special treatment is to give the child with a primary infection the best opportunity of resisting and then healing the lesion. In $4\frac{1}{2}$ years 57 children were admitted to hospital from the contact group for clinical and social conditions. If more beds had been available at least 80 children would have been admitted, and I estimate that in Newcastle-upon-Tyne at the present time a tuberculosis contact clinic of this type requires the use of 10 hospital beds for children under the age of 3 years. This number does not include accommodation for children with acute disseminated tuberculosis and children over 3 years of age who can be sent to a children's sanatorium.

These estimates give some indication of the provision which I consider would be required to meet the problem of primary tuberculosis in young children of tuberculous families in Newcastle-upon-Tyne. The assumption I have made is that the present difficulty of removing the adult infecter will not be changed materially in the immediate future; as, however, more beds become available in sanatoria and the economic provision for families is extended the need for special protection for children will be reduced proportionately. Until then the work of diagnostic clinics will, I believe, be a valuable part of the tuberculosis service if the case-finding mechanism is supported by the provision of hospital beds and methods of separating children from danger of infection. If there is no such backing then one can agree with Thompson (1944) that the examination of children as contacts is not of much value apart from clinical and epidemiological interest.

Summary

The organization and work of a clinic for the examination of tuberculosis contacts has been described.

From June, 1941, to December, 1945, 520 children under the age of 5 years were examined: 369 contacts of pulmonary and 151 of other types of tuberculosis.

At the first examination 142 of 369 contacts of pulmonary tuberculosis were tuberculin-positive; of 151 contacts of other types of tuberculosis 12 were positive.

The mortality from tuberculosis in the 369 children in contact with pulmonary tuberculosis has been 5% to December, 1945.

In children under the age of 5 years 30% of the morbidity and 30% of the total mortality from tuberculosis occurred in a small group at special risk.

An attempt has been made to estimate the provision required to meet the needs of this group: (a) to separate the uninfected from further exposure; (b) to change the environment of the infected when this is necessary for either social or medical reasons.

I wish to thank Prof. J. C. Spence for criticism, Dr. G. Hurrell and Dr. E. G. Brewis of the City Tuberculosis Service for their co-operation, Dr. S. M. Livingston for continuing the work during the most difficult period of the war, and the health visitors, Misses F. M. Hatfield and E. Hann, for their constant enthusiasm and patience.

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RHABDOMYOSARCOMA CAUSING ACUTE RETENTION IN INFANTS

BY

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Rhabdomyosarcoma is rare, but two cases in which this growth caused acute retention in infants were admitted to the Royal Victoria and West Hants Hospital, Bournemouth, during 1944-5.

Nine cases of rhabdomyosarcoma of the urinary bladder have previously been reported, Case I below being the tenth. Seven of these occurred in infants aged from 3 days to 2 years. The remaining three were in adults of 23, 43, and 69 years. Rhabdomyosarcoma of the prostate or prostatic region has been reported in 19 cases, and Case II below is the twentieth. Although the origin of this growth is usually assumed to be in the prostate, Hirsch and Gasser (1944) suspect that it may belong to the class of similar growths which occur along the vas deferens.

The literature on both types of growth has been excellently reviewed by Khoury and Speer (1944), who also discuss the pathogenesis, pathology, and histology of these tumours.

Case I

A 17-months-old male child was admitted to hospital on July 15, 1944, with a history of difficulty in micturition for more than four months. Apart from an inguinal hernia, which had been "cured" 12 months before by wearing a truss, he had not suffered from any ailments since birth until the onset of the urinary trouble. During the four months before coming to hospital his dysuria had been treated by circumcision and urinary sedatives, without relief.

On examination the bladder fundus was level with the umbilicus, forming a tense globular swelling. Rectally the bladder was found to be partly filling the pelvis. A straight skiagram revealed no opaque calculi in the urinary system. The blood urea was 51 mg. per 100 ml. Slow decompression of the bladder was instituted, but it was soon found that despite the height of the fundus 2 oz. (56 ml.) of urine could not be obtained at hourly intervals. A cystogram showed a mottled picture suggesting a large cauliflower mass arising infero-posteriorly in the bladder.

