result would seem to extend to a wider field the accepted relationship of rheumatic fever and acute nephritis to streptococcal infection. The correlations between rheumatic fever and stillbirth, and between acute nephritis and stillbirth, are all significant or highly significant. Moreover, the correlation of puerperal sepsis and stillbirth gives a highly significant coefficient (+0.80), which is greater than that previously shown between eclampsia and stillbirth ($r = +0.77$).

In Table III the regional death rates for nephritis in 1932-41 are given. These are average rates—that is to say, arithmetic means of the rates at 0-4, 5-14, and

TABLE III.—Regional Death Rates in England and Wales

Region	Nephritis 0-44 Years per Million Living, 1932-41	Eclampsia per 1,000 Live Births and Still- births, 1939-46
	1	2
Greater London	49.2	0.42
Remainder of S.E.	44.0	0.54
North I	73.9	0.64
North II	57.0	0.60
North III	65.9	0.55
North IV	68.5	0.55
Midland I	61.3	0.56
Midland II	59.9	0.55
East	43.8	0.52
South-west	53.8	0.68
Wales I	80.4	0.77
Wales II	77.6	0.82

Coefficient of correlation of columns 1 and 2 = +0.71. Coefficient of correlation of column 2 and column 6 of Table I = +0.61.

15-44 years. Mortality from eclampsia is represented by the average annual rates calculated from deaths assigned to the puerperal toxæmias in the years 1939-46. The difference in the two periods of years, which is of little consequence, arises from the fact that relevant data of the same periods are not at hand. In the correlation of these two columns $r = +0.71$, a highly significant figure. The coefficient between puerperal sepsis (1932-7) and eclampsia (1939-46) is +0.61, and is significant.

The association of high rheumatic fever and nephritis rates with high mortality from the streptococcal infections coincides with the seasonal experience of these conditions (Buchan, 1950b) and might have been expected, but the broad correspondences between stillbirth and rheumatic fever, nephritis, scarlet fever, and puerperal sepsis appear to raise the question of the relationship of streptococcal infection to stillbirth. Are unexplained stillbirths the effect, like rheumatic fever, of a factor associated with susceptibility to streptococcal infection? Here is a problem intertwined with social and environmental complexities of which the present limited analysis takes no account. But the general picture suggests, though it does not prove, that streptococcal infection plays a part in eclampsia and stillbirth—an aspect which seems worthy of further research.

Summary

In view of the possible relationship between eclampsia and both acute nephritis and rheumatic fever, the regional distribution in England and Wales of mortality from these diseases and from scarlet fever, puerperal sepsis, and stillbirth is considered.

Eclampsia and stillbirth have a similar regional distribution and are in frequent association clinically.

If heart disease mortality at 5-14 and 15-24 years is used as an index of rheumatic fever, and nephritis mortality in the same age groups as an index of acute nephritis, a close correspondence between the regional distribution of these two diseases is revealed.

The values for rheumatic fever and acute nephritis correlate fairly well with the scarlet fever death rates at 0-4 years, and a direct relationship of rheumatic fever and acute nephritis with puerperal sepsis is clearly indicated. The coefficients between rheumatic fever mortality and stillbirth and between acute nephritis mortality and stillbirth are significant or highly significant. Puerperal sepsis is closely correlated with stillbirth, a result which points to the need for further inquiry into this aspect of the problem of stillbirth.

A close correspondence also exists between the regional variations of mortality from eclampsia, from nephritis, and from puerperal sepsis, a circumstance which, along with the other relationships indicated, would seem to support the use of cortisone in toxæmia of pregnancy, as well as in other diseases suspected of being streptococcal allergic disorders.

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Medical Memorandum

Total Gastric Polyposis With Malignant Changes

In the routine clinical practice of a general hospital gastric polyposis is encountered somewhat infrequently, but assumes importance by virtue of the twin complications of malignancy and recurrent haemorrhage.

Menetrier (1888) was among the earlier observers to comment on the tendency to malignant change, but it was Quain (1857) who placed on record the first instance in which the diagnosis was made during life, in the case of a girl of 19, by the presence of a tumour the size of a chestnut in the patient's vomit.

The rarity of the condition may be appreciated from the findings of two series of necropsies: in the one, Stewart (1929) at Leeds noted 47 cases of gastric polyposis in a study of 11,000 cases (0.43%); while in the second, Lawrence (1936), at the Cook County Hospital, U.S.A., observed 50 in 7,000 examinations (0.71%).

The frequency of malignant change recorded by different observers may be seen by reference to the accompanying Table. In terms of age and sex, the incidence of gastric polyposis is greater in males above

Author	Year	Cases of Gastric Polyposis	Malignancy %
Brunn and Pearl	1943	41*	51.0
Lawrence	1936	50	18.0
Benedict and Allen	1934	17	41.2
Miller, Eliason, and Wright	1930	23	35.0
Stewart	1929	47	28.0
Balfour and Henderson	1927	57	3.5
Brunn and Pearl	1926	84	12.0
Mills	1922-3	19	20.0

* Includes four cases in which data regarding malignancy were lacking.

50 years of age, in the proportion of 9 to 4 (Lawrence, 1936) or 2 to 1 (Chamberlin, 1938).

