due to small embolisms arising from infected thrombotic veins in the field of operation. I have no doubt that tamponage of the wounds is sometimes to blame for this. In operating for hepato-biliary diseases I have abandoned tamponage for nearly fifteen years. If drainage is necessary only a rubber drain should be used.

As a prophylactic measure, from the very first day after operation, *breathing exercises*, with lifting and massaging of the legs, have proved helpful. Injections of quinine and calcium 10 per cent. solution have undoubtedly been of benefit in avoiding bronchopneumonia or in aborting it in the very beginning.

Recovery after an operation for hepato-biliary diseases is, when performed in an early stage, almost complete, and the patient does not need any special help. In advanced cases, on the other hand, the number of complications which may arise in the post-operative course may be considerable. As shown above, many of these complications can be avoided by improvement and simplification of surgical technique; but I am also convinced that careful vigilance and treatment in the post-operative course may still save quite a number of patients who are endangered by the manifold complications that may arise in spite of a successful operation.

Summary

In hepato-biliary diseases close co-operation is indispensable between physician and surgeon from the very beginning. This co-operation should concern indication and treatment. When resorting to the electrosurgical method (mucoclasia) operation at a very acute stage does not result in greater risk than when done in a chronic stage, and we no longer need to undertake the danger which the postponement of an early operation may involve.

Treatment of Hepatitis.—The pre- and post-operative treatment of hepatitis, based on hepatic insufficiency, is one of the main tasks of the physician from the very beginning. One of the earliest and most frequent symptoms of acute hepatitis, the acute fleeting oedema of the liver, must be considered. This can be combated very efficiently by means of intravenous injections of hypertonic solution (50 per cent. glucose).

Complications of the Peritoneum.—In cases of peritonitis, injections of coli serum or anti-gas-gangrene serum have proved very efficacious.

Cholaemic haemorrhage is best avoided by early operation and by the simplification of the operative technique (electrosurgical operation, exact peritonization, ether method). Calcium and parathormone injections have proved helpful. Vitamin therapy also gave promising results.

C. C. Macklin (*Med. Rec.*, 1939, **150**, 5), in an investigation of spontaneous mediastinal emphysema, found experimental corroboration of the physical basis of Hamman's sign (a loud "crunching" sound heard over the praecordium and associated with diminution or obliteration of cardiac dullness) in the foam-like blanket of air bubbles seen upon removal of the sternum in cats whose lungs had been locally over-inflated by an air blast introduced into the lower right bronchial tree by way of a catheter. The air was never within the pericardium, but always between the parietal pericardium and the pleura. The air enters the mediastinum through the lung root, and its presence embarrasses the circulation by pressing upon the heart and great vessels. Anginoid pain may be due to direct pressure upon the coronary vessels. Extension upwards, downwards, and laterally into the opposite lung was found.

NEPHRECTOMY WITH PARTIAL RESECTION OF THE OTHER KIDNEY

BY

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Cases in which more than 50 per cent. of the total renal substance has been removed appear to be rare enough to warrant this report.

Case History

The patient was a married woman of 39 known to be suffering from branched calculi in both kidneys. The urine was infected with *Bacillus coli* and streptococci. For some eight years her life had been rendered miserable and uncertain owing to repeated attacks of pyrexia, renal colic, alternately on each side, and, latterly, menacing attacks of anuria from which she narrowly escaped.

Although there was no great discrepancy in the size of the stones as seen on the x-ray film, intravenous pyelography demonstrated that the right kidney was quite active, while the left exhibited no apparent function. Clinical examination together with the history pointed strongly to a left pyonephrosis with a probable secondary perinephric abscess. No alternative presented itself between leaving her to die or endeavouring to effect a cure by operation. The first urge was to remove the main septic focus, re-establish her health, and then deal with the remaining right kidney. The recent history of anuria, however, doubtless due to intermittent blocking of the right ureter, left the uncomfortable feeling that such an attack following left nephrectomy was not only probable but would certainly be fatal.

