or pelvis; (b) that blood eosinophilia is often intermittent, and may be absent on any particular examination; and (c) that a pleocytosis in the cerebrospinal fluid may not only show eosinophils, if a suitable stain is used, but is often associated with a parietic Lange curve.

Finally recourse must be made to ventriculography, using air or opaque contrast media, which may not only define the site of the obstruction but also outline the shape and size of the cysts responsible, and give valuable information about the possibility of surgical removal.

Summary

Attention is drawn to clinical manifestations other than epileptic convulsions which frequently occur in cerebral cysticercosis, and to the countries other than India where infestation is often acquired.

Cases are described illustrating periods of disordered behaviour, transient pareses, intermittent obstructive hydrocephalus, dysequilibrium, meningo-encephalitis, involuntary movements, failing vision, and mental disturbances.

Stress is laid on the cerebrovascular lesions, and on the importance of the posterior fossa forms of the disease.

I wish to thank the medical staff of the Polish General Hospital, Penley, for referring to me Cases 1, 2, and 5; to Professor P. C. Cloake for permitting me to investigate Case 3; to Professor W. H. Wynn for allowing me to include Case 4; and to Sir Russell Brain for permission to use brief extracts from *Brain* (Case 6).

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"The whole emphasis to-day is on drawing as little difference as possible between the handicapped child and the normal child," said Mr. DENNIS VOSPER, Parliamentary Secretary to the Ministry of Education, at a conference of the College of Teachers of the Blind at Matlock on April 22. Between 1945 and the end of 1954, he said, 256 new special schools, with 18,000 new places, had been established, but there were still considerable waiting-lists, and careful selection was essential. Only when ordinary day-school education had proved impossible was special training considered. Teaching handicapped children was onerous, and it reflected credit on the profession that there had been sufficient teachers coming forward to fill the posts in the new schools. A few handicapped children would never become self-supporting, continued Mr. Vosper, "but education will help to make them all better members of the family circle, and to make the majority more likely to take their place as worthy and self-supporting citizens in the world."

SPONTANEOUS HAEMOPNEUMOTHORAX

A SURGICAL EMERGENCY

BY

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Spontaneous haemopneumothorax is a comparatively rare condition. A review by Borrie (1953) showed the recorded total to be 93 cases with 19 deaths. Subsequently McGown (1954) has reported another case. The source of bleeding and air escape is usually a ruptured bulla with or without a torn adhesion. Sometimes a torn adhesion alone is found; sometimes there is no demonstrable lesion, which means that the breach in the lung surface, from which so much blood and air escapes, is either so small as to be missed or has already healed so far as naked-eye examination can detect. Although the precipitating factor is apparently traumatic, a history of trauma, beyond ordinary everyday activity, is usually absent, the causal episode being so mild in type as to be overlooked. The important features, for both prognosis and management, are not so much the cause and source of the bleeding as its extent, the tendency to clot earlier than in ordinary traumatic haemothorax, and the fate and subsequent effects of this clot if it remains in the pleural cavity.

The traditional method of management in medical wards, on the principle of minimum interference, has carried in the past a high mortality. In 18 fatal cases death followed conservative treatment. In the remaining case (Hansen, 1949) the patient died after delayed thoracotomy. Conservative treatment, the difficulties of which are well put in Hartzell's (1942) paper, has been challenged by several writers. Myers *et al.* (1951) recommended emergency thoracotomy if bleeding could not be controlled, and reported a successful case. Ross (1952) regards the condition as a surgical emergency, requiring urgent blood replacement and early evacuation of the intrapleural blood before it clots. This he did by underwater intercostal drainage, recommending thoracotomy if there were evidence that bleeding was continuing. He reported six cases, one of which required emergency thoracotomy, the remainder being treated by aspiration or drainage, but of these only two gained full re-expansion this way, the remainder requiring decortication. Borrie (1953) recommends immediate thoracotomy, after resuscitation, as the treatment of choice for all cases of spontaneous haemopneumothorax in which bleeding has been considerable, and he regards the condition as an acute thoracic emergency. He reports three cases—two treated by emergency thoracotomy for uncontrolled bleeding with complete success and early full expansion, and the third requiring decortication after failure to obtain re-expansion by repeated aspiration.

