a substitute for the gold test of Maclagan. Ducci (1947b) modified the test to a one-tube method and used a buffer of pH 7.58. Maclagan (1944a) modified the serum colloidal gold test of Gray (1940). The mechanisms of these tests are similar and are discussed together. These tests were negative in 103 of the 107 cases. The four positive cases still showed positive gold and red tests on discharge along with an altered albumin/globulin ratio. Waterlow (1948) found essentially normal values for the serum colloidal gold reaction in the West Indies. These two tests did not show the fluctuations of the thymol test. No diagnostic or prognostic importance could be attached to these two tests.

Van den Bergh Reaction and Total Serum Bilirubin.—In our series of 107 cases the van den Bergh reaction was always negative and the total serum bilirubin was always within normal limits.

Bromsulphthalein Retention.—Mateer *et al.* (1943), after a study of the problem, stated that "the 45-minute period has been adopted, therefore, as the normal standard for complete disappearance of the dye after injection of 5 mg. of bromsulphthalein per kg." This standard is far too stringent, and on the basis of work carried out in this laboratory 0–5% retention has been taken as normal. Waterlow (1948) found a high degree of correlation between severity of the disease and bromsulphthalein retention in a small series of cases. Dr. Dean, of Kampala, kindly drew my attention to an article by Tovar-Escobar and De Majo (1955), in which they performed bromsulphthalein tests in cases of Venezuelan kwashiorkor. They used a dose of 2 mg. per kg. in 12 cases and found no abnormal retention. On increasing the dose to 5 mg. per kg. they observed abnormal results in most of the very severe cases treated.

In our cases the average bromsulphthalein retention on admission was 15%, with a standard deviation of 9.25 and a range of 2.4–40%. In cases which recovered, the bromsulphthalein retention was usually normal within three days and at latest six days (four cases only). If the bromsulphthalein retention was still abnormal at one week the prognosis was grave and death ensued. We found no exception to this in 19 fatal cases of the disease. Comparison of the bromsulphthalein values three days after treatment in cases which recovered with the three-day values of fatal cases of the disease gave a *t* of 6.02. This is highly significant. The bromsulphthalein test will be further discussed in a later paper (Kinnear and Pretorius, 1956).

Summary

A number of liver-function tests were performed on 107 cases of kwashiorkor.

The serum protein spectrum found compared well with previous chemical and electrophoretic separations.

The thymol test showed nothing of diagnostic or prognostic significance. A possible relation to the serum lipids was noted.

No diagnostic or prognostic value could be attached to the serum colloidal gold or serum colloidal red tests.

The van den Bergh reaction and the serum bilirubin were normal in all cases.

The bromsulphthalein test had marked prognostic significance. Abnormal retention at six days after treatment had begun was followed by death in all 19 cases studied. In cases which recovered, the bromsulphthalein test was normal three days after treatment had begun.

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Medical Memoranda

Treatment of the Cord in the Newborn

Several methods of treating the umbilical cord of the newborn are in use at various centres, each having its own routine. In an attempt to discover which of a selection of these procedures is the safest, the following four were used for a trial in the maternity wards at Farnborough Hospital.

Methods.—(1) Traditional routine of treatment with spirit, powder, lint dressing, and binder. (2) Wharton's jelly first squeezed out, then as in No. 1. (3) No dressing applied, the only treatment being the daily application of spirit to the cord base. (4) Wharton's jelly first squeezed out, then as in No. 3.

Procedure.—Newborn babies were allocated to groups (1) to (4) consecutively, in the order of their admission to the nurseries—that is, the first infant was allocated to group 1, the next to group 2, and so on. The investigation was conducted independently on the upper and ground floors of the maternity block. Early in the trial a cord treated by method 3 became very badly infected with *Bact. coli*, and it was considered unsafe to continue this procedure. All neonates thereafter were treated by methods 1, 2, or 4 (see Table). This series covers a three-months period and is made up of 224 consecutive newborn babies admitted to the two general nurseries from the labour ward. Four babies had to be eliminated from the series, as they were taken home before their cords had separated.

Method	Floor	No. of Cases	Infected Cords	Time Taken in Days for Separation of Cord	
				Average	Limits
1	Upper	42	—	7	4–10
	Ground	29	—	8	4–12
2	Upper	38	—	7½	4–11
	Ground	28	—	7½	3–12
3	Upper	9	1	9	6–11
	Ground	9	—	8	4–12
4	Upper	38	2	8½	3–12
	Ground	27	2	8	4–14

RESULTS

Four cords in group 4 became infected and produced an offensive discharge. On culture, *Staph. aureus*, coagulase-positive, was grown from three of these cords and *Bact. coli* from the fourth. Infection occurred between the fifth and eighth days of life. All these four cases, as well as the one in group 3, were successfully treated either with intramuscular streptomycin or with oral oxytetracycline. There was no instance of cord infection in group 1 or 2—that is, where a cord dressing had been applied. This is a highly significant result ($\chi^2=8.2$, $P>0.01$). The difference in the proportion of infected to non-infected cases in this series is ten times the standard error.

Neither the average time taken for separation of the cord nor the time limits in each group give a good idea of the general pattern. The great majority of cords in groups 1 and 2 separated between the fifth and tenth days, while in groups 3 and 4 separation tended more often to occur early or late. (The difference between the standard deviations of groups 1 and 4 is twice the standard error.)

