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President—MUSGRAVE WOODMAN, M.S.

Carcinoma of the Œsophagus treated by Radiation

The opening paper read by Mr. F. J. CLEMINSON and Mr. J. P. MONKHOUSE is published in this issue of the *Journal of Laryngology and Otology*, Vol. XLIX, No. 5, pp. 313-18.

DISCUSSION.

WALTER M. LEVITT.—Hitherto the results obtained in the treatment of carcinoma of the œsophagus by X-rays have been very bad, although improvement has been recorded in rare instances. Thus, Finzi treated a patient in 1923 with a very extensive œsophageal growth which completely disappeared, although the patient subsequently died of secondary deposits. I reported a case in 1930, in which a growth in the œsophagus was replaced by a smooth, apparently fibrous, stricture, and the patient lived for nearly two years, during most of which time he was in reasonably good health. Holfelder has recently recorded a case in which complete disappearance of a cancerous growth in the œsophagus resulted from X-ray treatment. The patient died from broncho-pneumonia five months after treatment, and no evidence of growth could be found at autopsy.

Apart, however, from these occasional cases, it is true to say that the results of X-ray treatment of carcinoma of the œsophagus have been almost uniformly bad, and the most that could be hoped for was a temporary and moderate relief of obstruction.

These results of treatment of carcinoma of the œsophagus by X-rays have been all the more disappointing since the histological characteristics of these growths would suggest that they should be radio-sensitive. Thus, Broders and Vinson state that over 90 per cent. of all œsophageal growths belong to Grades III and IV of their histological classification. Moreover, *post mortem* evidence has shown that metastasis is relatively uncommon in carcinoma of the œsophagus; 36 per cent. of 125 cases in Blaukwuip's

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series reported by Abel and 21 per cent. of 51 autopsies carried out at St. Bartholomew's Hospital reported by R. W. Raven, were free from any metastasis.

The problem of the treatment of carcinoma of the œsophagus is, therefore, in a large number of cases the problem of the treatment of the local disease, and this, as we have seen, is of a histological type which should prove radio-sensitive. On the assumption that the failure of the disease to respond to X-ray treatment, as hitherto applied, has been due to insufficient dosage reaching the growth, a technique has recently been worked out at St. Bartholomew's Hospital by means of which it has been possible to apply enormously increased doses to the œsophagus. Without entering into technical details, suffice it to say that the principle is the application of large daily doses of X-rays through multiple long narrow fields placed at intervals all round the chest wall. The fields have been made long—just under seven inches on reaching the œsophagus—because of the known tendency of the disease to submucous spread up and down the gullet; and they have been made narrow so as to permit of the application of a large number of fields, all accurately directed upon the œsophagus. As previously indicated, the treatment is carried out daily for a period of from five to six weeks.

In all, eight unselected cases have been treated by this method. All the cases had high degrees of obstruction; the diagnosis was confirmed by œsophagoscopy in six cases. Of these eight cases, treatment had to be abandoned in one because of the occurrence of symptoms of pulmonary disease; the patient has since died of broncho-pneumonia. The remaining seven patients are alive and all are able to swallow.

I.—W. Y., aged 56 (Mr. Bedford Russell).—*First seen*, 16.5.33, with history of progressive difficulty in swallowing, over a period of four months. Could swallow liquids only with difficulty. Much loss of weight. *Radiographic investigation* showed a stricture of the œsophagus due to a new growth which extended from the third to the eighth dorsal vertebra. *Œsophagoscopy* showed a typical ulcerated carcinomatous growth. A fragment taken for section showed a squamous-celled carcinoma. *High-voltage X-ray therapy*, 16.5.33 to 18.6.33. By the end of the treatment, patient was swallowing fairly well. Swallowing improved steadily, and on 27.11.33, œsophagoscopy showed a normal œsophageal mucous membrane, with an easily dilatable œsophageal wall, through which the œsophagoscope passed with ease.

Patient has recently been an in-patient at St. Bartholomew's Hospital under the care of Lord Horder, with a right-sided pleural effusion, but he has now returned to work again.

II.—A. L., aged 40 (Mr. Bedford Russell).—*First seen*, 29.8.33, with a history of progressive difficulty in swallowing, regurgitation of food, and pain in the lower chest for two months. Could swallow only

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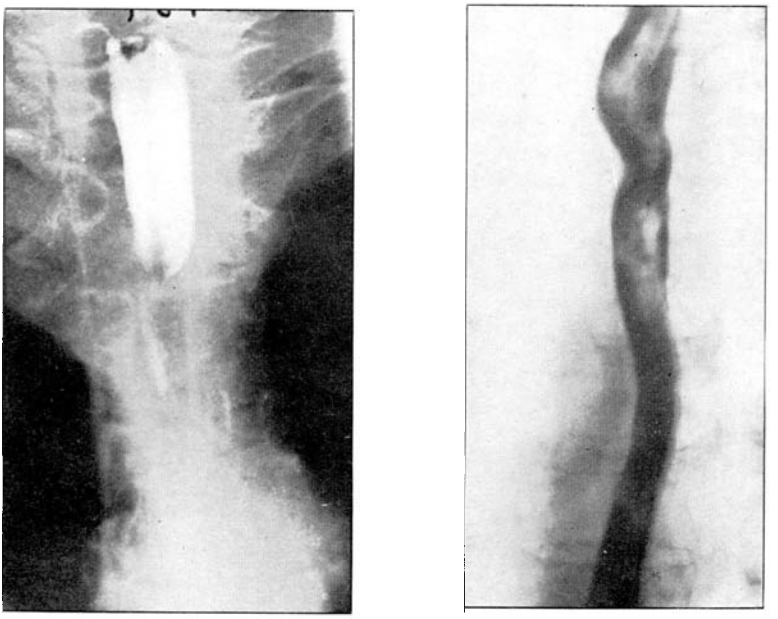


Fig. 1 (Case I).
20.4.33.—Before treatment. 24.11.33.—After treatment.
Note.—The skiagram on the left is a positive, that on the right a negative.

