, is our particular province—the problem of cancer as we see it in our work as medical men.

If one attempts to assess the position of the cancer problem to-day, one can thread one's way, without serious mishap or much discomfort, through a maze of statistics and figures. Some stages of that journey may be encouraging, others depressing, but one may emerge with a general feeling that more is being done for cancer than ever before; that the medical profession is more alive to the importance of early diagnosis; and that the public

TABLE I

	1912	1922	1932
Population... ..	36,539,636	38,158,000	40,201,000
Deaths, all causes ... {	M., 250,232 F., 236,707	247,221 239,559	245,715 238,414
Total	486,939	486,780	484,129
Deaths from cancer ... {	M., 16,188 F., 21,135	21,266 25,637	28,829 31,887
Total	37,323	46,903	60,716
Deaths, breast cancer ... {	M., 20 F., 3,736	42 4,826	49 6,386
Total	3,756	4,868	6,435

seeks advice earlier: facts which suggest that the problem is on the way to being solved. This conclusion is a comfortable one, and one for which there is at any rate some foundation, but it would be more justified if it were not for one or two important and very pertinent facts. Cancer is regarded with horror because it kills; so that the number of people who die from it, whether that number is increasing or decreasing, is some sort of touchstone by which we can judge of our efforts to deal with it.

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I will recall two features which have a bearing on the problem: first, the number of deaths from breast cancer in 1932 (Table I); and secondly, the figures showing the type of case presented to a general hospital for treatment (Table II). In the year 1932 there were 6,435 deaths from breast cancer, compared with 4,868 in 1922 and only 3,756 in 1912. Although the figures showing the type of case vary, the evidence is that cases presenting themselves at a time when there is a movable lump in the breast and no glandular involvement amount to less than 15 per cent. of the total.

These two facts in themselves are surely enough to justify further investigation, and I think it is not amiss to examine the Registrar-General's returns in greater detail. The total number of deaths from all causes has decreased slightly during the past twenty years; but if we consider the figure for cancer as a whole we find that there has been a marked increase. In the year 1932 there were 60,716 deaths from cancer. This represents a 30 per cent. increase on the figure given ten years previously, and an increase of over 60 per cent. on the figure for 1912. I have chosen breast cancer for the figure I first quoted because it may be argued that the increase in the reported deaths from the disease as a whole may be due to better methods of diagnosis, which reveal more cases of internal cancer. This consideration applies particularly to cancers affecting the alimentary tract and the respiratory system, but hardly affects the diagnosis of breast cancer, which, though it may be difficult in the early stages, becomes only too obvious as the disease progresses.

We are confronted, then, with the facts that deaths from cancer of the breast have increased alarmingly in the last twenty years, and that all too small a number of cases were presented for treatment at a stage when

TABLE II

	1922	1932
Digestive organs and peritoneum ... {	M., 13,196 F., 12,348	17,703 15,493
Total	25,544	33,196
Respiratory organs {	M., 1,400 F., 518	2,688 920
Total	1,918	3,608
Male genito-urinary	2,051	3,259
Skin {	M., 515 F., 439	630 527
Total	954	1,157
Buccal cavity and pharynx {	M., 2,686 F., 432	3,040 536
Total	3,118	3,576

there was a reasonable chance of cure. These things are true not only in breast cancer, but also in cancer of the buccal cavity, the digestive tract, the respiratory system, the male genito-urinary system, and the skin.

Having agreed that the problem is a difficult one and in more urgent need of solution now than ever before, how can we be constructive about it?

SURGERY AND RADIUM AND X-RAY THERAPY REVIEWED

Our present methods of treatment are admittedly inadequate; let us first briefly review their results, and then inquire how far we are using them to the best advantage, and in what ways we can increase their efficacy. An accurate knowledge of the value of our present methods of treatment is not easily obtained in this country, owing to the difficulty of securing comparable statistics on a reasonably large scale. In November last, at the Royal Society of Medicine, Professor Gask stated that a general survey of figures led him to conclude that the best we can expect either from surgery or from radium is a five-year survival rate of 20 to 25 per cent. for tongue cancer, 35 to 40 per cent. for breast cancer, and 40 per cent. for uterine cancer. Hintze reported a five-year survival rate of 34 per cent. following the treatment of 5,500 cases of carcinomata of all kinds at the Surgical Clinic at Berlin. This group included 836 skin cases, in which the results of treatment are extremely good; without these skin cases the percentage would be considerably lower.

