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.