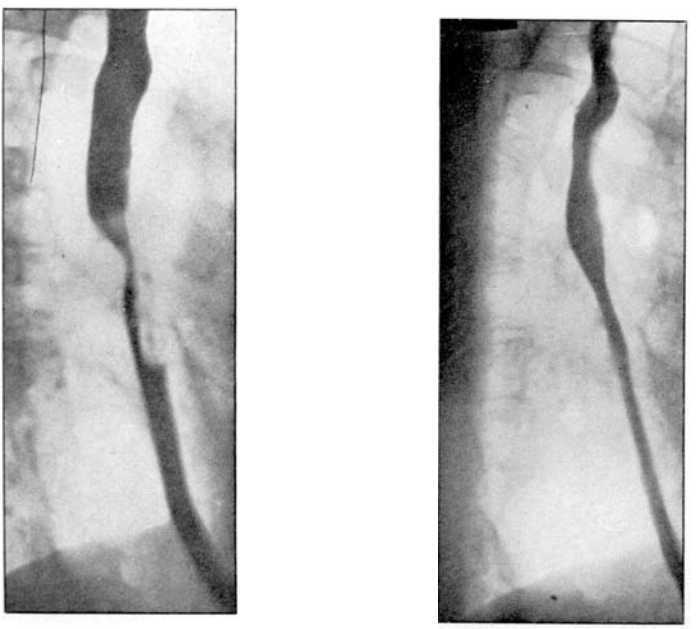


Fig. 2 (Case II).
21.7.33.—Before treatment. 20.11.33.—After treatment

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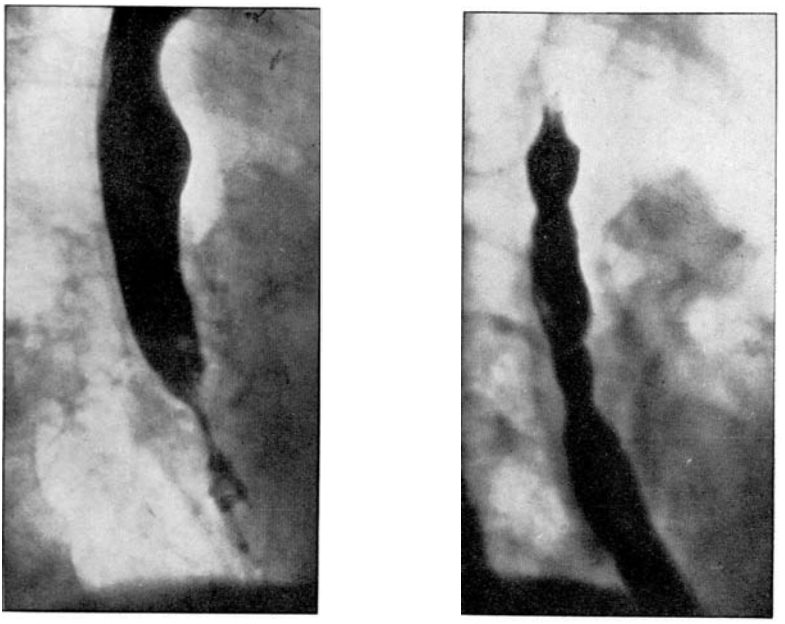


FIG. 3 (Case IV).
28.9.33.—Before treatment. 28.11.33.—After treatment.

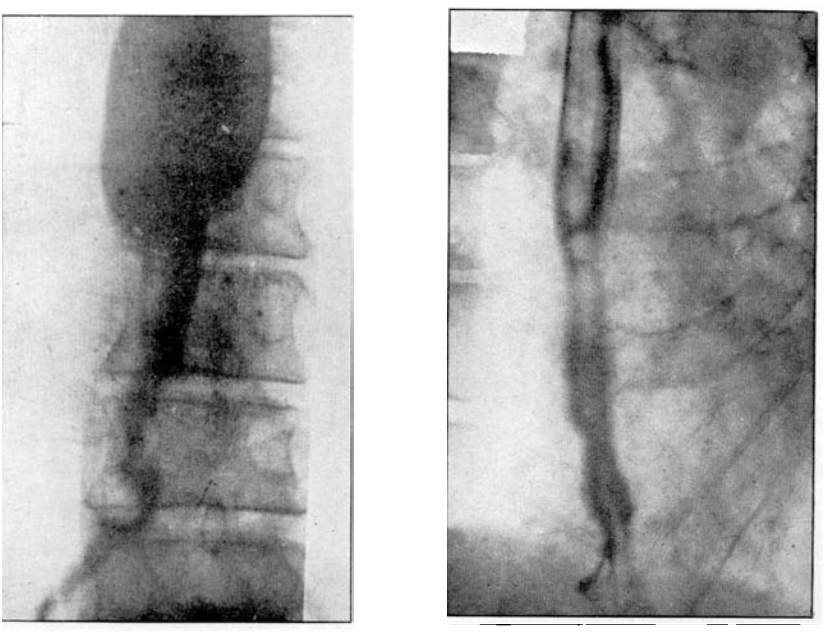


FIG. 4 (Case V).
29.8.33.—Before treatment. 20.11.33.—After treatment.