It is probable that surgery has reached the pinnacle of accomplishment, and that little more can be expected of surgical technique. Surgery will always be the method of choice in certain types of cancer, and indications for such operations are well known. In the case of radium and x-ray therapy the position is different. As a result of experience obtained over a period of thirty years, it is possible to assume that much more will be done by the use of these two methods of treatment, and that progress is slowly but surely being made. It must be urged at once that it is essential that surgery and radiation should not be divorced. They resemble each other in that their effects are local, and that they are used to combat a disease which frequently becomes general. During the past ten years a great deal of work has been done in relation to the physics, the action, and the dosage of radium, and although both over-enthusiasm and undue pessimism have characterized the development of radium therapy at times, advance has been steady even if it has been slow. The use of deep x-ray therapy has increased markedly in the last few years; better results have been due to improvement in technique, more accurate and standardized dosage, and the use of higher-voltage apparatus.

HOW TO USE THESE METHODS TO BEST ADVANTAGE

With these three main methods of treatment at our disposal it is essential that they be used in the right way, and that the results of such methods, either singly or in combination, should be carefully controlled. To get the most out of them certain things are essential.

First.—Every hospital at which cancer cases are treated should decide its own cancer policy. Members of the medical staff should agree as to the method of treatment to be adopted in various malignant growths.

Secondly.—Every cancer case should be followed up systematically by a department specially devoted to this purpose. The necessity of tracing the subsequent history of all cancer patients is too obvious to be stressed, but there are many hospitals where such a scheme would be impossible owing to the cost of the organization. In such case I suggest that the research activities of the particular hospital should be confined to one group of cases. Other groups would be treated, but the follow-up scheme would be limited to one disease. Everyone will agree that it is useless to treat cancer unless there are facilities for finding out the value of the methods adopted, and each hospital should have the necessary facilities.

Thirdly.—Records of cancer cases should be kept on a uniform basis. In order to obtain comparable cases from different hospitals notes should be as uniform as possible, and details should be given of special points in particular groups of cases. Forms such as those compiled by the National Radium Commission might be used with advantage for all cases of cancer, however treated. In this way mass statistics could be compiled; but it must be pointed out that statistics are valueless unless records are accurate and complete. By adhering to the common plan of note-taking a truer value of various methods would be obtained, and in addition much other useful information.

Fourthly.—Statistics must be compiled so that figures obtained in treatment by various methods are comparable. The difficulty of interpreting statistics which differ in form, however slightly, is well known. This is multiplied when dealing with the results of more than one method of treatment, so that the necessity of strictly comparable figures is essential.

Lastly.—There must be more co-operation between institutions and centres engaged in the treatment of cancer. In larger hospitals clinicians must be guided in their work by physicists and pathologists, and this is particularly important in carrying out radiological research. Co-operation must start in the individual hospitals, to be followed by co-operation in various counties and districts. Another point I would like to stress is the importance of a friendly liaison between the voluntary and the State hospitals. As a general rule the State hospitals receive a high percentage of advanced cases of cancer, many of which are beyond the help of even palliative relief. Finally, there should be some form of national pooling of results and methods, perhaps under the Ministry of Health or under the British Empire Cancer Campaign, which already controls the research activities of all those hospitals to which it extends a helping hand.

This need for co-operation has been much talked of lately; so much so that the word is apt to bring a smile to the lips of people who believe that it is a theory not easy to put into practice. I suppose there are few groups of men among the members of which co-operation is more difficult than among the members of the medical profession, who are, after all, engaged in a study which demands originality and independence of thought. It has even been whispered that they not only cannot get together, but they will not; this I, for one, refuse to believe. Nevertheless rapid progress will not be made until there is more liaison between workers in this field, and in view of the gravity of the problem it should be possible to secure co-operation by some or all the means I have suggested.

