sugar and glycosuria, though for the same order of increase in oxygen consumption the effect of D.N.P. is slight compared with that of aspirin, and would in itself have no practical value in the treatment of the disease. This raises the question, Is it enough to say that the fundamental action of both D.N.P. and salicylate is inhibition of oxidative phosphorylation without further specification to account for quantitative differences?

Summary

Salicylate and 2:4-dinitrophenol (D.N.P.) inhibit oxidative phosphorylation. Salicylate also controls moderately severe diabetes mellitus. The effect of D.N.P. in the disease has been investigated.

Increased oxygen consumption from D.N.P. of the same order as is required with aspirin to control moderately severe diabetes lowered fasting blood sugar and glycosuria of six elderly diabetics. The reduction was, however, less than that achieved with aspirin, and would have no practical value in treatment.

This difference between D.N.P. and salicylate in diabetes makes it difficult to account for the action of both substances on the basis of inhibition of oxidative phosphorylation, at least, without further specifications.

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A CASE OF CONJOINED TWINS

BY

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Aird's (1954) remark, that owing to the greater accessibility of large groups of populations in Africa and Asia conjoined twins are seen with increasing frequency, is supported by the birth of the Kano and Port Harcourt twins in Nigeria, the case of the twins in Singapore (Roddie, 1957), and our own case as described below.

Case Report

An African woman, gravida-3, about 25 years of age, was seen in the antenatal clinic of our hospital on May 22. She gave a history of 32 weeks' amenorrhoea. On examination the fundus was felt three fingerbreadths under the ensiform cartilage. There was hydramnios, and two hard parts were felt in the fundus. No foetal heart was heard. Twin pregnancy was suspected, and an x-ray film, taken to confirm the diagnosis, showed two foetuses with the heads *in fundo* and the legs well down in the pelvis. The twins were in perfect apposition. Apart from this abnormal position, the vertebral columns showed a peculiar curve, suggesting that the twins were joined at the level of the sternum, thus not allowing the vertebral columns to assume their normal curvature. A presumptive diagnosis of con-

joined twins, with fairly firm union in the region of the sternum, was made, and the woman was admitted.

The next morning an oblique x-ray film was taken. This view showed the details even better, but no definite union could be diagnosed. Several student-midwives were allowed to examine the patient, and a few hours later she com-

Photograph of the conjoined twins.

plained of lower abdominal pains. Very soon the membranes ruptured and a large quantity of blood-stained liquor amnii drained away. One foot presented at the vulva. Examination *per vaginam* showed that there was full dilatation.

Having read Wilson Roddie's report on a similar case, I decided to follow the same method, and the patient was taken to the theatre, where she was anaesthetized. The remaining three feet were brought down, one of them causing considerable difficulty. Then the four legs were delivered simultaneously. Hardly any traction was used, the only force being firm expression. The bodies now descended parallel to each other without any difficulty. It became obvious that the twins were joined together, for they had one abdominal cavity, with imperfect closure in the lower part. When the scapulae were well visible, the legs and trunks were lifted right forward over the symphysis pubis. The posterior head engaged and came out without difficulty, immediately followed by the anterior head. Both foetuses were dead and showed signs of maceration.

A bilateral episiotomy was repaired with catgut. The puerperium was uneventful.

The twins, both girls, had a total weight of 2,350 g. (5 lb. 4 oz.). There was a single placenta with velamentous insertion of two cords. The distance between the insertion of the two cords was 2 cm. The placenta showed small infarcts.

Anatomy

The two female foetuses were preserved in formol-saline and examined after a few weeks. They were joined from the manubrium sterni to just under the umbilicus. The union at the level of the sternum was cartilaginous.

Dissection showed that each twin had its own lungs. The right lungs showed only two lobes, although there was an indication of a third lobe (partial fissure). It seemed that they had one heart in common, but after opening of the

pericardial sac it was found that there were two normal hearts in one single pericardium. The arch of the aortae and all their branches were normal in each twin. There was a ductus arteriosus in the normal position in each foetus. The diaphragm, if not a common one, was united, thus forming one large muscular division between thorax and abdomen. Under the diaphragm the stomachs and spleens were in their normal positions, nor did the intestines show any abnormality. The kidneys showed the normal foetal lobulation. The ureters were normal. The adrenals were very large, the kidney/adrenal weight ratio being almost 3:1 in each foetus. There were normal female genital organs. The anatomy of the liver was quite abnormal. Each foetus seemed to have a small lobe of its own, but the greater part of the peritoneal cavity was occupied by an enormous midline mass of liver tissue. On each side of this there was a gall-bladder and a porta hepatis. The entry of the umbilical vein on either side could easily be seen.