The object of treatment is to resuscitate the patient and replace blood loss, to arrest the bleeding and to prevent its recurrence, to remove all air, blood, and clot from the pleural cavity, and to obtain and maintain full lung expansion, so that there is a return to full normal function in a minimum of time.

Case 1

An aircraftman of the Royal Australian Air Force, aged 28, was admitted to the British Military Hospital, Singapore, in the evening of May 3, 1954, with an eight-hour history of severe epigastric pain of fairly sudden onset. There was no history of trauma, although he had played golf some hours before. He complained of severe pain radiating from a point just below the xiphisternum, up behind the sternum, and in both directions across the epigastrium. It was worse during inspiration. He was collapsed and shocked, with a pulse of 110 and a blood pressure of 115/85. The provisional diagnosis had been perforated peptic ulcer, and he was admitted to the acute surgical ward, where examination revealed an extensive left pleural effusion with an overlying pneumothorax. Exploratory needling showed the fluid to be blood. Blood transfusion was started and thoracentesis performed. Approximately two pints (1,140 ml.) of blood was aspirated from the pleural cavity, at the end of which there was clinical evidence, confirmed by x-ray examination, that at least a pint (570 ml.) of blood remained, but this would not come out through the cannula and had presumably clotted. Two pints of blood was given intravenously, by which time he had recovered from his acute respiratory distress and shock.

The patient was first seen by one of us (A. J. C.) on the morning of May 4. It was obvious that blood loss had been considerable and was possibly still occurring. It was equally obvious that there was an extensive intrapleural clot which, unless removed, would prevent lung re-expansion and require pulmonary decortication at a later date. Emergency thoracotomy was performed 22 hours after the onset of symptoms. A further three pints (1,700 ml.) of blood was given during and after operation. A careful search of the lung and of the parietal and mediastinal pleura failed to reveal any source of bleeding. There was no evidence of lung disease, nor were there any adhesions. The only departure from normal seen was a small haemorrhagic patch, about $\frac{1}{2}$ in. (1.3 cm.) in diameter, immediately beneath the pleura on the upper part of the lower lobe. The pleura here was intact. Adherent fibrin clot had already covered most of the collapsed lung, and approximately two pints (1,140 ml.) of blood, mostly clotted, occupied the pleural cavity. After removing all clot the lung was fully re-expanded and the chest closed without drainage. Convalescence was uneventful, full lung expansion being maintained. He was returned to his unit after four weeks.

Case 2

An officer of the Royal Air Force, aged 32, was admitted to the R.A.F. Hospital, Changi, on May 13, 1954, with a history of pain in the left lower chest of six hours' duration, starting as a slight pain, but becoming increasingly severe during the night. It was intensified by inspiration and by movement. There was no history of any traumatic incident. He was admitted to a medical ward and found on examination to have a left pneumothorax.

X-ray examination confirmed a large left pneumothorax and showed a small amount of fluid. By the next day his condition had deteriorated, with pallor, sweating, and dyspnoea, and severe left-sided chest pain. X-ray films showed an increase in the pneumothorax and a rise in the fluid level. Thoracentesis was performed and the fluid found to be blood, of which 100 ml. was withdrawn. Then 600 ml. of air was also aspirated, after which his general condition improved. He was kept well sedated and put on penicillin.

On May 15 his general condition was unchanged, but there was a considerable rise in the fluid level. 15 oz. (425 ml.) of blood was aspirated and more air withdrawn. Blood haemoglobin was 11.5 g. per 100 ml. On the next two days 6 oz. (170 ml.) and 12 oz. (340 ml.) of blood was aspirated, but x-ray examination showed, from a maintained high fluid level, that bleeding was continuing.