THE SIGNIFICANCE OF EARLY TREATMENT

Having attempted to outline the ways in which I think we can use to the best advantage the methods of treatment known to us, let us consider for a moment whether there is room for effort to increase the efficacy of such methods.

The significance of early diagnosis and treatment is too well known to need further emphasis. In fact, at the present time success depends directly on the stage of the disease at the time of treatment. I have little doubt that most of you will agree that early diagnosis is the most important single factor in the fight against malignant disease, and will remain so, even if other methods—serological or biochemical—are discovered which are capable of eradicating the disease when it is beyond the power of surgery and radiation. This is apt to be lost sight of by many, but if you were constantly confronted, as I am, with cancer cases in the advanced stage, where treatment starts with a severe handicap, you would be

left in little doubt as to its importance. Moreover, this importance is confirmed by actual figures—if not in all forms of cancer, then, at least, in some of the larger groups. For instance, the Ministry of Health reports on carcinoma of the breast—I refer to the valuable statistical work undertaken by Dr. Lane-Clayton and published in 1926 and 1928—show that when the growth is still local there is a five-year survival rate of 78.5 per cent., but when the axillary glands are involved this survival rate drops to 24.7 per cent.

Now it is reasonable to suppose that, although cancer becomes a general disease early, there is in most cases an initial stage at which the disease is entirely local. It is no less true that the failures of treatment are largely in those cases in which dissemination has already taken place, and that the best results are obtained when the disease is still local—that is, at the curable stage, curable because our present methods of treatment, whether surgical or radiological, are localized in their effects.

Figures published by the Ministry of Health show that when patients present themselves on account of carcinoma of the breast the average duration of symptoms has been nine months. This is confirmed by our figures at the Radium Institute. In a recent series the average duration of symptoms before treatment was 10.1 months in breast cases, 7.4 months in carcinoma of the cervix uteri, and 9.4 months in carcinoma of the rectum. Such figures seem to me to suggest that fear and ignorance play a most important part. The length of time is greater in breast cases than in the other two. In carcinoma of the rectum and cervix, “piles” and “the change of life” may easily confuse the issue.

The blame for delay, therefore, rests largely on the patient, who waits too long, either through sheer ignorance of what the signs and symptoms may mean, or because the patient suspects cancer and does not want to be told the truth. When we ask why the patient did not seek advice before how often does he reply that he thought it might be something serious? An illogical attitude, of course, but it must be remembered that cancer is still regarded by the public—and with some reason—as quite incurable. Doctors and nurses must be placed in this group. The frequency with which one sees advanced cases of cancer in medical men and women has often led me to doubt the value of educating the public, and in the educated sections of the lay public delay in seeking advice appears to be just as long as in the hospital class of patient.

EDUCATION OF THE PUBLIC TO SEEK EARLY ADVICE

Can the public be educated sufficiently to seek medical advice earlier? I think this should be possible, but it is important that a sense of proportion should be maintained. The widespread dissemination of warnings, in somewhat dramatic form, is certainly a grave danger, and is only likely to encourage cancerphobia. The publication of booklets, such as those prepared by the British Empire Cancer Campaign, is a step in the right direction, and should help a great deal. It seems to me, however, that despite a natural aversion to airing medical subjects in the lay press it should be possible to give advice without frightening people to death or offending the public taste. I am told on good authority that what is called the “news page” of the London daily newspapers is devoured greedily every day by hundreds of thousands of families. The advice given by the “Home Doctor” or “Our Medical Man” is treasured, and often cut out and preserved for future reference. Surely this is a medium which has been neglected. The daily press is, for better or for worse, the poor man’s educator, and it seems illogical to ignore such a medium on the ground that information about cancer is likely to offend.

There are, of course, other ways in which the public interests might be served in this matter. Periodic free examinations might be offered to patients, and by this means a certain number of early cancers would be discovered. In the United States insurance companies give free examinations bi-annually to all life policy holders over 40. Such examinations are obviously in the interests both of the insured and of the company, and it would be a good thing if such a system could be instituted in other countries. This would apply to a large number of people, and would have the advantage of being a routine method connected with an important factor in the life of the individual—his life assurance; but this is a method open to very much the same objections as the routine bi-annual examination mentioned just now. A reliable serological test for malignant disease would be invaluable. It would probably be easier to persuade the public to have a periodic blood test than to submit to an extensive examination twice a year.