In order to establish a safety-valve it was accordingly decided to drain the right kidney pelvis after removing the stone and carry out prolonged drainage to secure disinfection and make the inevitable left nephrectomy safe against post-operative anuria. When, however, on June 2, 1937, the right kidney was exposed for this purpose, it was found that crumbling projections of the calculus so filled the minor calices of the lower pole with gritty debris, and the tissues were so frayed and impregnated with pus, that rapid recurrence of the stone seemed inevitable. The lower pole was accordingly amputated at the level of the lower margin of the pelvis, a little more than one-quarter of the kidney being excised. Haemorrhage was checked with ribbon catgut and muscle graft. It was some three days before the insulted organ began to excrete urine through the Malécot tube in the pelvis. After that the flow was copious, while the absence of anything from the bladder except occasional emissions of thick creamy pus confirmed the suspected condition of the other kidney.

The hope that the planned left nephrectomy could be carried out at leisure was nullified by the fierce septic reaction which the lowered resistance caused by the operation permitted. There was a persistent swinging temperature, with evening rises as high as 102° F. The patient's condition steadily deteriorated. By the end of June the red blood count was less than 3,000,000 and haemoglobin was 48 per cent., and it was clear that further delay would secure nothing except still more unfavourable conditions for the inevitable but serious operation in prospect.

The tube had slipped out of the right renal pelvis on the tenth day and could not be replaced. The urine began to pass via the bladder. Providentially, a couple of days before the projected operation the safety-valve re-established itself and all the urine came from the side. The conditions for a clean field with all this soakage were not ideal, and the operation itself was even more difficult than expected. Not one, but two separate perinephric abscesses were encountered on the way to the kidney, one close under the diaphragm. Sharp dissection and the resection of part of the eleventh rib, the twelfth being very short, were necessary before the solid adherent mass of kidney and perinephric tissues were freed

and the broad and friable pedicle ligated *en masse* and without finesse. An attempt at pre-operative blood transfusion had failed owing to absence of accessible veins, the last of these having been thrombosed by the perabrodil for the pyelogram. At the end of the operation collapse was extreme, being at one stage hardly distinguishable from death, the pulse being imperceptible, the pallor absolute, and the pupils widely dilated. Donor's blood stored overnight was pumped into the internal malleolar vein, gravity being quite insufficient to force the fluid into the collapsed vessels.

On the patient's return to bed her condition remained critical. Enough saline and glucose was administered by the subcutaneous route to enable all fluid by the mouth to be withheld till after forty-eight hours, and thus the additional menace of distension and sickness was completely avoided. Nursing taxed to the uttermost the skill of those engaged. The bed remained soaked with the whole output of the right kidney augmented by the stinking sero-sanguineous fluid from the left wound, which cast off alarming masses of slough, and showed for the first week no healing action in spite of the institution of Carrel-Dakin tubes.

In the course of the next five weeks matters gradually improved; the wound became healthier, the temperature, which had had a daily swing up to 101° or 102° F., dropped to normal, and on August 24 the patient was discharged from hospital, although a deep sinus still persisted on the left side. All the urine was passing to the bladder, and the right wound had healed. During the whole of the period of stress the right kidney had never faltered, producing a copious supply of urine, which, when it could be measured, proved to be some 75 oz. daily with a normal consumption of fluid.

Convalescence was fairly rapid, the left wound healing firmly in spite of the loose emergency sewing and the massive sloughs. A small sinus persisted, but is now shallow and should soon heal. Careful administration of mandelates cleared the right kidney of its remaining infection. The calculi consisted of calcium and triple phosphates with a trace of calcium carbonate. Diet was directed to maintaining acidity so as to prevent recurrence.