On May 18 there was no improvement, and the patient was seen in consultation by Lieutenant-Colonel W. G. Macfie, senior physician at the British Military Hospital, Singapore, who, following the recent experience with Case 1, recommended immediate blood replacement, followed by thoracotomy. The blood haemoglobin had fallen by now to 8 g. per 100 ml. Three pints (1,700 ml.) of blood was given overnight, and a thoracotomy was performed (F. H. D. H.), on May 19. Four pints (2,300 ml.) of blood and clot was removed from the pleural cavity, extensive clotting having occurred, although fibrin deposition on the lung was not a feature in this case. No actual bleeding point was found, but there were several torn adhesions, one of which, at the apex, appeared to have been bleeding recently. After removal of all clot the chest was closed with an intercostal underwater drain. Three more pints (1,700 ml.) of blood was given during and after operation.

Post-operative progress was uneventful, with progressive lung re-expansion. By June 1 full re-expansion had occurred, the drainage-tube was removed, and the patient, now allowed up most of the day, was returned to a medical ward. Repeated attempts to find any focus of tuberculosis were negative.

Case 3

A British lance-corporal aged 19 was admitted to No. 33 General Hospital, Hong Kong, on July 2, 1954, with a history of the sudden onset of a stabbing pain in the left lower chest on the previous day. This was worse on inspiration, was intensified by any form of movement, and had been gradually increasing in severity. There was a past history of occasional attacks of pain of pleuritic type, one such attack having lasted as long as two weeks. He was admitted to a medical ward.

Examination showed a pale shocked young man, with panting shallow respirations and obviously in severe pain. The blood pressure was 100/60 and the pulse rate 120. Chest examination revealed the trachea deviated to the right, with the left upper zone tympanitic and the lower zone flat dull. No breath sounds were heard on the left side. The right lung appeared to be normal. Exploratory aspiration showed that the fluid was blood and that the overlying pneumothorax was under some tension. A diagnosis of spontaneous haemopneumothorax was made.

The patient was given 100 mg. of pethidine, which was repeated at six-hourly intervals, blood and air were aspirated from the left pleural cavity, and he was started on penicillin. He was blood-grouped and cross-matched, but not transfused. We are indebted to Lieutenant D. Benazon, medical officer in charge of the patient, for the following progress report.

"He rapidly improved with pethidine and further improved when one pint (570 ml.) of blood was removed at once, and again later in the day. The pulse returned to normal and the blood pressure was 125/70. The haemoglobin next day was 58%. His pulse was taken half-hourly, and then one-hourly, and frequent blood-pressure recordings were made. Aspiration of blood was continued; at no time did it clot, and thus practically every drop could be removed over the next 14 days. It became increasingly serous, though at the start it was pure blood. The lung is now (August 13) almost completely re-expanded, and in about another week should be fully out to the chest wall. There is minimal thickening at the left costophrenic angle. Movement is good on the affected side, and breath sounds, except at the apex posteriorly where there is still a tiny pneumothorax, are as good as on the other side. The patient is feeling very well. The haemoglobin, which fell to 58%, is now back to normal with ferrous sulphate therapy. He was given plenty of breathing exercise after about 10 days, by which time it was hoped the ruptured vessels would have healed. He was covered during the first 10 days with penicillin while chest manipulations were going on and infection of the atelectatic lung was a risk.

Air continued to be troublesome, and I think has taken longer to remove than it should have done, because of the inefficient artificial-pneumothorax apparatus. We were fortunate that there was no recurrence, or perhaps at most only a slight recurrence, of bleeding. If this had occurred again I think transfusion and surgical treatment would have been needed."

Full re-expansion occurred during the following 10 days, and he returned to his unit for duty.

Comment

Although at the time unaware of Borrie's (1953) paper, we had already, from experience with traumatic haemothorax and penetrating chest wounds, appreciated the need for early exploration of the chest if there is evidence of continuing intrathoracic bleeding or if clotting has occurred. It is a life-saving procedure, and is essential if the lung is ever fully to expand again without later decortication.

In this respect the three cases reported make an interesting comparison. Case 1 was admitted initially to a surgical ward, where, on general surgical principles, the need for early exploration was appreciated. He was operated on within 24 hours, had full lung re-expansion from the time of operation, and was up fully convalescent within two weeks. Case 2 was admitted to a medical ward and treated expectantly on conventional lines for six days, during which he continued to bleed and to deteriorate progressively. Although after operation he never looked back, the delay lengthened the time required for full lung re-expansion and convalescence generally. Case 3 was treated by the traditional medical methods, surgery at no time being even considered. This case can be regarded as a successful result of conservative treatment, giving no cause for anxiety after the first few days. Nevertheless, full lung re-expansion took seven weeks. We feel that it was the layer of fibrin coating his pulmonary pleura rather than the defective aspirating syringe which was the real cause of difficulty in removing air from the pleural cavity.

