medical opinion was here sought; it was considered that these findings, together with his clinical state at the time, were accounted for by the degree of dehydration present, and although his hiccup had become much less frequent (possibly owing to thiopentone and cyclopropane anaesthesia), 2 pints (1.14 litres) of normal saline solution were given intravenously on July 16. Soon after this his clinical state returned to apparent normality and he felt fit. Four days later his blood urea was 20 mg. per 100 ml. and his albuminuria had disappeared. During this period examination of cerebrospinal fluid, blood W.R., and intravenous pyelogram were all negative.

As he felt so fit and had a long-standing arrangement to start a 10-day holiday on July 31, he was allowed to leave the hospital with the idea of readmitting him afterwards for further investigations. While at home on the very night of his discharge he again developed nausea and hiccup and vomited about 15 times during the subsequent 36 hours before being readmitted.

The striking feature now was the presence of marked tetany, attacks of which he had been having for about 12 hours previously. The condition was symptomatically relieved by the intravenous injection of 10 ml. of 10% calcium gluconate, but three further attacks were witnessed within the next 24 hours, evidently initiated by the effort of vomiting. The extremities assumed the typical posture, the breathing became laboured, cyanosis was marked, and consciousness was lost within a minute. The pulse was 54, with some premature systoles, its volume remaining good. After about three minutes gradual relaxation occurred, his colour improved, and his jaw, clenched at first, started a regular munching movement, but there were no true clonic movements of this organ or of his limbs. Unconsciousness remained for about 15 minutes, with eyes rolling and squinting, but with normal-sized equal pupils. There was no laryngeal stridor. His blood pressure during the recovery phase was 120/80.

The clinical diagnosis of tetany from alkalosis, with hypochloraemia, was confirmed by the biochemical investigations.

Only one attack occurred after the start of intravenous drip saline with 10 ml. of 10% calcium gluconate per pint (568 ml.), and within two weeks his blood chemistry had returned almost to normal, all symptoms having subsided.

During this exacerbation of symptoms the time had naturally come to review the nature of his attack in Egypt two years previously and any other relevant past history. He was himself quite definite that the prodromal events leading up to all his attacks had been very similar, and on direct questioning he remembered having had tinglings in his hands, feet, and lips before his original attack, though never any cramp. The description by the sister who witnessed the end of the attack had been recorded as a "convulsion, during which he was unconscious, with eyes open and face twitching for one minute, followed by a period of confusion in which he answered only 'Yes' or 'No.'" The tongue had been bitten, but there had been no incontinence.

No abnormality had been found on examination of the central nervous system and there was no pyrexia. A blood smear had been negative for malaria parasites, and examination of the C.S.F. had shown normal pressure, cell count, protein, and chlorides. He had been invalided home on account of this epileptiform attack and made permanently unfit for flying duties. On return to this country, radiographs of the skull and an electro-encephalogram had proved negative, as also had clinical examination by the consultant in neurology.

The cause of his attacks of vomiting remained the final matter for elucidation; he was most definite that he had had no vomiting whatsoever in the intervening two years and had never suffered from diarrhoea, indigestion, or any abdominal pain. In spite of this, the solution was apparently found in a barium meal, which showed a small prepyloric ulcer, with a large atonic stomach, a great quantity of resting juice, and a considerable barium residue in the stomach at eight hours, and some at 24 hours, even after a course of routine medical peptic-ulcer treatment for three weeks, with full doses of belladonna.

On Oct. 7 the abdomen was opened through a transverse epigastric incision and a partial gastrectomy was performed. A healed ulcer was demonstrated in the prepyloric region anteriorly: a well-developed cholecysto-duodenocolic membrane was found binding down the first part of the duodenum.

At this point the duodenum was constricted and partially obstructed owing to thickening and fibrosis in its wall for about 4 cm., the parts distal to this being of normal calibre and consistency.

The findings were confirmed by examination of the excised specimen; the healed gastric ulcer did not appear to be producing pyloric stenosis, and it was presumed that the obstruction was caused by the organic changes in the duodenum secondary to the membrane as described.

