DISSEMINATION IN CARCINOMA OF THE RECTUM.

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THE following case is important in many ways. It proves conclusively that the extramural spread of carcinoma of the rectum may be very far advanced, even into the abdomen, whilst the primary focus in the wall is small and difficult of recognition. It demonstrates the value of the laparotomy which necessarily precedes abdomino-perineal resection of the rectum in determining the presence or absence of secondary intraperitoneal deposits, which may contraindicate an extensive and useless removal. Limited removal as obtained by perineal excision, or even Kraske's operation, in this case would have left most of the disease uneradicated, despite the low position of the malignant ulcer on the rectal wall. Occurring in a young man, it shows that the age incidence of carcinoma is variable, and that its virulence is probably greater in the young than in the old.

The case is recorded in the endeavour to contribute in some slight measure towards the settlement of the controversy between the importance of the intramural as opposed to the extramural spread of carcinoma of the rectum, which has been the subject of articles from Mr. Sampson Handley, Mr. Lenthal Cheate, and others.

G. G., a miner, aged 26, was admitted to the Royal Victoria Infirmary on February 24th, 1913, with a history of five months' pain in the lower abdomen, occasional vomiting, and, later, the appearance of piles, with passage of slime per anum. Examination by the rectum showed the presence of a small indurated ulcer, the size of a threepenny piece, situated on the posterior rectal wall about a quarter of an inch above the anal margin. This was only discovered after several rectal examinations, and then by the base of the finger, not the tip. The ulcer was excised, and microscopical examination showed a spheroidal-celled type of carcinoma with a tendency to colloidal degeneration.

Abdomino-perineal resection was performed by Mr. Angus on February 28th, 1913. Median laparotomy was first done below the umbilicus. On the parietal peritoneum just above the left pelvic brim was a tiny white nodule, which was excised. Careful search revealed no others, and many present expressed doubts as to its malignancy. The pelvic colon was divided near its middle and abdomino-perineal removal completed in the usual way after the proximal end of the pelvic colon had been fixed through a separate incision in the left iliac fossa as an inguinal colostomy.

The specimen consisted of half the pelvic colon, the rectum, and anal canal. It showed where the small ulcer had been excised. In the cellular tissue around the posterior rectal wall was a chain of hard, infiltrated glands, varying from the size of an almond below to a pea at the top of the specimen. Macroscopically the glands, on section, showed a hard exterior with a cavity in the centre, containing soft mucoid material.

A gland and the deposit on the parietal peritoneum were sent for microscopical examination. The following is the report of the pathologist (Professor Stuart McDonald):

"The gland is extensively infiltrated with a spheroidal-celled type of cancer, which is undergoing colloidal degeneration. The peritoneal deposit is also diffusely infiltrated with carcinoma. There is, however, a tendency to tubule formation and a columnar-celled type of growth."

The patient made a good recovery, was discharged from hospital on April 9th, 1913, and in February, 1914, was well and free from recurrence.

I am indebted to Mr. Angus for permission to publish this case.

SOME OBSERVATIONS ON THE EFFECTS OF ADRENALIN.

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THIS article is illustrated by only a small number of observations, but my reason for publishing it is the hope that it may stimulate others to investigate the subject more thoroughly before giving a drug which, in my own opinion, is in the majority of cases really harmful. The use of adrenalin in cases of shock and collapse is advocated in almost every book that mentions the treatment of this condition. There is no doubt that this drug will bring back the pulse in a case where no pulse could previously be felt, but at great expense to the heart.

The present article is based on observations of eight normal people, who were either students or members of the junior staff, and of six patients, one of whom was suffering from collapse following *ante-partum* and *post-partum* haemorrhage.

OBSERVATIONS ON NORMAL PERSONS.

All these observations, except one, were made in the early morning, whilst the subject was still in bed. The one exception was myself, the observations being made when I was warded with a septic hand and in bed for that reason.

In every case a hypodermic injection of normal saline (5 minims) was given as a control, so that the psychological element was entirely eliminated. The results may be summarized as follows:

In seven cases there were subjective and objective symptoms, the subjective symptoms being so marked that not one case was willing to undergo any more observations. In the eighth case, however, there was no effect. Most of the subjects complained of breathlessness and feeling cold.

The objective symptoms were as follows: In severe cases there was obvious increase in frequency of respiration. In most cases the subject became somewhat blanched. The systolic pressure was raised; the greatest rise was 45 mm. of mercury, the least 15 mm. In six cases the pulse-rate was raised more than 15 beats a minute; in the most marked case it was raised 52 beats a minute. In the seventh case no change in pulse-rate could be detected.

TABLE I.—Normal Persons.

Case.	Change in Pulse-rate.	Change in Systolic Pressure.	Dose of 1/1000.	Subjective Symptoms.
1 ...	60-112	140-185	III v	Very severe.
2 ...	50-75	125-145	III v	Very severe.
3 ...	66-84	112-145	III v	Severe.
4 ...	A 60-70	100-125	III iv	Moderate.
	B 70-79	125-135	III v	Moderate.
5 ...	55-80	95-140	III v	Very severe.
6 ...	70-95	115-130	III iv	Very severe.
7 ...	A 70-79	145-160	III iij	Very severe.
	B 79-70	160-175	III v	Slight.

Space forbids the publishing charts of all these cases; the most marked case alone is shown (Chart 1).

Chart 1: The first case of the first series. At 4.40 p.m. (marked A) mv of physiological saline was injected. At 5 p.m. III v of 1/1000 adrenalin was injected subcutaneously just below the clavicle. Within 30 seconds subjective signs were felt. BP = Blood pressure; P = pulse.

OBSERVATIONS ON PATIENTS.

Of the six cases on which observations were made, five had marked symptoms after the injections, but in the sixth case there was no result.

