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16.12.90

Dear Sir.

Re BAPS Memorabilia

I would refer you to Who's Who for my CV. In addition, & for historical interest! - I published the first successful cases in the treatment of Congenital Atresia of the oesophagus outside the USA & I enclose a

Reprint from the Lancet.

Yours sincerely

R Franklin

of tracheo-œsophageal fistula almost as large as that of œsophagus. Œsophagus reconstructed as in case 1.

Postoperative Management.—A blood-transfusion (100 c.cm.) was started in the theatre and was followed by an intravenous drip of *N*/5 glucose saline. The rest of the postoperative management closely followed what had been carried out in case 1 and was in the hands of Dr. J. N. O'Reilly; but two improvements were made: (1) the penicillin was given by mouth 10,000 units hourly, starting when the infant was returned to the ward; and (2) the mediastinal drainage-tube was removed earlier (April 30). Before the tube was removed it was shown radiographically that iodised oil was passing down the reconstructed œsophagus into the stomach.

Feeds of expressed breast-milk were started on April 29. No leakage took place from the mediastinal wound at any time; consequently a gastrostomy was unnecessary. This fact made it possible for the infant to make a smooth convalescence, and the only complications were a Horner's syndrome and a slight ulnar palsy (both on the right side). The former cleared before the child left hospital.

When discharged on April 25 the child was taking breast-feeds normally every four hours. Her progress has been maintained.

DISCUSSION

Early diagnosis is essential if success is to be obtained in these cases; to this end all babies with attacks of cyanosis and choking, made worse by attempts at feeding, must, until the contrary is proved, be regarded as having congenital œsophageal atresia. Meanwhile no feeding must be attempted. Unskilled attempts at diagnosis may lead to the contrast medium spilling over into the lungs. The proper method of diagnosis is described in detail.

As regards the operation, the extrapleural approach offers the best chance of success, because the suture line is almost certain to leak, and a leak within the pleura will almost inevitably kill the child. The use of penicillin greatly increases the chances of success.

The postoperative management is of the utmost importance, and without the coöperation of a skilled pædiatrician to take charge of the fluid requirements, and the unstinted services of an intelligent and conscientious nurse, the most careful operation will be of no avail.

I wish to thank Dr. Trevor Mann for looking after water balance and feeding after the operation; Prof. Alan Moncrieff for most helpful advice; and Sister Anderson and her staff nurse for their willing coöperation.

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CONGENITAL ATRESIA OF THE ŒSOPHAGUS

TWO CASES SUCCESSFULLY TREATED BY ANASTOMOSIS

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THE two cases of œsophageal atresia with tracheo-œsophageal fistula reported below seem to be the first to be successfully treated in England.

In America Ladd (1944), Haight (1944a and b), Haight and Townsley (1943), Holt et al. (1946), Leven (1939, 1941), and Humphreys (1944) have notably contributed to the surgery of this condition and great success has attended their efforts.

Two factors have delayed progress in this country: the idea that the condition is extremely rare, and misconceptions about its nature. It is less rare than is usually supposed: 4 cases were found in 10,543 deliveries at the British Postgraduate Medical School, and Guthrie (1945), searching the records at the Royal Hospital for Sick Children, Glasgow, found 24 proved and a further 6 probable cases in 6916 necropsies.

In the commonest type (80%) of congenital œsophageal atresia (fig. 1) the upper œsophageal segment ends blindly,

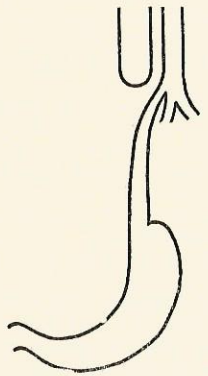

Fig. 1—Commonest type of congenital œsophageal atresia: upper œsophageal segment ends blindly at level of vena azygos arch; lower segment arises from trachea.

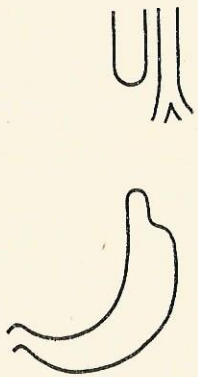

Fig. 2—Second commonest type of congenital œsophageal atresia: both segments end blindly, there being no fistula. Gap between segments may be large.

and the lower segment arises from the back of the trachea, forming a tracheo-œsophageal fistula. In the next most common type (fig. 2) both segments of the œsophagus end blindly, and there may be a large gap between the segments. Very rarely there is a fistula between the upper segment and the trachea, or between

both segments and the trachea. Still more rarely a fistula may exist without atresia. The cases here described were of the type shown in fig. 1.

Case 1.—A female infant, first child, born in Queen Charlotte's Hospital on Jan. 10, 1947, birth weight 7 lb. 7 oz., had attacks of cyanosis soon after birth, and attempts at feeding were followed immediately by cyanosis and choking.

The infant was seen by Prof. Alan Moncrieff, who made a tentative diagnosis of œsophageal atresia. No further feeding was attempted. The infant was transferred on Jan. 13 to Hammersmith Hospital, where the diagnosis was confirmed.