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liquids. Had lost several pounds in weight. *Radiographic investigation* showed the appearances of a carcinomatous stricture in the middle and lower thirds of the œsophagus. *Œsophagoscopy* revealed a typical ulcerated growth of the œsophagus. A fragment taken for section suggested epithelioma, but was not conclusive. *High-voltage X-ray therapy*, 29.8.33 to 26.10.33. By the end of the treatment, swallowing was greatly improved, and the present skiagrams show an apparently normal œsophagus. Patient has gained over a stone in weight.

III.—H. H., aged 60 (Professor Gask).—*First seen*, 4.10.33, with a history of sudden onset of difficulty in swallowing in August, 1933, since when he has not been able to eat solid food. Attempts at swallowing were followed by pain in the chest and regurgitation. *Radiographic investigation* showed an irregular stricture at the level of the fifth dorsal vertebra extending for about 3 cm. *Œsophagoscopy* showed an irregular ulcerated growth. A fragment taken for section was not conclusive of the presence of carcinoma. *X-ray treatment* was begun on October 4th, 1933, but had to be abandoned (because of progressive deterioration of patient's general condition, accompanied by cough and pyrexia), on October 26th, after about half the treatment had been applied. Patient went steadily downhill and died on November 18th. A *post mortem* examination showed a hard non-ulcerated stricture of the œsophagus, with enlargement of the lymphatic glands around the bifurcation of the trachea. There was a right-sided empyema.

IV.—A. G., aged 64 (Dr. Hinds Howell).—*First seen*, 28.9.33, with a history of gradually increasing difficulty in swallowing for six months. Could swallow only liquids, and swallowing was accompanied by substernal pain. Aphonia for five months. Had lost two stone in weight. *Radiographic investigation* showed the appearances of a neoplasm at the level of the bifurcation of the trachea. The patient's general condition was very poor, and he was considered too ill for œsophagoscopy. *High-voltage X-ray therapy*, 28.9.33 to 30.10.33. Swallowing became, if anything, worse towards the end of the treatment, and gastrostomy had to be performed on October 31st. Patient was then very ill, with a temperature of 101 to 102° F., with much cough and expectoration, the latter occasionally blood-stained. Swallowing gradually improved and the temperature returned to normal, and by November 21st patient was eating ordinary food, although there was still some cough and sputum. The improvement has steadily continued, and skiagrams taken on November 28th showed a free passage of barium through the œsophagus, with no evidence of growth, although distensibility of the œsophagus appeared to be impaired in the region of the previous stricture.

V.—G. S., aged 52 (Mr. Ross).—*First seen*, 7.9.33, complaining of pain with a feeling of choking and regurgitation on swallowing, for two months. Pain had become persistent. *Radiographic investigation* showed the appearances of a carcinomatous stricture of the lower third of the œsophagus. *Œsophagoscopy* was not carried out. *High-voltage X-ray therapy:* 7.9.33 to 27.10.33. Swallowing was considerably

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improved by the end of the treatment. The skiagrams now show that barium passes freely through the œsophagus, the lumen dilating up well, but there is an irregularity at the site of the lowermost portion of the original growth which suggests the persistence of a remnant of active disease.

VI.—R. H., aged 61 (Professor Gask).—*First seen*, 4.10.33, with a history of pain and difficulty in swallowing for two months. Could swallow fluids only. Much loss of weight. *Radiographic investigation* showed the appearances of a carcinomatous stricture of the œsophagus extending downwards from the level of the second costal cartilage. *Œsophagoscopy* showed an ulcerated œsophageal growth. A fragment removed for section was inconclusive of the presence of carcinoma. There was no doubt as to the clinical diagnosis. *High-voltage X-ray therapy*, 4.10.33 to 3.11.33. Pain on swallowing seemed to be increased during the treatment, but swallowing itself steadily improved after the second week. Patient can now swallow normally, and skiagrams show a free passage of barium down the œsophagus, which dilates well. There is no evidence of growth in the œsophagus.

VII.—F. B., aged 74 (Professor Gask).—*First seen*, 24.1.33, with a history of painful dysphagia for four months. *Radiographic investigation* showed the appearances of a carcinomatous stricture of the upper end of the œsophagus. *Œsophagoscopy* showed an ulcerated growth in this region. A fragment taken for section showed the presence of squamous-celled carcinoma. *X-ray therapy* (*by old method*), 24.1.33 to 13.11.33. Slight improvement followed treatment, but by June, 1933 dysphagia was complete. Patient's general condition steadily deteriorated until, in September, the complete dysphagia was causing him such distress that it was decided to make a trial of the new method, although little hope was entertained for its success. *High-voltage X-ray therapy by the new method*, 14.9.33 to 24.10.33. By the end of the treatment patient was swallowing normally and continues to do so. Skiagrams taken after the treatment show a free passage of barium down the œsophagus, which dilates normally. Towards the end of the X-ray treatment, patient had an attack of acute retention of urine, due to an enlarged prostate. This necessitated a catheter being tied in, which he has retained ever since. Although this patient is swallowing normally, his general condition has not improved, and the presence of secondary deposits is suspected.

VIII.—R. M., aged 67 (Mr. Corbett).—*First seen*, 26.9.33, with a two months' history of dysphagia which had been complete for one week. A gastrostomy had been performed a week previously. *Radiographic investigation* showed the appearances of a carcinomatous stricture extending from the level of the fourth to sixth dorsal vertebra. *Œsophagoscopy* showed a friable bleeding growth. *High-voltage X-ray therapy*, 26.9.33 to 21.10.33. By the end of the treatment, patient was swallowing fairly well, and the swallowing has continued to improve. The skiagrams now show a free passage of barium down the œsophagus, which dilates well. There is no evidence of growth in the œsophagus.

