untouched the otic or geniculate neuralgia, to which she had become quite accustomed.

I have notes of three other cases of pain due to inoperable carcinoma of the tongue similarly treated by alcohol injection of the third trigeminal division, but their details are of no special interest.

Conclusion

I bring these cases forward to illustrate the great relief that it is possible to afford patients racked with the constant severe pain of inoperable growths in the tongue or jaws, by a treatment involving little or no shock, and one which can usually be done under local anaesthesia only.

RELATION OF HODGKIN'S DISEASE AND THE LEUKAEMIAS TO GASTRIC DISORDERS

BY

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Dr. Cramer's paper in the *Journal* of April 16, 1938 (p. 829), will, I hope and believe, prove a landmark in the history of our ideas with regard to the aetiology and treatment of at least certain forms of cancer. My observations, for whatever they are worth, entirely confirm all that he says with regard to gastric (and indeed intestinal) cancer. I have some reason also for thinking that Hodgkin's disease and the leukaemias may be diseases sequential to or coincidental with gastric derangement following on what Dr. Cramer aptly terms "insult to the gastric mucous membrane." I give a brief summary of five case histories.

Case I

In August, 1936, a casual labourer aged 32 was admitted to hospital complaining of severe vomiting coming on after every meal, with abdominal pain, rapid loss of weight, thirst, and diarrhoea. He had very much enlarged cervical glands and enlargement of glands in the left axilla, with a clean smooth tongue. His medical history told of removal of the appendix somewhat over a year previously. He proved to be a typical case of Hodgkin's disease. Examination of his blood showed: haemoglobin, 95 per cent.; red cells, 5,475,000 per c.mm.; white cells, 7,800 per c.mm.; neutrophil polymorphs, 57 per cent.; eosinophil polymorphs, 1 per cent.; lymphocytes, 42 per cent. His usual diet was stated to be: Breakfast—white bread and butter, very strong tea, sometimes an egg or bacon; dinner—stewed beef and potatoes, white bread and butter, very strong tea; evening meal—white bread and butter, very strong tea; supper—a repetition of the evening meal. Curiosity was evoked by this dietetic history, and a test meal was given. It showed the absence of free hydrochloric acid in all specimens. As a consequence of this finding it was thought worth while to try the effect of injections of campolon, in addition to the hospital dietary and deep x-ray treatment of the enlarged glands. How far the campolon helped him is only conjectural, but he improved much in his general condition, with loss of pain and vomiting, increase of weight, etc., so that eventually he left the hospital on the understanding that he would come weekly for inspection to the out-patient dispensary. His subsequent history, however, was that of sudden serious relapse necessitating immediate removal to another hospital, where, I fear, death ensued quickly.

Case II

A carpenter aged 37 was admitted to hospital in August, 1937, complaining of loss of weight and strength, with quick fatigability and frontal headaches following on an attack of influenza six months previously. There were also intermittent pains in the back and legs, with profuse perspiration at times, a tendency to constipation, and great distension after meals. He had a jaundiced colour, which he stated had been constant for five years previous to admission. The glands in the left cervical and right and left inguinal regions were greatly enlarged: the patient had first noticed them two months previously.

There was a previous medical history of measles, whooping-cough, and tonsillectomy. He had been "pernickety" regarding food all his life, with little appetite for dinner but a good appetite for breakfast and the evening meal. He was very fond of strong tea, had indulged heavily in whisky, and had some addiction to stout and the moderate use of tobacco. The urine for some time after admission was ammoniacal and was positive to Ehrlich's urobilinogen test. Blood examination showed: haemoglobin, 74 per cent.; red cells, 2,900,000 per c.mm.; white cells, 3,400 per c.mm.; polymorphs, 52 per cent.; lymphocytes, 48 per cent. Anisocytosis was somewhat marked. This would indicate pernicious anaemia, while the glandular condition was one of Hodgkin's disease. A test meal showed free hydrochloric acid and total acid within fairly normal limits. The patient was put on campolon and colliron, with deep x-ray therapy over the enlarged glands. He responded poorly to treatment. One month after admission examination of his blood showed: haemoglobin, 59 per cent.; red cells, 2,350,000 per c.mm.; white cells, 5,100 per c.mm.; polymorphs, 63 per cent.; lymphocytes, 37 per cent.; and megalocytosis. Later he sank rapidly and died.