We are in full agreement with Borrie that spontaneous haemopneumothorax is a surgical emergency demanding thoracotomy whenever bleeding is serious. We would go further and recommend emergency thoracotomy, after resuscitation, as the treatment of choice for all cases. At this stage it is a straightforward surgical procedure which, provided anaesthetic and surgical facilities are adequate, carries very little risk and permits direct access to the bleeding point, evacuation of all clot and air, and immediate lung re-expansion. Reluctance to operate has led to a high mortality, with a chest disability in survivors which at best results in slow convalescence with probably some permanent pleural thickening, while less fortunate cases will require the major procedure of pulmonary decortication to correct a crippling chest condition. In at least one case in five, spontaneous arrest of bleeding does not seem to occur, and these cases have contributed most of the fatalities in the past. In the remainder the chances of evacuating all blood and exudate before the occurrence of clotting or fibrin deposition sufficient to prevent ultimate full expansion appear to be less than even. It is important to remember that after initial resuscitation the patient, a healthy young adult, is fitter for surgery than he is likely to be for a long time if operation is delayed, and that the real risk in these cases lies not in operating but in not operating.

Summary

Three cases of spontaneous haemopneumothorax were reported, two of which were treated by emergency thoracotomy.

The condition should be regarded as an acute thoracic surgical emergency for which immediate thoracotomy is indicated.

We are indebted to Brigadier Douglas Bluett, Director of Medical Services, Far East Land Forces, for permission to report

Cases 1 and 3 and to Air Commodore G. P. O'Connell, Principal Medical Officer, Far East Air Force, for permission to report Case 2.

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ULCERATIVE COLITIS TREATED BY TOTAL COLECTOMY AND ILEO-RECTAL ANASTOMOSIS

BY

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In a preliminary communication (Aylett, 1953) I described an operation of ileo-rectal anastomosis with colectomy as a possible treatment of cases suffering from diffuse ulcerative colitis. The reasons for suggesting that it was possible to retain the rectum, thus avoiding a permanent ileostomy with its aesthetic and practical disadvantages, were detailed. In a further communication (Aylett, 1954) the types of cases in which the operation was indicated and in which ileo-rectal anastomosis could be achieved were described. Briefly, the operation can be carried out in all cases of ulcerative colitis in which surgery is indicated, with the exception of those in which the rectum has already been irretrievably damaged by gross fibrosis or by perirectal sup-puration and fistula formation. The presence of pseudo-polypi is not a contraindication for its performance.

The purpose of this short paper is to indicate certain modifications of surgical technique that experience has indicated to be desirable and to record the progress of the patients upon whom the operation has been carried out.

Modifications of Technique

Although in the first few cases the ileum was anastomosed to the rectum in its upper third the establishment of a safety-valve opening in the left iliac fossa necessitated the retention of the lowermost portion of the pelvic colon. This severely diseased portion of the large intestine may be included in the excision if the rectum is mobilized as an initial stage in the operation by division of the upper part of its lateral ligaments and of its posterior attachments. After the ileo-rectal anastomosis has been carried out the colectomy is completed by transecting the rectum through its upper part about 2 cm. above this anastomosis. It is then possible, as a result of the mobilization of the rectum, to exteriorize its open upper end through the lowermost part of the paramedian incision to act as a safety valve. The reasons for considering that such a safety valve minimizes the danger of a breakdown of the line of anastomosis, made as it is through a diseased rectal wall, have also been described previously. Moreover, this proctostomy tends to undergo spontaneous closure more readily than a colostomy in the left iliac fossa, so that the necessity for its closure by operation is required less often.

The large majority of patients are now operated upon in one stage, and in only one of the last 10 has an anastomosis and total colectomy not been effected in one operation. In this very gravely ill acute case the colon was excised and an ileostomy established as an initial stage of treatment, the upper end of the rectum being exteriorized