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(Cases I, II, V, VI, and VIII were exhibited.)

It will be seen that in the seven cases in which treatment could be completed, the œsophageal obstruction has been relieved, and the patients can eat ordinary food. Radiographic investigation after the treatment has shown that thick barium paste is swallowed with ease, and the lumen dilates normally. No evidence of growth in the œsophagus can be made in six, while in one, some irregularity can be made out at the site of the original structure.

All the cases are recent, and in only one of them has sufficient time elapsed since the treatment to permit of the performance of œsophagoscopy. In the one case, however, œsophagoscopy has shown that the ulceration has completely healed, that the mucous membrane of the œsophagus at the site of the original growth is apparently normal, and that the œsophageal wall is sufficiently distensible to allow the passage of the œsophagoscope.

This is what I have always believed should occur, if a carcinoma of the œsophagus could be cured by X-rays. I have always maintained that a so-called fibrous stricture following X-ray treatment of carcinoma of the œsophagus should be regarded with the gravest suspicion. We do not see thick contracted scars after X-ray treatment alone in more than a very small proportion of our successful cases of carcinoma of the mouth and throat, and there would appear to be no reason why they should occur in the œsophagus.

It is obviously far too soon to draw any conclusion from such a recent series of cases. It is only to be expected that three or four of these cases already have secondary deposits, and in fact in two of them there are clinical grounds for suspecting that such deposits exist. It is clear, however, that as a result of X-ray treatment in a large proportion of cases of carcinoma of the œsophagus the growth can be made to disappear, or at least, so to diminish in size as to restore normal, or almost normal, œsophageal function. Anybody who has had an opportunity for observing the plight of these patients in the last stages of their disease, when they cannot even swallow their saliva, will agree that even for the sake of the primary result the X-ray treatment is worth while, and we may be permitted to hope that in at least one or two of the cases the result may be permanent.

All the cases referred to in this communication have been treated by large doses of very hard X-rays accurately concentrated upon the œsophagus. It is remarkable how little the patients felt the effects of their treatment. Two of them came up daily as out-patients throughout the whole course, and were comparatively fit at the end of it. In one case in the series, a certain amount of vesication occurred over a small area at the back of the chest. This gave rise to comparatively little discomfort and healed up completely in five days.

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(This work was carried out in the Radiotherapeutic Department at St. Bartholomew's Hospital, from a grant provided by the British Empire Cancer Campaign.)

It cannot too strongly be emphasized that it is solely by the use of adequate doses of very hard rays, such as are only produced by the best modern high-voltage apparatus, that the best results can be obtained in malignant disease.

There is a school of radiotherapists in this country still urging the use of small, so-called stimulating, doses of soft rays in malignant disease, in spite of the fact that such methods have been abandoned for many years in all other important centres of radiotherapy in the world. It is claimed by the devotees of this school that heavy doses of hard rays are dangerous. That this is not necessarily so is demonstrated by the patients shown to-day. I would point out that although very large doses were applied to these patients, these doses were strictly localized to the œsophagus and its neighbourhood, and accordingly the total X-ray energy poured into the body may have been actually less than when the whole body is submitted to the so-called stimulating doses with a considerably lesser intensity. It is merely the application of the old method of small, short-distance cross-firing fields to the intensive split-dose technique which has been developed over a period of years at St. Bartholomew's Hospital.

THE PRESIDENT said that Professor Grey Turner had referred to a case which was operated upon by Sampson; that was his (the speaker's) own case, that of a woman who had complete stricture of the œsophagus from end to end, owing to having swallowed a caustic fluid. He (Mr. Woodman) helped Mr. Sampson with the first operation, and it was easy to make a tube on the chest wall and an opening into the stomach, but it was not so easy to connect the cervical œsophagus to the tube. The operator had a disaster when he was carrying out a trivial adjustment, and the patient died under the anæsthetic before the operation had been commenced. However easy these cases might be, relatively speaking, to the surgeon when the œophagus could be left in the œsophageal tunnel —and it was comparatively easy to leave the œsophagus inside— it was a different matter to remove the œsophagus with the growth attached.

Professor Grey Turner had said that the radiologist was the best person to help him determine whether the growth was fixed, but he (the speaker) thought that the œsophagoscopist could accurately describe the appearance of the growth, how it moved, and all about it.

He could confirm from his own experiments what Professor Grey Turner had said about the lymphatics of the œsophagus. After some trouble he had injected a specimen of œsophageal

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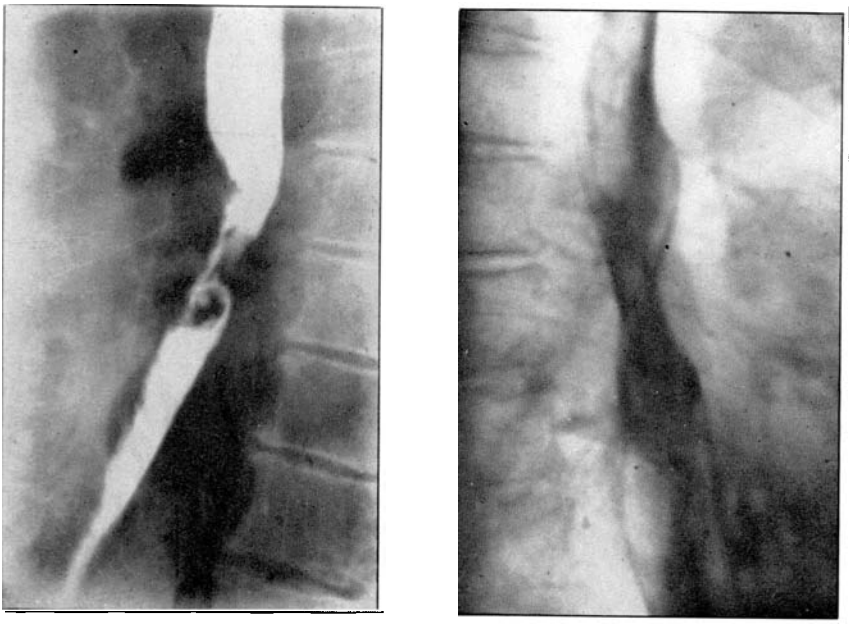