Case III

In February, 1938, a signalman aged 59 was admitted to hospital complaining of a very large "lump" in the abdomen which was incapacitating him from work. On examination the "lump" was seen to be an enormously enlarged spleen extending well to the right of the umbilicus and down to the inguinal ligament. The liver was also enlarged about two fingerbreadths below the costal margin in the mammary line.

A blood examination on February 4 showed: haemoglobin, 69 per cent.; red cells, 3,320,000 per c.mm.; white cells, 214,000 per c.mm.; polymorphs, 3 per cent.; premyelocytes, 97 per cent.; slight anisocytosis and poikilocytosis. The diagnosis of myelogenous leukaemia was made. On inquiry a history of daily vomiting before breakfast for eight to nine years previously was elicited. His diet had been: breakfast—4 to 5 oz. of white soda bread, a plain boiled egg, two cups of strong tea with two drachms of sugar to each cup; 10 to 11 a.m.—4 to 5 oz. of white soda bread, one cup of strong tea with two drachms of sugar; dinner, 2 p.m.—potatoes boiled in jackets, fried steak up to 8 oz., cabbage or turnips cooked with soda, one cup of strong tea with two drachms of sugar; evening meal, 4 to 5 p.m.—same as for breakfast, omitting the egg. Occasionally oatmeal porridge with milk was taken for breakfast. No alcohol was drunk, but 1½ oz. of tobacco was smoked weekly. The history of vomiting, and the very avitaminous diet, with the strong tea superadded so constantly, led to a test meal being given. It showed no free hydrochloric acid in any specimen. The patient received hospital diet with deep x-ray treatment over the enlarged spleen. His white cell count decreased rapidly, and on March 30 a blood examination showed: haemoglobin, 85 per cent.; red cells, 4,700,000 per c.mm.; white cells, 4,500; neutrophil polymorphs, 22 per cent.; eosinophil polymorphs, 2 per cent.; premyelocytes, 76 per cent.; red cells, regular.

On April 7 a further test meal was given. Again there was no free hydrochloric acid in any specimen. Parallel to the decrease in the white blood cell count was the rapid

decrease in the size of the spleen. Eventually it was considered that the patient was fit to resume work, and he was discharged from hospital.

Case IV

In February, 1938, a herdsman aged 65 was admitted to hospital complaining of weakness, tiredness, and inability to work—the condition dating from several years previously. He was seen to have large discrete glands in the neck and axillae, with a slighter enlargement of the inguinal glands. Blood examination on February 9 showed: haemoglobin, 79 per cent.; red cells, 4,500,000 per c.mm.; white cells, 19,400 per c.mm.; polymorphs, 5 per cent.; lymphocytes, 95 per cent. A diagnosis of lymphatic leukaemia was made. The patient's diet had been: 6 a.m.—a cup of fairly strong tea with two drachms of sugar and a slice of white bread and butter; 9 to 10 a.m.—a rasher of bacon and two fried eggs, or two boiled eggs, plenty of white bread and butter, two cups of strong tea with four drachms of sugar; 2 to 3 p.m.—boiled bacon and cabbage or turnips or parsnips, potatoes boiled in jackets, rarely beef or mutton or fowl; 5 p.m.—white bread and butter, two cups of strong tea with four drachms of sugar; 8 to 9 p.m.—flaked oats porridge with 1 pint of milk, or porridge made with buttermilk. When at fairs—that is, about once a fortnight—he took a great deal of draught porter or whisky. He used 5 to 6 oz. of tobacco a week. A test meal was given; this showed no free hydrochloric acid in any specimen.

The patient was given deep x-ray treatment, and his white cell count on March 31 was 5,800 per c.mm., with 82 per cent. lymphocytes. The enlarged glands decreased a great deal in size as the result of the treatment, but he grew gradually weaker, and died on April 11.

Case V

A man 66 years of age, caretaker of a forest wood, was admitted to hospital towards the end of February, 1938, with a greatly enlarged spleen and a history of periodical attacks of vomiting with pain in the left side. He had had paralysis of the right side about two and a half years previously from which he had never wholly recovered.

Examination of the blood on February 23 showed: haemoglobin, 61 per cent.; red cells, 2,194,000 per c.mm.; white cells, 159,000 per c.mm.; neutrophil polymorphs, 31 per cent.; neutrophil myelocytes, 50 per cent.; eosinophil myelocytes, 1 per cent.; transitional myelocytes, 12 per cent.; lymphocytes, ? 6 per cent.; nucleated red cells, 4 per cent.; anisocytosis and poikilocytosis. The diagnosis of myelogenous leukaemia was made and the patient was given deep x-ray therapy.

