1½ to 2 feet. As a nasal, pharyngeal, or vaginal douche a bland mineral water may act as a valuable solvent of mucus, a cleansing agent, or as a vehicle for other medicaments.

So much for the use of hydrotherapeutic methods. The indications must be not for this or that disease. Let us get away from Galen and his classification of diseases and back to Hippocrates and the estimate of the total personality, bodily and mental, of our patients. When the doctor has arrived at a diagnosis, not that the patient is suffering from this or that disease, but that he requires a change of scene and occupation, elimination of poisons, or a redistribution of circulation, let him remember the possibilities of a spa and hydrotherapy. On the other hand, let him not expect results from hydrotherapy where these effects are not likely to help, for in this lies abuse of hydrotherapy. Obviously acute disease of any sort is not suited to such treatment, at least until the active stage of the disease has abated, and, above all, the submission of a case of acute rheumatism to hydrotherapy within three and probably six months of the attack is to be avoided. Where there is any cardiac affection which has not completely subsided I am prepared to say that these cases always do badly, and even cases which do not show any evidence of cardiac disease on their arrival at a spa may do so in the course of their treatment if sufficient time has not been allowed to elapse since the acute attack.

Finally, let us face the facts of hydrotherapy and realize what we can do with its aid, and confine ourselves within these limits. The worst abuse of hydrotherapy is the tendency to make a mystery of it, and to regard it in any way as a miraculous cure for any and every disease.

OVARIAN SARCOMA IN A CHILD ASSOCIATED WITH SEXUAL PRECOCITY.

BY

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CERTAIN tumours of childhood are associated with striking general abnormalities. This is specially true of tumours of the gonads, adrenals, and pineal body, which may be associated with precocious sexual maturity. The number of recorded cases where the abnormality has been found in association with a tumour of the ovary is comparatively small. In these cases menstruation is established at such an early age as to be truly precocious, and there is also found enlargement of the mammae and the growth of pubic hair.

The explanation of the relation of the tumour to the general condition produced has led to considerable speculation. It is well established that the gonads have a direct influence on sexual development, and it is possible that the tumour may lead to an increased formation of the tissue which influences development—the changes produced are simply the expression of a true precocious puberty. Klemperer, who accepts the view that the interstitial cells of the gonads are essential for the normal development of the sexual characteristics, believes that those tumours associated with sexual precocity are sarcomas derived from the interstitial cells. If this opinion can be accepted, then hyperactivity of the tumour tissue might be adduced as the cause of the developmental anomalies noted.

The origin of ovarian tumours is somewhat obscure. They are generally met with during the period of sexual maturity, but are also occasionally seen in children. The incidence of malignant tumours of the ovary in children increases markedly during the second decade—that is, at and after puberty. Cases occurring in children under 10 years of age are remarkably rare.

The case recorded in this paper occurred in a child in her third year of life, and a malignant tumour of the right ovary was associated with sexual precocity. The tumour was subsequently removed and the patient remains well, with no apparent sign of recurrence two and a half years after operation.

The following is the history of the case.

The patient was stated to have been a perfectly healthy child since birth, presenting no abnormal symptoms whatever. When 2 years and 10 months old she had some vaginal haemorrhage lasting three days, and shortly after this a swelling was noticed in the abdomen.

When brought to hospital there was a well-marked abdominal tumour about the size of a cricket ball, firm, rounded, and freely mobile, rather to the right of the mid-line and below the umbilicus. The child was normal in weight and height, but it was noticed that there was distinct enlargement of both breasts, conforming to the adult female type, and in addition there was a marked development of the pubic hair.

Whilst under observation in the Children's Hospital she had a second vaginal haemorrhage, which occurred twenty-eight days after the previous period. In view of these symptoms a provisional diagnosis of an ovarian tumour was made; a radiogram proved negative, and cystoscopic examination showed that both kidneys were acting normally.

On August 26th, 1925, the abdomen was opened by a right paramedian rectus incision and a freely mobile tumour was found arising from the right ovary. It was free from adhesions, and there were no peritoneal or glandular metastases. The uterus appeared large for the child's age; the left tube and ovary were normal. The tumour and right Fallopian tube were removed intact and the wound closed. The child made a straightforward recovery from the operation.

The specimen was examined by Dr. A. E. Somerford.

Pathological Report.

The tumour, which weighed 225 grams, was about the size of a cricket ball, and was rounded in form. There was no distinct capsule. It was practically a solid tumour, but on section there were some cystic areas of small size filled with altered blood. Microscopically the growth had the structure of a small rounded sarcoma in which there were numerous areas of haemorrhage. There were no remnants of ovarian tissue present.