Some of the organs were weighed after dissection. It should be noted that this was after fixation in formalin. Foetus A: left kidney 4.6 g., left adrenal 1.35 g., heart 6.6 g., right kidney 4.3 g., right adrenal 1.35 g. Foetus B: left kidney 3.6 g., left adrenal 1.30 g., heart 7.5 g., right kidney 2.5 g., right adrenal 0.85 g. The total weight of all liver tissue was 50 g.

Summary

Conjoined twins in an African woman were diagnosed in the antenatal clinic after an x-ray film had been taken. Vaginal delivery, resembling a breech extraction, proved successful. The anatomy, as found on dissection, is described.

The adrenal glands were carefully dissected in view of the suggestion put forward in the case of the Kano twin who died post-operatively of possible adrenal insufficiency. Our case—at least macroscopically—did not suggest adrenal hypoplasia in either twin.

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THE RIGHT-SIDED APPROACH FOR HIATAL HERNIORRHAPHY

BY

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Various approaches have been described and practised by various surgeons for hiatal hernial repair. Harrington (1955) favoured the abdominal approach, Allison (1951) has described his technique for the left trans-thoracic approach, while Nanson (1956) has indicated that there are occasions when a combined thoraco-abdominal approach may be necessary. To date no record has been encountered of a right-sided approach for repairing such hernias, although it is a standard approach for performing oesophagectomy for carcinoma of the mid-oesophagus, after the method of Lewis (1946).

The following case report described an occasion when, because of a misdiagnosis, right thoracotomy was

performed, and a hiatal hernia was unexpectedly found and successfully repaired through the right pleural cavity, thereby demonstrating yet another approach for correcting this lesion, albeit accidentally (Blalock, 1956).

Case Report

A married woman aged 58 was admitted to the Thoracic Surgical Department of Dunedin Hospital on December 18, 1956, with a history that three weeks previously she had developed a dry cough, which within two weeks became associated with whitish morning sputum. She was not breathless except after bouts of postural coughing. She complained of sweating and malaise and ran evening temperatures up to 101° F. (38.3° C.) for a week. There had been no history of haemoptysis, nor any symptoms referable to the other systems. Her past history was non-contributory. Her father died from hydatid disease.

On clinical examination she appeared in fair health. Her respiratory, cardiovascular, alimentary, and central nervous systems were clinically normal.

Chest x-ray films showed the presence of a "cyst" in the medial segment of the lower lobe of the right lung. There was also a calcified hydatid cyst in the liver. Tomography confirmed the findings in the straight x-ray films. These findings were interpreted by the radiologists as hydatid disease.

The Casoni reaction was negative, as was the hydatid complement fixation. Her blood picture showed: P.C.V., 35%; Hb, 11.1 g. per 100 ml.; white cells, 7,600 per c.mm., E.S.R., 22 mm. in one hour (corrected). The red cells showed mild iron-deficiency changes. Differential white-cell count showed neutrophils 73%, eosinophils 2%, basophils 1%, lymphocytes 24%, and monocytes nil. Bronchoscopy revealed no endobronchial lesion.

The negative Casoni hydatid complement-fixation and eosinophil tests in no way excluded the supposition that this was a hydatid cyst of the lung, as such findings have been repeatedly found in patients with proved pulmonary hydatid disease. Operation was performed on January 30, 1957.

Operation.—The right pleural cavity was opened through the right sixth rib bed. There were no pleural adhesions. Protruding from the posterior mediastinum was a soft swelling approximately 7 cm. in diameter. It was attached to the under surface of the lower lobe of the right lung by a few filmy adhesions which were divided. On opening this "cyst" and isolating the oesophagus in the posterior mediastinum, it was found to contain the stomach. The true diagnosis of "hiatal hernia" was at once evident. This was supported by the fact that the oesophagus entered the stomach in the posterior mediastinum and did not reach down to the diaphragmatic level. The sac was excised, and, as the heart had fallen to the left side with the patient in the left lateral position, the crura of the diaphragm were readily isolated. The oesophagus was raised by a catheter sling and the crura were easily approximated with four double No. 4 silk interrupted mattress sutures. This effectively closed the hiatal hernial orifice. The oesophagus was next sewn to the diaphragm by a series of interrupted No. 2 silk sutures. It was surprising how relatively easily this operation was accomplished from the right side of the chest when the customary approach has been from the left side. The chest wall was finally closed over water-seal drainage, using interrupted catgut for the deep layers, subcutaneous catgut and nylon for skin.

The patient made an uninterrupted recovery and was discharged fit 15 days after operation. When seen a year later she was well, had no symptoms, and her swallowing was satisfactory, as was her x-ray film.

Summary

Following a misdiagnosis of hydatid cyst in the lower lobe of the right lung, and a right thoracotomy for its