muscularly; but the evidence on duration of the diuresis and incidence of local toxic reactions is conflicting.

The final trial of a drug must be carried out in all the circumstances in which it is to be used. The response of patients in severe congestive heart failure to mercurial diuretics is not infrequently life-saving, and before any new product is allowed to displace the known effective substances (such as mersalyl) in the treatment of these patients it must be proved to be at least as good in severe cases. As Modell (1944) says: "The best basis of determining the relative effectiveness of different schedules of treatment with the mercurial diuretics is the effect on the patient with a large accumulation of oedema and in congestive heart failure." Such patients are in severe failure, and since this is a dangerous state it is essential that trial and vigorous treatment go on together. It is in these patients that the method of assay suggested here seems the most suitable.

In ambulant cases able to attend hospital as out-patients the best method of assay of a diuretic is probably that described by Clarke *et al.* (1950); and DeGraff *et al.* (1936) suggest a method suitable for testing a diuretic on in-patients.

The determination of potency of diuretics by comparing single responses is not entirely satisfactory. Gold *et al.* (1952) draw attention to the variability of the diuretic response of individuals to the same dose of diuretic; and cite one patient who lost 2.5, 4, 7.3, and 2.5 lb. (1.1, 1.8, 3.3, and 1.1 kg.) following consecutive weekly injections of 1 ml. of meralluride ("mercuhydrin"). By obtaining four responses to each diuretic under comparable conditions, a much truer estimate of their value to the patient, and of the duration of the diuresis, is obtained.

It is interesting to note that the diuresis following mercaptomerin was in fact better than following mersalyl in four of the cases. But with such a variable entity as diuretic response in congestive heart failure it would require many cases, and great differences in diuretic response, to prove the greater potency of one drug over the other. It seems reasonable to conclude that in these six cases the subcutaneous injection of mercaptomerin was at least as effective as that of mersalyl given intramuscularly.

Local reactions were seen following 14% of all injections of mercaptomerin, but in almost every case these were of a minor character. Ecchymoses cleared up rapidly. Nodules were always small (approximately 5 mm. in diameter) and usually completely painless. In only one patient was pain so marked that the discontinuance of treatment with mercaptomerin was considered. However, the last nine injections received by this patient have been painless.

With the serious nature of congestive heart failure in mind, one may conclude that local reactions due to mercaptomerin have been of very minor significance in this series.

The incidence of local reactions was fully reviewed by Gold *et al.* (1952). They report the common occurrence of two varieties of local toxicity, in addition to those already mentioned: (a) reactions suggestive of acquired allergy (these appeared for the first time only after a considerable period of treatment, and increased in frequency or severity as the doses were continued); and (b) pain at the site of injection, beginning more than 18 hours after administration. It is notable that no example of either reaction was seen during the present series of injections (given in 1953), and this would seem to support the claim that the preparation now in use is an improvement on that available in 1949. This is due to the more complete removal of irritant by-products present at various stages during synthesis of the compound (H. G. Happold, 1953, personal communication).

Summary

A method is suggested for the estimation of the relative potency of diuretics in cases of severe congestive heart failure.

In six patients with severe congestive failure mercaptomerin by subcutaneous injection produced a diuresis at

least equal to that produced by intramuscularly injected mersalyl, each given in 2-ml. doses. That mercaptomerin would produce a more prolonged diuresis than mersalyl in a proportion of cases is suggested by Cases 3 and 6.

Local reactions at the site of injection of mercaptomerin have been of very minor significance.

The patients in this trial were under the care of Dr. J. A. W. McCluskie, and his encouragement and advice throughout are gratefully acknowledged. To Sir John McNee and Dr. S. Lazarus I am indebted for much helpful criticism. But for the accuracy and care of Miss McCombie, dietitian to the Western Infirmary, and the ready co-operation of the nursing staff under Sisters Brown and Calder, this trial could not have been undertaken.

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PRIMARY SARCOMA OF THE STOMACH

BY

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Sarcoma of the stomach is rare. Snoddy (1952) concluded that the world's literature contained only 474 reported examples, including 34 of his own. The present case is added to emphasize two points—the difficulty in diagnosis and the good prognosis—and to describe the gastroscopic appearances.

Case Report

A bookbinder, aged 47 when first seen in August, 1944, had been troubled by gnawing epigastric pain for one and a half years, and later by nausea and vomiting. Gaseous eructations "like bad eggs" had been a marked feature. Physical examination was negative. He was edentulous. He smoked four or five cigarettes a day and was teetotal. His Wassermann reaction was negative. A barium meal showed pylorospasm, and a deformed duodenal cap was seen on screening, but not on the films. A test meal revealed achlorhydria, and the vomit never contained free hydrochloric acid. The x-ray diagnosis of duodenal ulcer was therefore doubtful. A subsequent test meal after histamine showed acid to be present.

On gastroscopy in August, 1944, a very red and oedematous mucosa with petechial haemorrhages was seen. There was a long shallow ulcer with bright red edges at the angulus. A diagnosis of severe gastritis with superficial ulceration was made. Two months later the ulcer was smaller, but the mucosa looked the same, and there was much mucus between the folds. Vomiting had now become very frequent and he compared his stomach to a "swill tub." Visible peristalsis was seen and a diagnosis of pyloric carcinoma was considered. He was averse to operation and preferred to keep himself comfortable by washing out his stomach twice a day. Repeated swallowing of the tube made him submit readily to further gastroscopy. In December, 1944, this showed what was interpreted as an undoubted gastritis with small erosions. In February, 1945,

the appearances were much the same. There was still much pus-like mucus between the folds (see Fig.).