TABLE II.—Patients.

No. of Case.	Change in Pulse.	Change in Pressure.	Dose of 1/1000.	Subjective Symptoms.
1	80-130	135-145	III x	Severe.
2	100-120	130-150	III viii	Very severe.
3	10-120	120-145	III v	Slight.
	100-125	130-145	III v	Slight.
4	75-110	135-170	III v	Nil.
5	120-105	100-300++	III xx	Patient collapsed before and after.
6	120-120	130-130	III v	—

It is unnecessary to quote all these cases in detail, and a few remarks in addition to the charts of Cases 1 (Chart 2) and 5 (Chart 3) will be sufficient.

Chart 2: Case 1 of the second series. At 6.40 an injection of adrenalin 1/1000 III x was given. n represents an interval of one hour during which no observations were made. BP = Blood pressure in mm. Hg; P = pulse.

The first case was a woman of 50 who had had an operation about two hours previously; her pulse before the operation was about 60; after the operation it was 80, but quite regular. Twenty-five minutes after the injection the pulse was 130 and irregular. The systolic pressure at first rose slightly, then fell slightly. Three hours later the pulse returned to 100, and the patient made an uninterrupted recovery. The subjective symptom was that of cold.

In the second case the patient had a rigor, and blankets and hot bottles were applied; symptoms rapidly passed off, and the patient made an uninterrupted recovery.

The fifth case was much collapsed from haemorrhage, and the 20 mm. of adrenalin was given in a pint of saline, and for this reason all the effects cannot be said to be due to the adrenalin, but to those people who have seen many salines given it will not be difficult to see that most of the effect was due to the drug. The radial pulse, which was very weak before the injection, improved for a short time, but soon disappeared. The patient was infused a second time with saline only, but died later in the day.

The sixth case showed no changes in the pulse, which was already rapid.

The cases of most value for showing the result of treatment by the drug are those in which shock was only very slight, and in those cases the benefit was such that I do not intend to use adrenalin again for the treatment of shock and collapse. It is for the pharmacologist to explain the action of this drug, but as one of the people on whom observations were made, I would suggest that its vaso-constrictor action is by no means its chief action, but that there is in addition a cardio-accelerator and cardio-augmentator action.

It is well known that adrenalin is very often used in the relief of asthma with instantaneous results, but two patients have told me that "it made their heart beat so hard that they thought they were about to die."

Chart 3: Case 5 of the second series. At 11.25, 1 pint of saline + 1/1000 adrenalin III x was given intravenously. At 11.55 half a pint of saline was given intravenously without any adrenalin. In all three charts the observation on systolic pressures are marked by circles with dots in them, and the pulse by simple dots.

ALCOHOL, HOUSING CONDITIONS, AND CONSUMPTION.

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THE campaign against tuberculosis, which has been greatly strengthened by the sanatorium provisions of the National Insurance Act, is not likely to be entirely successful unless certain inquiries are made which will enable us to deal effectively with the predisposing causes of consumption.

Sanatorium, hospital, dispensary, and domiciliary treatment, while doing a great deal to alleviate the sufferings of the majority of the consumptive patients, and in a fair percentage of the early cases producing a cure, are not capable of rooting out this terrible disease entirely. Those of us who have been engaged in this work for some time feel the necessity for knowing the actual predisposing causes, and how far each is responsible, in order that they may be removed.

I have investigated two predisposing causes of this disease—alcoholism and housing. I have chosen alcoholism as an indication of the habits of the people which can only be removed by education, and have endeavoured to determine how far it can affect either the onset or the progression of tuberculosis, and housing conditions as one that can be remedied by the State.

The investigation is by no means complete, and can be extended in other areas, when the whole of the results ascertained by different observers can be compared and useful statistics drawn up.

I. ALCOHOLISM.

I have personally investigated 301 cases of tuberculosis in Bradford, including men, women, and children.

Of 117 men—	Of 100 women—
33.33 per cent. were drinkers	8 per cent. were drinkers
40.17 per cent. were moderate drinkers	36 per cent. were moderate drinkers
26.5 per cent. were teetotalers	56 per cent. were teetotalers

Of 84 children, 100 per cent. were teetotalers

Of these 84 children—

In 7.14 per cent. both parents were drinkers
In 22.61 per cent. one of the parents was a drinker
In 29.75 per cent. one or both parents were drinkers

Dr. Crowley, in 1900, after a careful inquiry into the alcoholic habits of 62 adult male patients admitted into a Poor Law sanatorium for consumptives, including a considerable number above the "pauper" class, found that 43.6 per cent. were heavy drinkers, 40.3 per cent. moderate drinkers, and 16.1 per cent. teetotalers. Friedrich, investigating 451 cases of phthisis, found that 133 were alcoholic—that is, 29.5 per cent. Dr. Villy, investigating 25 adult male cases of phthisis in his private practice, found that 40 per cent. were drinkers.

Adding together these four sets of figures from independent investigators, it appears that of 655 adult male cases of consumption 209 were admittedly drinkers—a percentage of 31.9 per cent.

It is necessary to compare these figures with the drinking habits of the population in order to show whether there is a larger number of heavy drinkers amongst consumptives than the normal population. This is an extremely difficult matter, and can only be estimated statistically, or by inquiries from a small proportion of the population (a sample population).

(a) A statistical estimation of drinkers in the United Kingdom, calculated by George Wilson, B.A., Secretary, United Kingdom Alliance, on figures given by Dr. Branthwaite, the Home Office Inspector under the Inebriates Acts in England and Wales, and made referable to Bradford, shows that 1.71 per cent. males and 1.48 per cent. females "drink more freely than is consistent with strict moderation, or are occasionally drunken."

(b) An estimate from a sample population was made in respect of 133 males (over 18), including 23 male relief