Inquiry into his diet seemed to show that there was nothing very unhygienic in his present mode of living, but he said he had always been able to eat well until lately, and that at one time he ate up to a pound of beefsteak at dinner. He had also in the past been taking stout very freely, and had smoked heavy "twist" tobacco up to 5 or 6 oz. a week. He was given a test meal on February 25, when no free hydrochloric acid was found in any specimen. Under x-ray treatment his white cell count fell to 32,750 per c.mm. on March 30, with 76 per cent. neutrophil polymorphs. His spleen also decreased in size under the treatment, but his general condition remained poor, and it was not considered advisable to give him further x-ray treatment for the present. He was advised to go home and come up later for inspection with a view to a repetition of the treatment if he was able to undergo it.

Comment

Here were five successive cases of glandular or splenic enlargement, all with dietetic histories which seemed to the clinical pathologist to warrant examination of test meals. In some cases there seemed to be positive abuse of the stomach by strong tea (and tea is often used in Ireland with very high tannic acid content), or alcohol,

or tobacco, or excessive amounts of food, etc. In general, too, the diets of these patients tended to be very avitaminous. Anyway, in four out of the five cases the test meal showed complete achlorhydria, while in the fifth case, although free hydrochloric acid and total acid were present in normal amount, the patient's blood seemed to disclose a state of pernicious anaemia. The two cases of myelogenous leukaemia tended also to have a colour index greater than unity. The number of cases, no doubt, is too small for any generalizations to be made, but they seem well worth presenting in the hope that other clinical pathologists may be induced to examine patients suffering from Hodgkin's disease or leukaemia, with a view to eliciting the state of the gastric mucous membrane and the previous dietetic history. If any considerable proportion of such patients show gastric anomalies comparable to those now being recorded there will be fair justification for thinking that the aetiology of these diseases runs somewhat on the same lines as Dr. Cramer believes to be true in the case of cancer of the stomach (and intestine?). Quite possibly, as in the case of cancer, we may have to consider how far a virus factor may also be involved. Dr. M. H. Gordon and his co-workers have adduced good evidence that a virus is at work in the case of Hodgkin's disease. Yet, as in the case of cancer—assuming the truth of Dr. Cramer's conception—it may be possible to *prevent* Hodgkin's disease in the future by a more strict attention to what dietetic hygiene is teaching us, or will teach us when its laws are more perfectly known. And the same may be true of leukaemias. Indeed, with regard to the latter, one cannot but think that they may be in some way analogous to pernicious anaemia. Just as in pernicious anaemia a degradation of the mucous membrane of the stomach (whatever may be its cause) makes the manufacture of haemopoietin impossible, with consequent inability of the bone marrow to produce mature red blood cells, so in the leukaemias some other anomaly of the gastric mucous membrane may be responsible for the flooding of the blood stream by the bone marrow with myelocytes or lymphocytes. We hope we shall yet learn to *cure* the leukaemias (and Hodgkin's disease) as we have learned to cure pernicious anaemia. If the work of van Rooyen regarding the effect of x rays on the virus of Hodgkin's disease *in vitro* is to be taken as correct, I fear we must turn our attention to the discovery of some other mode of treatment of that disease than by use of x-ray therapy. But meanwhile, or concurrently, we may perhaps learn to prevent it (and the leukaemias), just as Dr. Cramer thinks we ought to be able to prevent gastric cancer.

I am indebted to Dr. A. Parsons, F.R.C.P.I., physician to the Royal City of Dublin Hospital, under whose care the patients were admitted, for permission to write up these case histories in so far as they bear on the subject of this paper.

The University College Hospital report on radiotherapy for 1937, by Drs. Kenneth C. Eden and C. H. Offord, is upon the same lines as its predecessors. During the year under review the radiotherapeutic department has been entirely separated from that of radiodiagnosis. In general, the technique adopted remains the same as in previous years, except that the 1-gramme mass unit of radium has been replaced by a 2-gramme unit, and a new apparatus for superficial therapy has been installed to replace that which has been in use since 1920. During the period considered 567 patients were treated; of these 431 were new patients, including 290 cases of malignant disease. The total number of treatments given has risen from about 500 in 1930 to nearly 9,000 in 1937.