Fig. 5 (Case VI).

11.9.33.—Before treatment. 24.11.33.—After treatment.

Note.—Skiagram on left is a positive, that on right a negative.

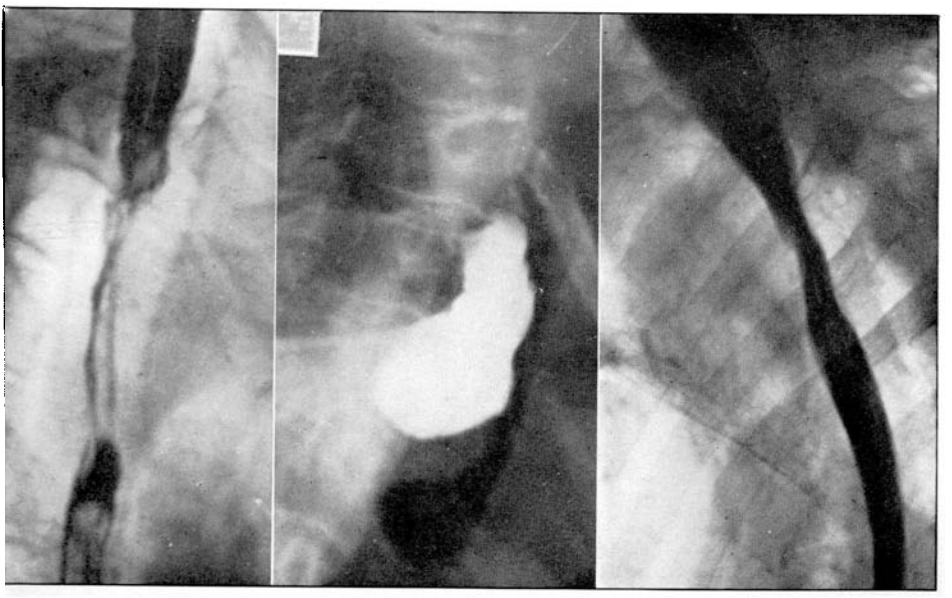


Fig. 6 (Case VII).

3.12.32.—Before treatment by old method. 14.9.33.—Before treatment by new method. 14.11.33.—After treatment by new method.

Note.—The skiagram in centre is a positive, the others are negatives.

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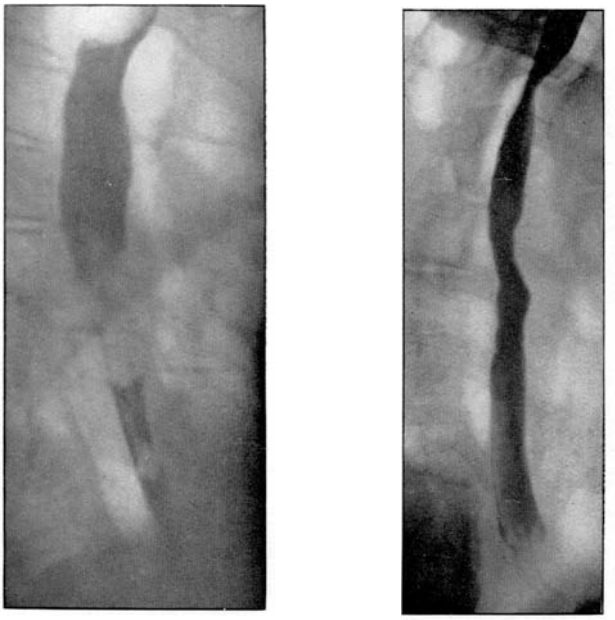


Fig. 7 (Case VIII).
10.8.33.—Before treatment. 20.11.33.—After treatment.

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mucosa, and had been surprised at the fine reticulum of the lymphatics, especially when contrasted with those in a similar specimen from the stomach. The lymphatics of the gullet were too fine to admit carcinoma cells until they had burst through. That, he thought, accounted for the delay in dissemination and there could be no doubt that the spread was slow. Once begun, however, the extension was rapid.

With regard to fixity Professor Grey Turner had said that this part was like a bursa, and he (Mr. Woodman) could confirm that from another point of view. He was experimenting on monkeys, and was trying to fix the œsophagus, which was always very mobile ; he was at that time practising diathermy for the treatment of cancer of the œsophagus, and he thought that if he could stimulate reaction by round-celled infiltration round the œsophagus he would be able to destroy the growth safely. But he could not produce any reaction round the œsophagus. He passed the œsophagoscope on the monkeys and injected through the wall many kinds of irritating substances—such as iron, silica and coal-dust—and even passed electric needles through the wall, but in no case could he obtain an inflammatory reaction around the operation site. The œsophagus remained free and loose. That explained why it was possible to remove the œsophagus through the œsophageal tunnel.