Comment

This case shows two main points of interest: first, the fact that his original attack was of an epileptiform nature, which in the light of after events could confidently be assumed to have been of tetanic origin. While true convulsions are so well known in children as part of a tetanic state, it is undoubtedly easy to overlook this possible cause for them in adults, although briefly mentioned in some textbooks. Support is also lent to the opinion that it is unwise to stamp as an "epileptic" a patient who has an isolated convulsion—a point emphasized by Rook (1947).

Secondly, it was natural to presume from the x-ray appearance that pyloric stenosis secondary to a prepyloric ulcer was basically the cause of all his troubles; it was considered at operation, however, that this was not the true explanation but that his obstructive symptoms were due to a duodenal stenosis, secondary to a large persistent cholecysto-duodenocolic membrane. In either case the marked lack of abdominal symptoms apart from his attacks was difficult to explain. The subject is fully reviewed by Mahoney (1946), who considers that this membranous fold occurs in at least 18% of people, but only occasionally gives rise to symptoms. Of the 18 cases which he reports as pathological, the symptoms in the great majority simulated either chronic cholecystitis or duodenal ulcer.

I wish to thank Group Captain F. W. P. Dixon for the surgical notes on this case, and Squadron Leader T. S. L. Beswick for the pathological investigations.

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Medical Memoranda

Liver Abscess: Sporadic Amoebiasis

From time to time sporadic cases of amoebiasis have been recorded in the British Isles. It seems likely that with the return of troops from tropical service in the post-war years the incidence will increase. The following case is of interest in that no tropical connexion or association could be discovered.

CASE REPORT

A man aged 34 was admitted to hospital with a history of sudden onset of epigastric pain five days previously. His pain was associated with vomiting and was worse on deep inspiration. Up to the onset of the pain he had been in good health and had noticed no alimentary upset of any description.

On examination he was seen to be well nourished though sparsely built, and his complexion was pale. The tongue was coated and dry. The abdomen moved well, but there was muscle-guarding and resistance over the right hypochondrium. No mass was felt and the liver was not palpable. The remainder of the abdomen was soft and not tender. White blood cells numbered 27,000 (81% polymorphs). X-ray examination showed no gas under the diaphragm, although the diaphragm was raised about 1 in. (2.5 cm.). Temperature was 100° F. (37.8° C.), pulse 100. A diagnosis of probable leaking duodenal ulcer was made, and expectant treatment adopted. His general condition, however, did not improve, and five days later the abdomen was opened.

Operation.—The abdomen was explored through a paramedian incision. A large soft liver was found to reach to the right iliac fossa: it was so soft as to be impalpable even under anaesthesia. The peritoneal cavity and abdominal viscera were otherwise normal. The right lobe of the liver was then explored with a wide-bore needle and 5 pints (2.84 litres) of "anchovy sauce" pus were aspirated. On probing with the finger a further loculus was entered

which yielded another pint (570 ml.) of yellow pus. On this latter finding the cavity was drained after the instillation of 100,000 units of penicillin.

Convalescence following operation was uneventful. The pus from the abscess was sterile and yielded no amoebae. Repeated examinations of the stools failed to demonstrate the entamoeba, either in the cyst or vegetative form. X-ray examination of the bowel showed no pathological change. Sigmoidoscopy at this stage revealed the smooth, pale, glassy and rather rigid mucous membrane associated with chronic amoebiasis. A full anti-amoebic course was therefore given, the response being immediate and dramatic.

This patient was carefully questioned in order to elicit a possible source of infection. He lives in a Surrey suburb. Neither he nor any of his family has ever been out of the country, nor have any of his friends or business associates. He had no illnesses or symptoms until the day of admission to hospital.

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Cure of Exomphalos in a 2-hours-old Infant

The following case is worth recording, as the patient, so far as we know, was the youngest to be anaesthetized successfully with cyclopropane; it also shows that children do stand a fair amount of handling of the viscera.

CASE REPORT

A full-term female infant was admitted to Dulwich Hospital on Dec. 7, 1947, with an exomphalos. On examination the abdominal

FIG. 1.—Showing the exomphalos before operation.

viscera were lying on the abdominal wall covered by transparent membrane (Fig. 1). The striking feature was that the major part of the liver was lying outside the abdomen.