While the application of a dressing to the cord would therefore appear to be highly desirable for the prevention of infection, the expression of Wharton's jelly does not seem to offer any additional protection where such a dressing is used. As this preliminary expression of Wharton's jelly as performed in group 2 is time-consuming and tedious for the nursing staff, the conclusion is that the traditional method of treatment with spirit, powder, lint dressing, and binder as carried out in group 1 is the most satisfactory of the four methods that were tried.

I wish to thank Dr. Duncan Leys for his suggestions and advice, Dr. L. L. Griffiths for his statistical help, and Miss Battle and the sisters of the maternity wards for their kind co-operation.

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Case of Peptic Ulcer with Some Unusual Features

Peptic ulcers are so common that one hesitates nowadays to report a case. Nevertheless, the following case presented some unusual features which merit description.

CASE REPORT

A married man aged 68 had an attack of vomiting and malaise five days before admission. He vomited several times during the day. There was no abdominal pain, and nothing striking in the character of the vomitus. By the evening he felt exhausted but better. Next morning he was unwell again and had developed a productive cough. The sputum was viscid and blood-stained. For four days he gradually became worse. When seen by his doctor he was dyspnoeic, and was having bouts of coughing during which he became quite cyanosed. He had no chest or abdominal pain; his bowels were costive; his appetite for four days was nil; his weight was steady; and there were no urinary symptoms.

He had had a stroke eight years previously, affecting the left side, from which he recovered quickly. He had had malaria many years ago. He also stated that since 1932 he had had an "ulcer" periodically. On closer questioning he said that it took the form of attacks of epigastric pain lasting from half an hour to two hours, not related to food; a few weeks previously he had had a "mild" attack, but he had been free of pain for a month. His wife has old fibroid phthisis.

On examination in hospital he was ill, dyspnoeic (respirations 30 a minute), very weak, and slightly confused. His history was garbled and highly seasoned with adjectives. His temperature was 100° F. (37.8° C.), radial pulse 120 and regular, and B.P. 110/70. Respiratory system:—The trachea was central. The upper left chest was flattened anteriorly and moved less than the right; this area was dull to percussion and there was marked bronchial breathing.

There were other areas of dullness, accompanied by bronchial breathing, and aegophony in the right upper mid-zone and left lower mid-zone posteriorly. Elsewhere breath sounds were vesicular. There were generalized fine crepitations with coarse crepitations at the right base. The abdomen felt normal; it was soft and not tender. Rectal examination was normal. Examination of the central nervous system showed normal fundi; no localizing signs except slightly increased tone and reflexes in the left leg, attributed to his previous cerebral episode.

Investigations.—Sputum culture was sterile after 48 hours. Acid-fast bacilli were not seen. Chest x-ray examination showed patchy opacities in the upper segment of the right lower lobe, in the whole of the left upper lobe, and in the upper segment of the left lower lobe, giving a "butterfly" appearance in the postero-anterior film. Hb, 90%; blood urea, 45 mg. per 100 ml.

Severe bilateral lobular pneumonia was diagnosed and streptomycin and penicillin were given. In addition he had antacids and propantheline at night. Next day his chest signs were unchanged; his B.P. was 90/80. Two days later he had a small melaena.

Five days after admission he appeared to be recovering when he became suddenly dyspnoeic and rapidly developed Cheyne-Stokes respirations. He complained of a terrible constricting pain in his chest like iron bands, and was very distressed. He was pale and shocked. His radial pulse was 100 with an occasional extrasystole. J.V.P. was raised approximately 1 in. (2.5 cm.). B.P. was 80/55. The heart sounds were quiet. No pericardial friction rub or triple rhythm was heard. A rectal examination showed melaena on the finger-stall. E.C.G. showed no evidence of cardiac infarction. Hb was still 90%.

While a blood transfusion was being organized the patient had morphine, gr. $\frac{1}{4}$ (16 mg.), and a noradrenaline drip. His B.P. rose to 120/70 in three hours. His respiratory condition was a little improved, but many signs were still present.

During the next two days he had nine pints (5 litres) of blood, and improved considerably. On the following day there were signs that bleeding had restarted. By this time his respiratory condition had ameliorated greatly and it was decided to delay operation no longer. A large penetrating duodenal ulcer was found, and an anterior Polya gastrectomy was performed by Mr. C. Latto.

Recovery was rapid and uneventful, and the patient was discharged home three weeks later symptomless.

COMMENT

It is probable that the illness was originally an inhalation pneumonia following vomiting. In other reports of cases of inhalation pneumonia the profound shock and collapse which sometimes occurs early in the illness has been stressed, particularly in obstetric cases (Hausmann and Lund, 1955). This makes the onset of superadded bleeding more difficult to detect than usual. The second interesting point was that the sudden loss of blood manifested itself as cardiac ischaemic pain.

In this case we were aided by a history of indigestion and a small warning melaena, but we have heard of a case of a silent duodenal ulcer that presented with anginal pain of acute onset. The need to avoid anticoagulant therapy, particularly by the intravenous route, is obvious.

Having administered morphine, in such a case it is probably justifiable to examine per rectum, and certainly justifiable to estimate the haemoglobin and to take an E.C.G. before establishing anticoagulant therapy.

I am indebted to Dr. R. I. Meanock and to Dr. W. Hausmann for permission to publish this case.

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