He would have liked to hear Mr. Cleminson talk of approach to the œsophagus through the lateral wall of the thorax by the transpleural route. Mr. Barling and he (the speaker) had operated on a case in which radium transplantation by transpleural thoracotomy was carried out, but the patient died, probably from defective radium technique ; hæmorrhage occurred on the tenth day.

Probably all members had had cases in which they had apparently removed the growth by the implantation of radon seeds but the patient did not live. He suggested that the reason for that was that the growth was not attacked from the outside also. Radon seeds should be applied from the outside as well as the inside. Then there would be a cross-fire of rays from the outer as well as the inner aspect.

Sir Thomas Dunhill said that he had approached these œsophageal growths transpleurally. Each operator should work in his own way, and those who were working by the same methods should group themselves together and help by co-operation, not by rivalry. He did not think that any special way could be said to be the only way. When he saw cases such as Dr. Levitt was able to show he was filled with hope. It was well known what radium could effect and if the results were not perfect, it was probably because the technique had not yet been perfected. It should be borne in mind that in the beginning, œsophageal growths were local ; they were confined first to mucous membrane and the

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submucosa before the growth got beyond the musculature. If these growths could be removed at this stage by the method of Professor Turner, it would give the patients their best chance of life.

The President had said that the approach to the œsophagus was not difficult. He (the speaker) had himself got down to it on a number of occasions, sometimes by transpleural means, sometimes behind the pleura, but he had never had a case in which he was able to free the growth completely from structures to which it had become attached. How to tell—before beginning the operation—whether that could be done he did not know. This could scarcely be determined by the radiologist ; the bronchoscopist and œsophagoscopist could each help. In one of his cases the growth was fixed to the vertebral column, in another it was fixed to bronchi. None of his patients had been disturbed by the operation itself, though it was a lengthy one and the chest had been widely opened.

He therefore hoped that Professor Grey Turner would go on his way. His own view was that the transpleural approach did not add greatly to the gravity of the operation, and would add much to its safety. It might enable the organ to be freed at the proximal, and nicely finished off at the lower extremity without adding materially to the danger.

G. GORDON-TAYLOR said he had little to add to what had already been said in the opening papers and by Sir Thomas Dunhill. In more than one case he had successfully extirpated a carcinoma of the cervical œsophagus on the lines of Mr. Wilfred Trotter's lateral pharyngotomy. He agreed with Professor Grey Turner's remarks about the anxiety concerning growths in the lower end of the œsophagus, in respect of the anastomosis between the lower end of the œsophagus and jejunum, duodenum, stomach, or whatever viscus was used, but he had had several successful cases. He had explored the thoracic œsophagus many times, in many ways, and at many sites, but invariably with disaster. The only occasion on which he nearly succeeded in a case of carcinoma of the thoracic œsophagus was when he employed the extrapleural method of Lilienthal.

N. S. FINZI said it was now more than twenty years since he had first shown a case of carcinoma of the œsophagus treated by radium at a meeting of this Society. The patients at that date were treated by radium every six weeks, and one in particular was a man who tolerated the passage of the œsophagoscope very well. There had been a growth behind the sternum, and it had disappeared so completely after treatment that when the case was shown some members could not believe that a growth had existed. The patient lived another two years, and *post mortem* it was found that there was a spread of carcinoma along the œsophagus below the region

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where the original growth had been, while the part which had been treated had remained free from growth. In one case of the kind the patient had lived six years after treatment, subsequently dying from gastric ulcer, which she had had before the first application of radium.

In a case of Dr. de Santi, of Eastbourne, treated by X-rays ten years ago, the patient had the longest and largest œsophageal growth that he (the speaker) had ever seen. That patient had died a year after his original or initial treatment, and until the last he was able to swallow. Death was due to metastasis in the liver.

Another, a patient of Mr. Mollison, treated ten years ago, had a growth in the postcricoid region and upper part of the œsophagus ; she was treated by X-rays on two occasions and was still alive and free from disease.

LAURENCE O'SHAUGHNESSY said that the problem in these cases which interested him was the restoration of continuity after resection of the œsophagus. It was possible that the extraordinary results reached by X-ray therapy and radium for carcinoma might in time exclude surgery, but surgery would always be necessary for innocent tumours of the œsophagus. During six months abroad he had seen two such cases, in which surgical treatment had been very successful. The method that he himself used experimentally was not very new. He made an actual end-to-end anastomosis of the œsophagus instead of an œsophago-gastrostomy. So far as he had seen, the method was practicable for growths in the lower part of the œsophagus. He had seen a case of chronic peptic ulcer successfully operated upon and end-to-end anastomosis carried out.

WALTER HOWARTH said that the possibility of carrying out local excision depended on the mobility of the œsophagus and the part in which the growth occurred, upper, middle or lower. The gullet was fixed behind important structures. At the upper end the only mobile portion of the œsophagus was below the cricoid, i.e. from there to the sternal notch. He had met with only two cases in that situation, the first of them in 1921. He had excised that section of gullet, and brought up the cut end from behind the sternum and united it to the deep pharynx. The patient lived for six years afterwards. He had a tight stenosis, therefore he could swallow only liquids and semi-solids.