In April, 1945, he was investigated at the Central Middlesex Hospital. A barium-meal examination by Dr. Golding showed an enlarged stomach with much resting juice and a narrow pyloric canal. Gastroscope showed much the same appearances as before. For the rest of 1945 and the early part of 1946 he remained fairly comfortable on a light diet. He washed out his stomach periodically. His weight was generally around 9 st. (57 kg.). Occult blood was found on many occasions. By October, 1946, he had deteriorated markedly. He was thin and apathetic. Visible peristalsis was noted and a mass was palpated in the pyloric region. Gastric lavage and intravenous infusions improved his condition. Gastroscope on November 5, 1946,

Gastroscopic appearances in primary sarcoma of the stomach.

by Dr. Avery Jones showed the mucosa to be everywhere thickened and hyperaemic. On the lesser curve were patches almost like granulation tissue. The diagnosis was either a severe chronic gastritis or a low-grade infiltrating new growth.

Laparotomy was at last agreed to and was performed on November 22, 1946, by Mr. Hugh Blauvelt. A new growth was palpated in the pyloric region. The liver and peritoneum seemed normal except for some adhesions round the duodenum. A partial gastrectomy was performed and the patient made a satisfactory recovery. A course of deep x-ray treatment was given, and when last seen in December, 1953, he was fit and well.

Histological section showed a neoplasm composed of uniform round or ovoid cells with numerous mitoses and a delicate pericellular argyrophil reticulum—that is, a reticulum-celled sarcoma.

Discussion

Diagnosis.—In the present case adherence to the original diagnosis of severe gastritis as well as the patient's refusal of operation delayed surgical intervention considerably. More often it is clear that a new growth of the stomach is present, and then carcinoma is probable, since only 1 to 2% of gastric neoplasms are sarcomas. Differentiation can be made for certain only by histological section, and this is desirable in apparently inoperable cases of carcinoma, since should they prove to be sarcomas recovery is possible.

Clinical Details.—Pain is the chief symptom, and is a dull constant ache and unlike the periodic pain of ulcer. In contrast to carcinoma of the stomach, it affects young people (mostly under 50), and nutrition and haemoglobin levels are well maintained. Hydrochloric acid may be present. Occult blood is a constant finding. The growth is generally away from the pylorus and so does not usually cause obstructive symptoms as does carcinoma.

Gastroscope.—The present case gave the appearance of a very fierce gastritis with giant red folds and much yellow adherent mucus between them. Persistence of such a picture should raise the suspicion that a new growth is present, particularly if the appearances are localized. The mucosa is usually unbroken, but superficial ulcers may be found (Paul and Parkin, 1944).

X-ray Examination.—The lesion can generally be shown to be away from the pylorus, in contrast to carcinoma, but a positive diagnosis is hardly likely. In none of the 34 cases collected by Snoddy (1952) was a correct diagnosis made radiographically.

Prognosis.—Of the 474 cases collected by Snoddy (1952) 50 (or 10.5%) survived for more than five years. This is very much better than in carcinoma of the stomach, in which disease Cooper (1941) reported only 4 (or 1.5%) five-year cures in a series of 264 cases. The type of sarcoma has a bearing on prognosis, since the small round-celled sarcoma has a better outlook than the other types. In addition, a sarcoma causing an ulcer or polyp is more likely to be diagnosed early than when it causes simply a diffuse infiltration.

Summary

A case of primary reticulum-celled sarcoma of the stomach is reported. Gastrectomy was performed four years after the onset, and the patient was alive and well seven years later—that is, 11 years after symptoms began. The gastroscopic appearances are described.

My thanks are due to my wife for the gastroscopic drawing.

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DISADVANTAGES OF THE RECTAL SWAB IN DIAGNOSIS OF DIARRHOEA

BY

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The rectal swab has been so much recommended as the specimen of choice in bacillary dysentery (Cruickshank and Swyer, 1940; Yannet *et al.*, 1942; Hardy *et al.*, 1942; Humphreys, 1944; Ferris and Fortune, 1944; Hynes, 1953) that its use has extended to less suitable diagnostic fields, although most laboratory workers now realize its limitations (Parker, 1953).

The swab is ideal for collecting material from an amoebic ulcer in the lower part of the colon through a sigmoidoscope; and, introduced into the rectum, it is a practical method of screening rapidly several hundred people (as, for instance, in residential institutions) when seeking carriers of known bacterial species, provided immediate cultivation is done.

The method goes a long way towards preventing substitution of specimens and cross-contamination by receptacles, but it is open to several objections and does not yield so high a percentage of positive results of all kinds as do whole faeces. In particular it is not satisfactory for use by practitioners in the general diagnosis of diarrhoea unassociated with widespread outbreaks of a known infection.

Rectal Swab in Diagnosis of Diarrhoea in General

It is self-evident that the choice of a swab specimen, while permitting a bacteriological investigation (the reliability of which is discussed), excludes any macroscopic, microscopical, or chemical examination of the faeces, but it is perhaps not so generally realized how important these examinations may be.

Many specimens "negative" bacteriologically show abnormalities whose recognition is helpful clinically; and, indeed, some of these, such as worms, melaena, steatorrhoeas, and the characteristic green stool of underfeeding in infancy, may be obvious at sight. Simple microscopy yields much information in return for a very small outlay of time and materials, and would be justified if it