At operation on July 24 the bladder, which was the size of a cricket ball and had hypertrophied walls, was found to be filled with numerous rounded myxoma-like pieces of tissue varying in size from a pea to 3.5 by 2.5 by 2 cm. Some pieces appeared to be detached and floating free, others were attached by filamentous pedicles, but the most recent growth arose from a broad pedicle about the size of a postage stamp, situated antero-laterally to the internal urethral meatus. Some 8 oz. (225 g.) of growth was removed and the pedicle was diathermized.

Histological examination showed that the pieces of tumour consisted of connective tissue interspersed with spindle and cylindrical cells which in many places were distinctly eosinophilic and had faint cross-striations. Some of the spindle-celled areas showed a moderate number of mitotic figures. A layer of partly denuded stratified epithelium clothed the surfaces of the growth.

After operation the patient's convalescence was slow and the suprapubic wound did not heal completely. A month later he complained of pain on defaecation and micturition, and at the end of two months a polyp of growth was extruded from the suprapubic wound. On Nov. 6 the bladder was reopened and a further 8 oz. (225 g.) of growth removed. This was of the same myxomatous, avascular appearance. The pedicle had not enlarged since the previous operation and the ureters and urethra were free from invasion. The pedicle was again

diathermized. X-ray therapy was given after the operation and again in January, 1945. However, the patient's condition deteriorated, and a fistula between the bowel and the bladder formed before he died of exhaustion on Feb. 24, 1945.

At necropsy the bladder was found to be full of the proliferating growth, which had completely invaded the vesical mucosa. A fistula had formed between the ileum, bladder, and suprapubic wound. The right kidney and ureter were normal, but the left ureter was much dilated and there was an early left hydronephrosis. No secondary growths were found.

Case II

A male child aged 9 months was admitted to hospital on Nov. 23, 1945, with a history of slight diarrhoea for one week. Two days before admission he had passed blood per rectum and since then had not micturated. He had a slight cough.

On examination he looked pale and toxic. His temperature was 100.4° F. (38° C.), pulse 142, and respirations 36. The abdomen was distended, and a cystic swelling, dull to percussion, arose out of the pelvis. Priapism was present. The external urethral meatus was slightly inflamed. On rectal examination a hard spherical tumour the size of a golf ball was found in the region of the prostate, occupying the greater part of the pelvis, with a distended bladder antero-superiorly. A provisional diagnosis of sarcoma of the prostate was made. The examining finger was blood-stained on withdrawal. Urinary examination showed a faint trace of albumin but no other abnormality. The bladder was slowly decompressed, and the following day a cystogram revealed a large bladder of good shape except for a "flattening" in the region of the trigone. On Nov. 27 intravenous pyelography did not disclose any renal or ureteral abnormality, and a skiagram of the chest was normal. The blood urea was 66 mg. per 100 ml.

The child's condition was poor from the time of admission. During the first week his temperature gradually rose to 104.8° F. (40.45° C.), his pulse to 160, and his respirations to 30. Operation was not considered feasible. On Nov. 30 his blood count was: red cells, 4,800,000 per c.mm.; haemoglobin, 47%; white cells, 21,800 (lymphocytes, 37%; monocytes, 9%; polymorphs, 54%). After decompression of the bladder he began to pass urine normally, but on Dec. 3 feeding difficulties began, and despite various changes in diet and intragastric drips the child died on Dec. 15.

Pathological findings at necropsy were limited to the urinary system. There was no evidence of metastases. The bladder was hypertrophied but small and empty. Its mucosa was congested but intact, and the ureteral and urethral lumina were freely patent. The whole organ was pushed up into the abdomen by a growth the size of a golf ball in the right lobe of the prostate. The growth appeared encapsulated and had not invaded the bladder or rectum, with which it was in contact. Hydronephrosis and hydro-ureter were absent.