The other case came to him nine years later, when he had seen more than a hundred cases of carcinoma of the œsophagus. He had hoped to show the man to-day, but he did not come. The growth was in the cervical œsophagus, but it extended so far down that he (the speaker) was unable to hook it into the wound, and so had to be content with putting radon seeds round it. That patient had remained cured of his growth for more than three years and, when examined a fortnight ago, there was found to be stenosis,

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but it was a more supple scar than in the previous case, and he was able to swallow well. The other part of the gullet, which was fairly mobile, was that below the aortic arch and above the diaphragm, but he had yet to meet with a satisfactory case in that region. He had approached these by transpleural thoracotomy, which was not at all a difficult or severe operation. After producing collapse of lung a few days previously, it afforded a satisfactory approach, but made one realize what a short length of the gullet could be mobilized. If, however, a growth occurred in that region and the case was seen early, there would be no great difficulty in carrying out excision or applying radon seeds. What appeared, through the œsophagoscope, to be a small malignant ulcer, might be an enormous growth which was fixed all round to the aorta and bifurcation of the trachea. It was useless to put down radon seeds or radium needles when the main mass of the growth was extra-œsophageal.

He had had dramatic instances of temporary cure by means of radon and radium, but he felt that intubation was as good a method, even without radon seeds round the tube, because carcinoma patients could be kept going for a long time with simple intubation. In one case which he treated with Souttar's tubes the patient had lived for eighteen months afterwards, and the tube was recovered, *post mortem*, having maintained the lumen of the gullet intact, while the whole mediastinum was a mass of cancer.

He was inclined to abandon the use of radium; he felt that simple intubation and the use of deep X-rays might give as good results.

G. EWART MARTIN said that attendance at this meeting enabled him to carry back to Edinburgh a ray of hope concerning the treatment of cancer of the œsophagus. For twelve years the subject had been worked at there, with only three cases which could be looked upon as cures—apart from cases of cancer of the hypopharynx which were more operable by the external approach. In Edinburgh a method used was suggested by Guisez, using tubes with the radium. They had tried, in Edinburgh, the direct implantation of radon seeds, also surrounding Souttar's tubes with radon and radium. But they had gone back to the Guisez method, as it seemed to be the simplest way to apply radium. He and his co-workers were not satisfied with radium in these cases, one reason being that, though the local growth seemed to be cured, extension of it occurred, and the patient went downhill. Placing radium into the œsophagus destroyed its mucous lining, and checked the peristaltic movements, and the patient could not swallow. Hence these people, in many cases, had to have a gastrostomy made, and they led a miserable existence. He had had the opportunity during the past week of examining one man who had been treated three years ago with radium. The local growth had been cured,

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but 3 cm. above that was a second growth. At Edinburgh it was felt that deep X-ray therapy offered the best treatment.

T. B. JOBSON wished to make a plea for a further trial of radon seeds around the growth, inserted through the œsophagoscope. During the last twelve years various methods had been tried, such as Souttar's tubes and diathermy, and the lives of patients had been prolonged, but rarely was more than six months further life vouchsafed to the patient. For the last two or three years his colleagues and he himself had been using radon seeds, and had had one or two encouraging results. It was true that one swallow did not make a Spring, but one application of radon seeds might make a patient swallow. In January, 1931, a man aged 62 came with a fungating mass in the œsophagus 11 inches from the incisor teeth; biopsy showed that it was a squamous-celled carcinoma. In the following month ten radon seeds (1·5 mc.) were inserted as far as possible round the growth, and a skiagram showed them to be in good position. That man was now perfectly well, and swallowed ordinary food, and had gained weight. That was a great advance on a six months' prolongation of life by other and more drastic methods.

F. J. CLEMINSON (in reply to the President) explained that he had not dealt with thoracotomy in his paper, as he had done so elsewhere already. After that operation he had not found that the average survival period was longer than if nothing but endoscopic treatment had been carried out.

CASES

Carcinoma of Upper End of Œsophagus, apparently cured by the application of Radon Seeds.—WALTER HOWARTH.

Male, aged 65, was seen three and a half years ago with œsophageal obstruction. This was found to be due to carcinoma at the upper end of the œsophagus just below the cricoid. It was thought that it might be possible to excise this portion of the gullet but, on exposing it from the outside, it was not possible to hook the lower end up into the wound, as it extended almost to the sternal notch. Ten radon seeds, one millicurie each, silver filter, were inserted into the growth. The patient has remained quite well since then, and the growth has become replaced by a fibrous stricture. This has been dilated upon two occasions.

Method of Implanting Radon Seeds in Œsophageal Carcinoma.—V. E. NEGUS.

The skiagrams (exhibited) show the seeds evenly distributed in the whole length of the growth. The method of insertion consists in measuring the length of the stricture with bougies, and placing the seeds, by means of a straight introducer, at different

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levels. In most cases three seeds (1·8 millicurie, 0·5 mm. gold screenage) are placed in each cm. of the growth. If the growth is 4 or 5 cm. long, about twelve seeds are inserted.

Carcinoma of Œsophagus in a Man aged 45 treated with Radon Seeds. Patient free from symptoms two years later.
—LIONEL COLLEDGE.

History.—Admitted to St. George's Hospital on *April 16th*, 1931, complaining of difficulty in swallowing for four months and inability to swallow solid food for two months. Slight pain in chest. Had lost more than two stone in the previous four months. Voice had been husky for a similar period; cough not marked.

Examination and treatment.—The Wassermann reaction was negative. Report on barium skiagram: "A definite obstruction of the œsophagus in its lower third. The œsophagus above the site of obstruction is dilated, and below the obstruction the lumen is narrowed and irregular. The appearances are those of an organic obstruction, probably malignant." The right cord was fixed. The patient was œsophagoscoped under local anæsthesia on *May 2nd*, 1931, when an ulcerating growth with a raised edge was found at about the level of the fourth dorsal vertebra. Five radon seeds were inserted into the growth. On *May 20th*, five more seeds were inserted and this procedure was again repeated on *June 10th*.