Symptoms are not as a rule typical, and may be absent if the polypi are situated away from the pylorus (Spriggs, 1942). When present, epigastric pain and vomiting in relation to meals may be conspicuous, due to the prolapse of polypi through the pylorus with sequential intermittent obstruction. Anorexia is common, usually in association with achlorhydria, whose constancy has

been stressed by several observers. However, above the age of 50 years asymptomatic achlorhydria is a not infrequent finding, and has been recorded in 35% of individuals over the age of 60 (Vanzant *et al.*, 1932).

A unique feature is the presence of portions of polypi in the vomit, as observed in the case reported here. Constitutional symptoms such as weakness are the consequence of continued bleeding from the site of ulceration of the polypi.

Radiological investigation may prove diagnostic if multiple pea-sized filling defects of regular outline are demonstrated on the greater curvature, in the presence of normal mobility and tonus of the stomach. Such a typical appearance has been described as that of a "bag filled with beans."

Case Report

A girl aged 19 complained that for a twelvemonth she had felt a dull ache in the abdomen immediately after meals, unrelieved by alkalis. There were no remissions. In the past month, in addition to loss of appetite and irregular bouts of vomiting, she had found it a commonplace to awaken shortly after midnight on account of pain, and had obtained relief from a meal of gruel. Her weight was stationary. The psychological background did not provide any data which might give an explanation of the symptoms. The past history was without significance.

Clinically, the general nutrition was good and the dental state excellent. On examination a slight degree of guarding was detected in the epigastrium to the left of the midline; no organ or mass was palpable, and the "sentinel gland" in the left supraclavicular fossa could not be felt. Rectal examination revealed no melaena or other abnormality.

It was considered probable that an organic lesion would account for the periodicity of the symptoms, in particular nocturnal epigastric pain, but the good state of nutrition and the failure to respond to alkalis militated against the obvious diagnosis of peptic ulceration.

Investigations

Blood Count.—Red cells, 4,600,000 per c.mm.; Hb, 10.6 g. per 100 ml.; white cells, 8,400 per c.mm. (N. 64%, L. 30%, M. 4%, E. 1%, B. 1%).

Fractional Test-meal.—Resting-juice volume, 24 ml.; histamine-fast achlorhydria on two occasions; no blood present.

Occult Blood in Stools.—Variable, usually a trace.

Barium-meal Studies.—First report as follows: "Body of stomach normal. Some mobile filling defects in the antrum—almost certainly food residue. Deformed duodenal cap—ulcer. Four hours after food: one-quarter residue in the stomach." Second report, one month later: "There is still a marked prepyloric filling deformity, and the pyloric antrum was at no time seen to fill regularly—no local tenderness. In spite of this patient's age, and in view of the achlorhydria, a prepyloric neoplasm certainly cannot be excluded. Four hours after food—stomach almost empty." Third report, after a further month: "Still an extensive filling defect in the pyloric antrum, which must be regarded as carcinoma until proved otherwise. Four hours after food—stomach empty." (Dr. J. C. Bishop.)

Gastroscopy was contemplated at this stage, but before it was carried out the patient had a bout of vomiting which produced a small solid round mass, the size of a cherry-stone, which she described as a "piece of flesh." That this specimen was a portion of a polypus was now evident, and histologically it represented a papilloma with the additional feature of mitosis in many of the cell groups. (Dr. G. C. Reid.)

Gastroscopy.—(By Dr. C. R. St. Johnston.) This disclosed diffuse polyposis of the stomach from the pylorus

to within a few centimetres of the cardia. Over the greater curvature and anterior wall the polypi were most extensive; at one place on the anterior wall a pedunculated polyp was seen hanging from the cardia, its apex being necrotic and blood-stained. From the lesser curve the appearance simulated "stalactites." At the pylorus a rounded polyp the size of a marble was clearly discerned.

These features were considered to indicate that malignant changes were present, and total gastrectomy was advised. A further radiological investigation of the gastro-intestinal tract prior to operation showed no evidence of polypi in the remainder of the bowel.

Operation.—(Initially by Mr. R. Forrest and later by Mr. Scott Mason.) The stomach was found to be thickened by involvement of the peritoneal coat with carcinoma. Enlarged glands were present along the lesser curve and the upper border of the pancreas. An attempt at separation failed owing to the existence of adhesions between the stomach and the liver, diaphragm, and spleen. In the circumstances, any palliative procedure was technically impossible, and the abdomen was closed. The patient died a few weeks later.

Comment

In the investigation of abdominal symptoms in young adults the finding of histamine-fast achlorhydria may be of sinister significance, and merits gastroscopic examination to determine whether polyposis is present. Such visual examination will not disclose the presence of malignant changes—for which histology is the only certain method—but the extent and appearance of the polypi will be demonstrated.

If extensive, radical surgery is the treatment of choice at an early date, in the light of the statistics reflecting the frequency of malignant metaplasia.

My thanks are due to Dr. S. C. Dyke, in whose care this patient was admitted to the Medical Unit at Walsall, and to Mr. R. P. Scott Mason, of the Queen Elizabeth Hospital, Birmingham, for the operative findings.

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In his annual report for 1950 Dr. C. Metcalfe Brown, the medical officer of health for Manchester, describes the results of a survey into the incidence of mental deficiency and mental illness in each ward of the city. For mental deficiency there was a recorded incidence of 3.24 per 1,000 of the population. Accurate figures of mental illness are of course difficult to obtain, but an estimate based on hospital admissions of voluntary, temporary, and certified patients gave an incidence of 3.41 per 1,000. There was more mental deficiency and mental ill-health in the older and more populated districts than in other parts of the city.