The heavy responsibility resting on the medical profession in the matter of early diagnosis is evident. The profession shoulders it very well indeed, but there is still room for improvement. If some of the apparently trivial signs and symptoms were investigated more frequently a larger number of cancer cases would be recognized in an early stage. This applies more particularly to growths of the alimentary canal, bladder, breast, uterus, lung, larynx, and hypopharynx. With our present methods of treatment a higher percentage of cures would certainly be obtained in the case of cancers of the breast, colon, uterus, and larynx. The practitioner must be constantly on the “look out” in order to recognize early symptoms of cancer, such as dyspepsia in a patient who has not previously suffered from indigestion, a husky voice, which may lead to the recognition of a laryngeal growth, and haematuria, which may be due to a bladder growth. Use should be made of all the accessory methods of diagnosis. For instance, all cases of haematuria, unless the cause is obvious, should be cystoscoped, and early resort should be had to radiological diagnosis of obscure but suggestive symptoms connected with the alimentary tract. No woman with post-menopausal bleeding should be allowed to go unexamined, and piles should never be diagnosed as the cause of rectal bleeding until after carcinoma has been excluded.

Although I have mentioned one or two ways in which the medical profession could improve its chances of getting early cases of cancer, I still believe that it is chiefly to the patient to whom we have to look for this. The patient does not help, largely because he is ignorant, and until his ignorance is removed, and he is at the same time convinced that he can be cured of his cancer if it is early enough, the greatest obstacle to progress will remain.

PALLIATIVE TREATMENT FOR ADVANCED CASES

To urge means whereby cancer cases may be treated at an early stage, and to visualize the time when patients will present themselves in a curable stage, does not absolve us from the responsibility of those patients who are beyond hope of cure. Such cases are lamentably numerous, and they do provide a serious part of the problem of cancer. The tendency is sometimes to decree that nothing can be done for the patient, and to feel that since no curative treatment is indicated that is the end of the case. It may be the end of the case, but it is by no means the end of the patient, who often has a long and arduous journey to take before he reaches the end. He is too often allowed to bear his burden alone, and without the help of many methods of treatment which we could use to alleviate his suffering. Many, and

perhaps the majority, of these patients are those in whom surgery has failed, and for whom further surgery is out of the question.

Radiation has a wide field of usefulness in many of these cases. I have not so far mentioned radium in connexion with the cancer problem because my subject is too general and my time too short to admit of consideration in any detail of special forms of treatment. As you will realize, however, it is difficult for me to consider radium and cancer as other than closely connected, and I make no apology for introducing the subject of radium therapy here, because its palliative use is perhaps its greatest contribution to the cancer problem. Inoperable cases of cancer of the mouth and fauces can, if care is taken, be treated so that foul ulcers heal and dysphagia is relieved, the patient dying from secondary deposits and being saved the miserable death which must otherwise be his lot. The offensive discharge and profuse bleeding in advanced cases of carcinoma of the cervix uteri can be stopped or diminished, and the patient's general condition is almost always improved. Fungating carcinoma of the breast can often be healed; the pain and foul discharge cease, and the patient dies a more comfortable death from secondary deposits at a later date. As a palliative measure in cases of carcinoma of the rectum radium is valuable, particularly in the lower ampullary growths; haemorrhage and discharge often cease, and the progress of the disease may become arrested for months, or even years, so that patients are kept comfortable, and colostomy is avoided in many cases. Enough work has been done on carcinoma of the bladder to say that many patients are given relief from pain and haemorrhage, sometimes for prolonged periods, by radium therapy.

X-ray therapy in expert hands is proving of more and more use in the palliative treatment of such conditions as pelvic tumours, bone sarcoma, and deep metastases affecting the spine and thorax. In addition to these methods, the general management of cases of incurable malignant disease is important. A great deal can be done by drugs, fresh air, and diet to make the end of the patient's life less intolerable than it would be in the absence of such measures.