Progress.—The patient was much improved and by the end of *June*, 1931, was able to swallow solid food and had gained 10 lb. in weight. In *March*, 1932, patient was free from symptoms, and no evidence of neoplasm was seen on œsophagoscopy. In *March*, 1933, patient remains free from symptoms and has gained a further 8 lb. in weight. The right cord remains fixed.

Squamous Epithelioma of Posterior Pharyngeal Wall treated by combined Diathermy and Radon Seeds.
—E. H. RICHARDS.

Female, aged 51, seen eleven months ago with six months' complaint of discomfort in throat. Fixed and ulcerated cauliflower excrescence on posterior pharyngeal wall, in midline, ¾ in. wide, extending downwards 1½ in. from level of soft palate. No palpable glands. Wassermann reaction negative. No history of alcohol or tobacco. Diathermy removal and implantation of radon seeds around and deep to growth—10 seeds of 2 millicuries each screened with 0·5 mm. of gold. Report on growth: "Exceedingly active though well-differentiated squamous-celled carcinoma of mucous type—the growth is encephaloid." No recurrence or glandular enlargement. Small suspicious nodule in midst of scar treated with diathermy needle two months ago.

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Royal Society of Medicine

Lingual Tumour : further report of case previously shown.—T. B. JOBSON.

The patient, a girl aged 16, shown at the meeting of the Section in May, 1933 (*Proceedings*, 1933, xxvi., 1325, Sect. Laryng., 65) as a case of lingual goitre. She had a purple tumour at the base of the tongue just behind the foramen cæcum. The tumour was firm and was then about the size of a walnut. There were large veins radiating over it. As the girl had nearly died from spontaneous hæmorrhage from one of the superficial veins, I decided to remove a portion by diathermy. A V-shaped central wedge was removed on *October 7th*, 1933. Sections of this were reported by Dr. Nicholson to be malignant and probably epithelial.

On *November 2nd*, 1933, under evipan anæsthesia, twenty radon seeds were inserted round the tumour, which was then about twice the size it was in *May*. The tumour is now much smaller and the patient's voice is more distinct.

Pathologist's report on further sections from growth at base of tongue:

The tissue consists of a small wedge-shaped piece of material, with a thin border of epithelium from the tongue. The section marked X does show one or two small areas resembling thyroid tissue, but they are small and primitive. You will see small roundish areas staining a faint pink, very like colloid, and this is surrounded by a layer of flat epithelial cells. The whole thing, if it is thyroid, is very primitive, and the other sections on the second slide fail to show any of this thyroid element.

It is much more cellular, more vascular, with the cells showing pleomorphism with, of course, a large amount of muscle tissue from the tongue. I had difficulty in coming to a conclusion as to the nature of the growth, and the fact that it had become larger recently (although there was a two years' history in all) made one suspect that it was in the nature of a myosarcoma. Professor Nicholson of Guy's Hospital kindly looked at it for me and he says that " the specimen shows fragment of new growth probably epithelial in origin and histologically malignant. There is nothing to say where it comes from, but I suspect that the enlargement is much more dangerous than an hyperplasia of puberty."—[R. C. MATSON.]

Melanotic Sarcoma of the Nose.—T. B. JOBSON.

Miss S., aged 73, had an operation for glaucoma some years ago. Recently she had nasal obstruction and was referred to me on *November 9th*, 1933, by her doctor for removal of polypi. There was no nasal discharge, and transillumination was uniform and clear. The right nostril was blocked with " polypi ". This mass was firmer than usual and of a dark blue colour. I removed a portion which bled rather freely.

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Abstracts

Pathologist's report (Dr. R. C. Matson):—"The sections from the tumour (see Fig. 8) show a high degree of cellularity. The great majority of the cells are round cells, sarcomatous in nature, and these constitute the bulk of the tumour. A striking point is the number of more or less round cells filled with melanin, and this pigment is not only confined to the cells, but has overflowed into the surrounding connective-tissue stroma.

It is a melanotic sarcoma, and for lack of evidence to the contrary, the pigment must be assumed to arise in the tumour itself."

Tracheotomy eleven years ago for Healed Laryngeal Tuberculosis, with Ankylosis of Cords: further report on case previously shown.—ELEANOR LOWRY.

Female, aged 57. Shown at a meeting of this Section in *March*, 1922, with the question of diagnosis. She had severe attacks of dyspnœa with inability to abduct the cords. The cords were thickened posteriorly. Tracheotomy was performed in *April*, 1922. A piece of thickened tissue was removed from the right cord, and found not to be malignant.

She was found to have old pulmonary tuberculosis, apparently healed, and no tubercle bacilli could be found in the sputum. There has been no dyspnœa since and the condition of the cords appears as in 1922.

ABSTRACTS

EAR

Nystagmus alternans. G. CANTELE and K. GRAHE. (*Arch. Ohr-, u.s.w., Heilk.*, 1933, cxxxvii., 174-86.)

A nystagmus which alters its direction periodically is an extremely rare condition (see references). The authors describe three such cases giving the vestibular tests in full. In one case the alternating nystagmus was observed only with certain tests, viz. with the cold caloric test on both sides and the warm caloric test on the left side. The other two patients had spontaneous alternating nystagmus which had existed some five years in one of them; in the other case the duration was uncertain.

The pointing tests were specially investigated in these subjects. It was found that the deviation of the finger-pointing was only partially influenced by the periodic alteration in the direction of the nystagmus.

J. A. KEEN.

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