Histological examination showed that the mass of growth in the prostatic region attained a diameter of 5 cm. and consisted of uniformly solid white tissue. Microscopical examination revealed cellular sarcoma consisting of large, irregular, elongated cells, the more mature of which were eosinophilic and showed distinct cross-striations in places.

Discussion

All reported cases of rhabdomyosarcoma of the bladder and prostate have been fatal within 13 months, the average being 6½ months after the onset of symptoms. It is interesting to note that in neither of the above cases were metastases found at necropsy, despite the fact that Case I survived 11 months after the onset of symptoms. Previously reported cases also witness that metastases are uncommon, and that the usual cause of death is ascending urinary infection.

The treatment of choice would seem to be total cystectomy and prostatectomy provided that infection is controlled. Khoury and Speer (1944) carried this out; but, unfortunately, ascending urinary infection after the uretero-sigmoidostomy of the second ureter resulted in their

patient's death 2½ months after the operation. The priapism in Case II was presumably due to irritation of the nervi erigentes, as there was no oedema or cyanosis to suggest obstruction in the prostatic venous plexus caused by the expanding growth.

Summary

One case each of rhabdomyosarcoma of the urinary bladder and of rhabdomyosarcoma of prostate are reported.

There were no metastases.

Eight ounces of growth from Case I and the internal urinary organs from Case II have been presented to the Royal College of Surgeons.

I wish to thank Mr. E. C. Bowden and Mr. J. G. Reid for permission to publish these cases, and Prof. R. A. Willis, of the Royal College of Surgeons, for the histological reports.

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Medical Memoranda

Pure Anti-E Agglutinin in the Serum of an Rh-negative Woman

The following case is worthy of record on account of its extreme rarity. The occurrence of the agglutinin anti-E in Rh-negative women has always been complicated by coincident anti-D, in either its complete or its incomplete form, owing to the stronger affinity of the D antigen. A pure anti-E serum has been obtained in an Rh-positive woman cDe/cde—husband cDE/cde (Race, 1946). The following is believed to be the first reported instance of pure anti-E in an Rh-negative woman.

CASE NOTES

Mrs. A., aged 26, blood group O, Rh group rr cde/cde. Husband's blood group O, Rhesus group R^r cDE/cde. She had had no previous pregnancies, miscarriages, blood transfusion, or injections of serum or blood at any time. Last menstrual period, March 29, 1946; expected date of delivery, Jan. 5, 1947. She was admitted to hospital on Jan. 17 because of post-maturity.

Surgical induction (Drew-Smythe, catheter) was performed on Jan. 20, after medical induction by stilboestrol had failed. The foetal heart was last heard on Jan. 20. On the 22nd a stillborn male child weighing 9 lb. 4 oz. (4.2 kg.) was delivered after labour lasting 35 hours 15 minutes. The liquor was recorded as thick but not yellow. The skin, however, appeared slightly yellow and the umbilical cord tissue was definitely jaundiced. The placenta was large, greasy, and granular, in keeping with the post-maturity. A specimen of cord blood showed blood group O, Rh group R^r; the cells also gave a strong reaction with the mother's serum. The maternal serum reacted against R₂ cells and R^r cells, but gave negative results with R₀ and R₁ cells. The titre of the anti-E agglutinin was 1 in 8 with R₂r and R₂R₂ cells.

At necropsy (Dr. Cant) the only pathological findings were the changes due to asphyxia caused by intrauterine inhalation of mucus.

COMMENT

In addition to the production of anti-E agglutinin the actual process of iso-immunization to such a definite extent is unusual for a first pregnancy, particularly with the antigen E. Levine (1945) has shown that erythroblastosis in a first child is usually due to previous immunization by blood transfusion. Although erythroblastosis has not been implicated as a contributory cause of death, it is strongly felt that, had a living child been born, it would probably have shown the signs of erythroblastosis.

I am indebted to Dr. V. M. Cross for permission to record this case. I should like to thank Dr. Sewart for providing the case notes, and Dr. A. E. Mourant and Dr. R. R. Race for confirming the serological findings.

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