At the time of writing, approximately two years since the operations were done, the condition is as follows. The patient is robust, active, and able to undertake all the social duties, rail, steamer, and motor travelling of a normal woman. From these things she had been debarred during the period of her pre-operative invalidism, which extended over rather more than nine years. She eats what she likes, and the urine has no tendency to depart from an acid reaction, though she takes a daily dose of acid sodium phosphate or a tablet of ammonium chloride to make sure. The specific gravity of the urine, which is sterile, rarely exceeds 1012, though it has on one or two occasions gone as high as 1015. The increased quantity necessitated by this dilution causes her to rise in the early morning hours to empty the bladder. There is no unpleasant diurnal frequency or irritation. The absence of veins precludes a pyelogram and function tests depending on the extraction of venous blood, but the urea concentration after taking 15 grammes of urea reached the surprising figure of 2.4 per cent. at the third hour. The blood pressure has dropped from 164/90 before the operation to 130/80.

Discussion

Reflecting on the problem involved, one or two points seem to call for emphasis. In the first place, careful thought should be given in cases of bilateral calculus to the possibility of one kidney being pyonephrotic and useless, in which case it can, with due precautions, be removed and the disability be in large part eliminated. Secondly, there is no doubt that the percaine spinal anaesthetic employed in the second operation put the minimum burden on the remaining part of the right kidney, and by

reducing the operative difficulties allowed the left kidney to be removed before the patient succumbed. Thirdly, some device for forcing the blood into the veins must be contemplated when, as in this case, gravity is inadequate for the purpose. Finally, the tempting procedure of two-stage nephrectomy does not seem to be appropriate in such cases, with its prospect of prolonged suppuration and the probable unbearable strain it would exert on the remaining portion of a mutilated and infected kidney on the other side. In spite of perinephric abscesses and the difficult operation which must always be expected, the procedure of nephrectomy, once embarked upon, must be carried through to the end.

Johannesburg.

ALTERNATING HEMIPARETIC MIGRAINE SYNDROME

BY

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The current literature and the textbooks of neurology, both recent and of the past, relate many unusual symptoms occurring as part of a migraine syndrome. It is only rarely that these symptoms are combined in the manner observed in the mother and daughter whose cases are here recorded.

The Mother's Case

There is no history of nervous or mental disorder, migraine, epilepsy, asthma, or allergic disorder in any member of the mother's family. She had severe migraine headaches, starting at 13 years of age. Menarche did not occur until 16 years of age. During the years following her menses seemed to have little association with the severe migraine syndrome. Her headaches were infrequent, at times being absent for a period of one to two years. Her symptoms usually followed a definite order of progression. Prodromes in the nature of general malaise and chilliness occurred, which might come on the day before an attack or only a brief period before. The attack itself was ushered in by a feeling of numbness and tingling of one side of the face and tongue, rapidly spreading to involve the arm and leg of that side, and was accompanied by marked weakness and loss of power in the arm and leg, although never a complete paralysis. Her speech was thick and dysarthric, and there was difficulty in finding words and in expressing herself. Following this, she experienced flashes of light, then blurred vision, and finally a hemianopsia involving the visual field opposite to the severe bursting headache which then appeared over or behind the eye on the side opposite to her other symptoms. Nausea and vomiting followed the headache, which in different attacks occurred first on one side of the head and then the other, and was always on the side opposite to the hemiparesis, sensory, and visual symptoms. She never lost consciousness, nor did she have any convulsive attack, although on one occasion during her first pregnancy (not with the daughter) she became confused and delirious, and had no memory for the migrainous episode other than the onset. No medication ever seemed to relieve or abort the attacks, which lasted from one to two days. During the time she was pregnant with the daughter she had no migrainous attacks. Three years ago, at the age of 46, the mother was treated with radium for a uterine carcinoma. Her menses stopped. She has had no migraine headaches since, and is in fairly good health at the present time.

The Daughter's Case

The daughter, aged 23, has been under observation at the Jordanburn Nerve Hospital, Edinburgh. She gives a history (corroborated by her mother) of severe unilateral headaches, having their onset when she was 13 years of age, occurring