RESEARCH AT THE RADIUM INSTITUTE

Whatever the direction of research in other spheres, clinical research is proceeding on definite lines, and is being justified even now by results. I refer to research in radiation therapy, both deep α -ray and radium therapy, and I believe that in another ten years these methods will have gone far to solve this problem for us, even in the absence of some startling biochemical or serological discovery which would revolutionize our conception of cancer treatment.

While radium and deep α rays have established themselves as the treatment of choice in certain malignant diseases, developments are taking place with regard to therapy by telerradium and by the use of α rays of increasingly higher voltages. Radium beam therapy, employing from 3 to 5 grams of radium, has already given encouraging results in other countries. There is no doubt that the work done by this mass irradiation has given, in certain cases, results which are not attainable by any other method of treatment. It appears to be the most effective of all forms of radium therapy, and is not associated with any special danger either to the patient or to the workers.

Due to the initiative of Professor J. C. McLennan a radium unit of the Stockholm pattern has been installed at the Radium Institute under the control of a governing body. The Union Minière de Haut Katanga has generously lent 5 grams of radium element for this research,

and later, if necessary, will increase the quantity to 10 grams. Most of the cases treated have been growths of the upper air passages, and the method has already shown signs of great promise. Recently a gift of £5,000 for purposes of cancer research was made to the Radium Institute, working in co-operation with another hospital. Part of this money is being used to set up a plant at the Mount Vernon Hospital capable of supplying very high voltage α rays. This research will also be directed by the committee which controls the radium beam unit. These parallel experiments are being carried out scientifically and on a large scale under the direction of the committee, and are an illustration of the importance of such co-operation in the treatment of cancer.

In this type of research particularly there must be frank exchange of ideas, so that experience can be pooled. I would like to see a number of centres established throughout the country devoted to deep α -ray and the radium beam treatment. Each centre would have a definite policy, which should be known to the other centres in order to prevent overlapping. To carry out such a research it must be on a large scale, and a sufficient number of cases of the type required should be available. It is here that help from medical men outside the centre is so essential. Every effort should be made to supply the units with the type of case required, and later to assist in following up the patients. Not only is this necessary in the interests of patients, but without such co-operation it is impossible for the centre to achieve good results. It is only by organized research that we can attempt to standardize methods of treatment.

There are many other aspects of this great problem which deserve attention, but my time is ended, and there remains only to define briefly the present position. Despite our gradual progress towards the goal, variously defined as the discovery of the cure or of the cause of cancer, it is still impossible to tell how near that goal is, or how long it will be before we reach it. When it is reached it may be that all our present methods will be proved wrong, and that they will have to be discarded. One often hears it said that those methods are obviously wrong, mainly because they are local weapons against a general disease. Nevertheless, they are the best we have, and the goal being an unknown distance away we must meanwhile make every effort to use them as efficiently as possible. The problem of cancer treatment is the problem of getting the most out of unsatisfactory methods, and I have attempted in this short lecture to tell you what, in my opinion, are the ways in which improvements could be made. Early diagnosis, in which the patient's help can and should be secured, and close co-operation, which is a matter for the medical profession, are certainly possible. There are obstacles in the way of both these things, but I feel as certain that those obstacles are not insuperable as I am that advance will be held up while they are allowed to remain.

The annual meeting of the University of London Medical Graduates Society was held at the Langham Hotel on May 8th, when reference was made to the fact that this society contains within its membership all three of the medical peers—Lord Dawson, Lord Moynihan, and Lord Horder—and also Dr. Helen Mackay, the first medical woman to be elected to the Fellowship of the Royal College of Physicians of London. Mr. W. McAdam Eccles was elected president of the society, Sir Charlton Briscoe honorary treasurer, and Mr. W. E. Tanner joint honorary secretary. At the dinner which followed, Sir Henry Brackenbury was the guest of the evening, and the president paid tribute to him as an outstanding member of the profession, as general practitioner, member of the General Medical Council, and Chairman of Council of the British Medical Association. The retiring president, Lady Barrett, replied to the toast of "The Society."