lytic seizure of all four limbs and body. The patient, P, had been married for about three years. His only child had died of convulsions eight days after birth, but had exhibited no manifestations of paralysis. No information was available regarding the patient's maternal grandparents. No paralytic disability was known to have occurred in his father's family.

Investigations.—Observation in hospital for a fortnight revealed no physical abnormality; the urine, faeces, blood, and spinal fluid were normal. Psychiatric investigation disclosed no evidence of a psychogenic basis for the palsy.

As the classical features of familial periodic paralysis were recognizable in the history, attempts were made to induce symptoms. Four ounces (114 ml.) of glucose was given by mouth at 1 p.m. and again at 7 p.m. Weakness of the right arm and leg was reported the next day at 5 a.m., and of the left arm and leg at 6.15 a.m. By 10 a.m. all four limbs were in a state of flaccid paralysis with extinction of reflexes. Paralysis was profound on the right side, but weak movements of the left hand and foot indicated incomplete involvement of the distal muscles of the limbs on that side. Faradic reaction was abolished on the right side and feeble on the left. There was no motor disturbance of the trunk, neck, or head. The cranial nerves, abdominal reflexes, sphincter control, and sensory functions were normal. Urine was voided normally during the paralysis, but the bowel was not evacuated. Transient, mild glycosuria (0.02%), high acidity, and excess of urates were observed during the palsy. Results of systemic examination were otherwise negative. After a static period of about 26 hours, gradual return of power began distally and progressed to complete recovery in about 11 hours. Reflexes were restored later, but remained sluggish for about 18 hours, with coexistent aching and tenderness of the limbs. Four days later an attempt was made, without success, to provoke the palsy by subcutaneous injection of 10 min. (0.6 ml.) of adrenaline, repeated half-hourly from 9 a.m. to 3 p.m.

A spontaneous attack developed a week later, following exercise, the limbs of the right side only being affected. When paralysis was maximal 1 dr. (3.5 ml.) of potassium citrate in peppermint water was given by mouth. Symptoms passed off rapidly, with complete recovery in 3½ hours, leaving slight post-paralytic myalgia for about two hours.

As the patient's seizures were invariably nocturnal in incidence, a dose of ½ dr. (1.75 ml.) of potassium citrate was ordered as a routine prophylactic measure every night. No further recurrences were reported thereafter.

It was unfortunate that wartime conditions precluded biochemical study of this case—e.g., estimations of potassium, phosphorus, and sugar in the blood. I am not aware of a previous record of periodic paralysis affecting several members of an Indian family. The first such instance reported in a family in Britain is accredited to Farquhar Buzzard (1901). One of his three patients has recently described his symptoms, mentioning a persistent attack which had crippled him for three weeks (G. D. H., 1948).

I am grateful to Dr. C. Worster-Drought for his helpful comments and suggestions regarding this paper. He has kindly sent me an interesting note about one of three members of a family afflicted by this palsy who invariably develops attacks after bowling three or four overs at cricket, but never after batting or fielding. I am obliged to my colleague, Captain Oliver Medonza, for assistance in searching the literature available in Ceylon for references to this interesting syndrome.

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Medical Memoranda

Some Presenting Symptoms of Carcinoma of the Bronchus

Carcinoma of the bronchus may give rise to a variety of presenting symptoms due either to the primary growth or to secondary deposits. The table shows the mode of presentation in 17 cases seen during a six months' appointment as house-physician at the Essex County Hospital. In these unselected cases from the medical and surgical wards of a general hospital nearly half presented with symptoms caused by metastases.

Presenting Symptoms		No. of Cases
(i) Caused by Primary Growth		
Cough, haemoptysis, blood-stained sputum, pain in chest, dysphagia, superior vena caval obstruction	}	9
(ii) Caused by Primary Growth but simulating Pleuro-Pulmonary Infection ..		
Fever and symptoms and signs suggestive of unresolved pneumonia or empyema.		2
(iii) Caused by Secondary Growth		
Paraplegia		3
Cerebral tumour		1
Pain in abdomen (ileum)		1
Gross enlargement of liver		1
Total		17

In cases in which carcinoma of the bronchus was diagnosed before secondary growth had caused symptoms death occurred within three months of the onset. Death supervened rapidly in this small series of cases, but some patients survive for two or three years after diagnosis. One case is worth recording in detail because of the unusual mode of presentation.

CASE REPORT

Up to six weeks before admission this woman, aged 39, had been perfectly well. Her first complaint was of swelling of the face and upper part of the trunk. She also had some shortness of breath at that time, but no other symptoms.

On admission, on Sept. 9, 1947, her most distressing symptom was a massive, painful enlargement of both breasts. They were enormous and intensely tender; pitting oedema and peau d'orange was manifest. The right breast was larger than the left, and while she was sitting in bed this breast rested on her thigh. There was no discharge from the nipple; no localized inflammatory or other mass could be detected.

She also had a severe persistent cough, with brown blood-stained sputum. Her temperature was 104° F. (40° C.), pulse 200, and respiration rate 48. She was pale, cyanosed, very dyspnoeic, and obviously moribund. There was oedema and puffiness of her face and both upper limbs. The neck veins were engorged on the right side, but not on the left. Enlarged tender lymphatic glands were palpable in both axillae and in

the right supraclavicular region. Examination of the chest showed consolidation of the whole of the right lung and a pleural effusion. The liver was grossly enlarged and tender.