Operation.—The child was operated on two hours after birth under cyclopropane-and-oxygen anaesthesia administered by Dr. J. Piney. An incision was made along the edge of the exomphalos and the membrane excised. The liver and then the intestines were returned to the abdominal cavity with some difficulty and the wound was closed with through-and-through silk-worm-gut sutures. In

FIG. 2.—Showing the condition three weeks after operation.

spite of the considerable handling of the viscera the child made an uneventful recovery. Fig. 2 shows the condition three weeks later. At the time of writing the child is 6 weeks old and is progressing satisfactorily.

We wish to thank Dr. J. Piney for his excellent anaesthetic, Dr. O. W. Roberts for permission to publish this case, and the nursing staff for their post-operative care.

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A Case of Rupture of Muscles of the Forearm

Rupture of muscles and tendons without breaking the skin is not uncommon. In the case of the long head of the biceps brachii, the plantaris, and the rectus femoris it presents well-recognized clinical features. I had not previously seen a case of rupture of muscles of the forearm, nor have I found it described in a somewhat limited search of the literature. Mercer (1943) does not mention any of the forearm muscles in a list of "those most frequently affected." The following case is reported because of its rarity, the clinical features seen, and the satisfactory result after a severe injury.

CASE HISTORY

A private soldier aged 21 was driving a 15-cwt. truck when it went over a milestone and overturned, late on the night of June 19, 1947. He is unable to tell how his arm was injured because "everything happened so quickly," but as the milestone was less than 1 ft. (30 cm.) high it is likely that the wheel was very powerfully jerked in his hand. When seen in hospital about 14 hours after the injury, he complained of "pins-and-needles" in the fingers of his left hand.

His general condition was good. The left arm was very swollen from a few inches above the elbow to the finger-tips. The skin was pink and flushed. There was only a flicker of movement in the fingers and thumb. The radial pulse was present at the wrist. Radiographs showed no bony injury. A provisional diagnosis of subfascial haematoma was made; the limb was elevated on pillows and efforts were made to do finger movements. Next day (June 21) the limb was rather more swollen, the paraesthesia was unaltered. The radial pulse was still easily felt. Exploration was considered advisable.

Operation.—At noon on June 21—i.e., about 36 hours after the injury—a longitudinal incision was made over the maximum swelling, on the antero-medial aspect of the forearm, from about 1½ in. (3.75 cm.) above the elbow to 4 in. (10 cm.) below it. The skin gaped immediately, revealing rather congested superficial veins and deep fascia which was tense over a haematoma. The fascia was incised in the same line, and it was then seen that the large blood clot lay among ruptured pieces of muscles. The clots were removed, and it was found that the palmaris longus lay intact over the tattered and separated ends of the flexor digitorum sublimis and the flexor carpi radialis. The rupture appeared to have occurred a little above the middle of the forearm. It was clearly impossible to make a good repair of the injured muscles, and in any case it seemed inadvisable to risk any avoidable post-operative swelling. Haemostasis was secured and the skin sutured; there was a little tension in places.

The limb was placed on pillows and active finger exercises were encouraged. Within a day the paraesthesiae had gone. In about four days the swelling of the hand had subsided. On the ninth day a plaster cast was applied to prevent flexion deformity at the wrist. Finger movements were improving but weak. After 24 days there were two hard masses of fibrous tissue in the forearm, and the fingers were showing a flexion deformity unless the wrist was palmar-flexed. Frequent stretchings were done by the patient and the physiotherapy staff. Splintage was at this time avoided as it was considered advisable to encourage finger movements continually. After seven weeks a night splint was used to keep the fingers straight with the wrist straight. After nine weeks the grip was 50 to 60% of normal. The index finger was flexed 30 degrees at each inter-phalangeal joint when the wrist was straight—the other fingers were straight. Ionization with potassium iodide was tried in the hope of reducing the scar tissue a little.

When seen three weeks later (Sept. 19)—i.e., three months after the injury—the index finger was straight when the wrist was straight, but only in the mornings after a night on a splint; after use it became flexed. With the wrist dorsiflexed all the fingers became slightly flexed. There was no palpable activity in the flexor carpi radialis. The patient was able to use the fingers well, both individually and together. He had an excellent grip, about 80% normal (he is right-handed). He was practising finer-finger movements on a typewriter and was making rugs.

Improvement was still taking place when he was last seen. While a degree of limitation of extension of the fingers and wrist seems inevitable, it is likely that he will have a very strong and useful hand with little disability after a period of two to three months.

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