Confirmation of Diagnosis.—A soft rubber catheter was passed through the mouth and was arrested 10 cm. from the alveolar margin. Radioscopy showed that the lung fields were clear. Air was present in the stomach. Iodised oil, 1 c.cm., was introduced into the catheter and was seen to remain in the blind upper segment; the oil was then withdrawn. This examination confirmed the presence of atresia, and, by demonstrating air in the stomach, showed the type of anomaly. Care was taken to use only the smallest amount of iodised oil, so that none should spill over into the lungs.

Preoperative Management.—The blind upper segment was kept empty by frequent aspiration. The child's position was changed every quarter of an hour to allow each lung to expand. Dehydration was not noticeable, and no measures were instituted at this stage to introduce fluids.

Operation (Jan. 13).—The infant was secured in a prone position over a rubber water-bottle, the head turned to the right and a folded towel placed under the right shoulder. The line of the skin incision was infiltrated with 1% procaine. No other anæsthetic was used. Oxygen was given throughout the operation.

The incision started over the second right rib 1 cm. from the spine and passed downwards, curving slightly outwards at its lower end over the sixth rib; 2 cm. of the posterior part of the fifth rib was excised subperiosteally, great care being taken to avoid opening the pleura. The incision was carried upwards in the extrapleural plane, the intercostal bundles being ligated and divided, and the fourth, third, and second ribs divided. A small piece of the fourth rib was excised to improve the exposure.

The pleura was cautiously pushed inwards with a blunt dissector, and was inadvertently torn, but the hole was repaired by tying the edges together. The separation of the pleura was continued until the vena azygos arch came into view. This was divided between silk ligatures.

By gentle manipulation of the catheter the upper segment was identified, and stay sutures were introduced. The lower segment was found arising from the posterior surface of the trachea at the level of the azygos arch and was ligated and divided as close to the trachea as possible. Stay sutures were introduced into the lower segment.

Anastomosis was carried out with interrupted sutures of no. 0 silk. The lower segment was attached to the blind upper segment before the latter was opened; and, when the posterior part of the anastomosis had been completed, a catheter was gently pushed down from the mouth into

the stomach and the anastomosis completed over the catheter.

At the end of the operation the catheter was withdrawn, and the wound was dusted with penicillin powder and closed round a rubber drainage-tube lying in the extrapleural space.

Postoperative Management.—The infant was placed in an oxygen tent, and the mediastinal drainage-tube was connected to a water-seal bottle. Nasopharyngeal aspiration continued. Position of infant changed systematically. Penicillin therapy started by intravenous drip set up in left leg.

Progress.—Jan. 14: condition excellent.

Jan. 15: good air-entry on both sides of chest; penicillin by mouth every hour; swelling and induration of left calf; drip set up in right leg.

Jan. 16: penicillin 4000 units hourly by mouth; saliva escaping round drainage-tube; much œdema and redness of right leg; drip taken down; rectal drip set up, 14,000 units hourly.

Jan. 18: infant passed a stool; no penicillin found in mediastinal fistula; radioscopy after introduction of a small quantity of iodised oil into nasopharynx showed that the oil entered the stomach; drainage-tube removed, and oral feeding started at noon: at 10.30 P.M. the dressing was moist and curds were present.

Jan. 19: infant very hungry; Kader Senn gastrostomy carried out (1% procaine) at noon; at 6 P.M. blood escaped from mediastinal wound on coughing.

Jan. 20: 1.30 P.M., child exsanguinated; blood-transfusion given. Condition much improved at 4 P.M.

During the next few days the chief concern was the varying amount of leakage from the mediastinal wound.

Jan. 28: no leakage of milk from chest wound; saliva still leaks.

Jan. 31: chest wound dry; gastrostomy tube removed; child started breast-feeding.

Feb. 17: child behaved normal except that Hb had fallen to 51%; ferrous sulphate given.

March 12: Hb returning to normal; child taking food well by mouth.

Case 2.—A female infant, second child delivered at St. Helier's Hospital on April 24, 1947, by cæsarean section by Miss M. D. Daley (disproportion had necessitated cæsarean section in the first pregnancy).

Birth weight 6 lb. 7 oz. Excessive mucus and slight cyanosis noted at birth; colour improved after pharyngeal aspiration. Saline by mouth produced a recurrence of symptoms, but one dose of penicillin is said to have been retained. A rubber catheter passed by mouth was arrested 10 cm. from the anterior alveolar margin.

Diagnosis was confirmed by radiography carried out as in case 1. Air demonstrated in stomach. In spite of care taken, some iodised oil regurgitated into lungs and thence passed by an exceptionally large fistula into lower œsophageal segment and so into stomach. (This might lead to difficulties in diagnosis if screening were to be omitted and sole reliance placed on the radiogram.)

Operation (April 26).—Local anæsthetic. Posterior mediastinal extrapleural approach. Details of operation as in case 1. Anomaly found of type shown in fig. 1. Calibre