The diagnosis in this case was not easy. There was obviously superior vena caval obstruction, and carcinoma of the bronchus with large hilar secondaries seemed a likely diagnosis. The gross enlargement of the breasts developing so rapidly and the shortness of the history were both confusing factors. Her condition rapidly deteriorated, and she died three days after admission.

Post-mortem examination confirmed the diagnosis of carcinoma of the bronchus with lymphatic obstruction and obstruction of the superior vena cava. There was a purulent tracheitis, bronchitis, and there were multiple small abscesses containing thick yellow pus in the right lung, which was solid with grey pneumonic consolidation. The right bronchus led into a firm white mass at the hilum of the lung.

This growth invaded the right lung deeply and occupied a considerable part of the mediastinum, being about 6 in. (15 cm.) in diameter. In the mediastinum the mass was a mixture of primary growth and secondary glands. The growth had penetrated through into the right auricle and superior vena cava, which was partially occluded. The left lung was congested; the right pleura contained a large yellow effusion. There was a toxic change in the myocardium and gross "bread-and-butter" pericarditis with dilatation of the neck veins.

On sectioning the breasts, the enlargement was seen to be due to oedema, which was also present in the presternal subcutaneous tissue.

I am grateful to Dr. S. A. Propert, Honorary Physician, Essex County Hospital, Colchester, for permission to publish this case, and to Dr. J. B. Penfold, who performed the post-mortem examination, for his advice and criticism.

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Pethidine as a Supplement to Nitrous Oxide Anaesthesia

The synthetic analgesic pethidine provides an alternative to morphine that possesses certain advantages over the natural alkaloid. The high degree of pain relief without respiratory depression or interference with the cough reflex, and the possession of certain atropine-like properties, have made it justly popular in obstetrics and in the relief of post-operative pain.

On a recent visit to San Francisco one of us saw this drug being administered intravenously as a supplement to nitrous oxide anaesthesia by Dr. William B. Neff, professor of anaesthetics at Stanford University, with excellent results both on the operating table and after. This use of pethidine does not seem to have been previously investigated in this country. We have since used it in upwards of 100 cases, with very gratifying results. It has been usual at the end of a long anaesthesia for the patient to reply to questions before leaving the table, and there has been a noticeable absence of post-operative pain and restlessness, often such a feature of other techniques where rapid recovery of consciousness occurs.

It has been our practice to put the patient to sleep with thiopentone and then administer nitrous oxide with some 30% of oxygen. An intravenous injection of 25 mg. of pethidine is given at the outset. This dose is repeated as often as is necessary to subdue any reflex activity on the part of the patient. We have found that 25 mg. of pethidine is needed about every 20-30 minutes in the average case. In abdominal and thoracic operations we have given occasional injections of "flaxedil" (a synthetic curarizing substance) or curare when the abdomen is tight or when the cough reflex is active. A rising pulse rate or blood

pressure, or similar reaction to painful stimuli, is an indication that pethidine is required. The results during and after operation have been so good that we feel justified in publishing this early report, in case our colleagues may not be aware of the method.

We record our great debt to Dr. William B. Neff, who has developed this form of anaesthesia to a high degree.

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Splint to Control Dorsal Subluxation of Proximal Interphalangeal Joints of Fingers

In the *British Medical Journal* of Dec. 11, 1948 (p. 1030), Dr. Trevor Howell stated that the problem of deformed fingers with ulnar deviation and subluxation was unsolved. In many of these cases the main deformity is a dorsal subluxation of the proximal interphalangeal joint, and in the Cowley Road Hospital, Oxford, we have introduced a splint which controls the subluxation while allowing free flexion of the finger. The splint is constructed of a single piece of heavy-gauge single-strand galvanized wire, padded and covered with leather. It consists of three transverse arms, one ventral to the proximal interphalangeal joint, and two others dorsal to the phalanges on either side of it. These arms are connected by side pieces, and the splint is so adjusted that the finger in maximum extension is slightly flexed, as in Fig. 1. As shown in Fig. 2, the splint forms

FIG. 1

FIG. 2

no bar to flexion to the limit of the capacity of the joint. The side pieces of the splint should be tight enough on the finger to maintain the splint in position during flexion.

The patients who have been provided with these splints have remarked on an increased range of usefulness of the hand. This is because the finger can no longer "lock" in a subluxated position, and also because the initiation of flexion is carried out with the finger in a much more advantageous mechanical position for the flexors, and therefore with more power. Further, if fixation of the joint is progressing, it will occur in a more satisfactory functional position if the deformity is controlled. None of the splints have been worn long enough to show whether their use can be curative, but it is possible that it might be so after constant wear for a period of several months. The splint is also useful in cases of this deformity arising from other causes.

(Since this note was written one patient suffering from paralysis agitans has undergone a complete cure of this deformity and now has a good functional hand after wearing the splint for nine months.)

My thanks are due to Dr. J. H. Spence, medical officer to the Cowley Road Hospital, for permission to publish this account, and to Mr. Eric Hillsdon for constructing all the splints since production of the prototype.

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