Subsequent History.

Since the operation the child has developed normally. The breasts have decreased in size, there has been no further menstruation, and the pubic hair has been lost. A recent examination two and a half years after operation has revealed no evidence of recurrence of the tumour, and no metastases could be discovered.

Remarks.

The points of special interest in the case are the rarity of the condition and the early age at which the tumour was discovered, most other cases recorded occurring in older children.

The nature of the tumour was established pathologically as being a sarcoma, and it is interesting to note that the ovary itself could not be recognized either by the naked eye or by the microscope, being completely incorporated in the tumour.

After removal of the growth the condition of the child has returned to normal, and although the tumour was histologically malignant the subsequent history of the case has been satisfactory.

THE CAUSE AND TREATMENT OF THE CRISIS IN LOBAR PNEUMONIA.*

BY

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IN South China and Hong-Kong quite 90 per cent. of the cases of lobar pneumonia are caused by the pneumococcus of Fraenkel. The crisis is not due to immunization, for if this were the cause the fall in temperature would be gradual as the immunity increased, and hence the curve would drop very slowly over a number of days. The drop in temperature is, however, sudden, often occurring within a few hours, and hence the cause cannot be explained in this way.

The pneumococcus grows very readily on blood agar, producing a characteristic green coloration; no other known organism can produce this particular green coloration on blood agar. Moreover, it is known that after a time the pneumococcus ceases to grow in the same medium, and it has been shown experimentally that this is due to the formation of hydrogen peroxide or some other peroxide, and that no other agent can produce the same identical colour.

Numerous experiments show that the pneumococcus

* Modified by the author from a lecture delivered to the Hong-Kong Branch of the British Medical Association.

produces the gas oxygen, which acts favourably on its growth for a time; but when sufficient oxygen has been set free to benefit and make the "soil" more suitable for rapid growth the organism sets free oxygen in excess, which has been shown to be very detrimental to growth, so much so that the cocci die. There is a limit to the utility of oxygen, for beyond a certain strength it defeats the object for which the organism apparently produced it. When this point is reached in pneumonia the crisis is reached, and the temperature rapidly drops to normal or subnormal; in this way Nature provides its own cure. In experimental investigations the usual laboratory methods were used for the collection of the gas produced by these organisms, and without exception the gas was proved to be oxygen.

Method of Administering Oxygen in Pneumonia.

There is a very small point which is of great importance in the use of oxygen in pneumonia, and is the secret of the success which has followed my treatment of all pneumonia cases: the oxygen should be used warmed. In the past the use of oxygen has been the cause of more deaths in pneumonia than one cares to contemplate, simply because it was administered cold and not warmed to the required temperature; hence the lungs were chilled and the patient could not stand the shock. The oxygen should be heated by passing the gas through coiled Littré's tubes immersed in a water-bath kept at a temperature of about 120° F., the gas being passed through the tube at a slow rate, which is gauged by the comfort of the patient, who breathes quietly and does not complain of the "choking" feeling which occurs when the gas is administered too quickly. By keeping a thermometer in the tube it was found that the gas passing through at this very slow rate was about 99° F. when the water-bath registered 120° F. One thing to watch is the risk of sudden collapse when the crisis occurs; this can fortunately be avoided by the daily administration of pituitrin, 1/2 c.cm. being administered hypodermically morning and night, the heart action being safeguarded by the old-time proven remedy of digitalis administered from the onset of the disease; the omission of this has been responsible for the loss of many a case of pneumonia. Every clinician can verify the fact for himself that oxygen rapidly cures these cases, and every bacteriologist can satisfy himself that the pneumococcus alone among micro-organisms can produce the particular green coloration to which reference has been made.

That the foregoing method of administering oxygen is effective in the treatment of pneumonia is evident from the clinical observations recorded below. Among the Chinese the disease is more common in males than in females. As medical officer in charge of H.M. prisons in Hong-Kong and Li Chi Kok I have still to report my first female pneumonia patient, although it is quite a common disease among the male prisoners. My statistics show noticeable epidemics, when house after house was infected in Canton, and then would come a spell when for months not a single case of pneumonia would occur. The epidemics were most prevalent in May, June, and September. Persons such as police and coolies, who are exposed to weather changes, showed a marked preponderance of cases. Most patients had a previous history of similar attacks having occurred one, two, or three years before, which is a point of great interest. Most attacks occurred after the moist heat (humidity of over 95) so characteristic of South China; the majority of the patients were whisky drinkers.

Clinical Observations.

A rigor was the initial symptom in 65 per cent. of the cases, and 25 per cent. had a noticeable malar flush, often simulating typhoid fever; this latter disease was eliminated by laboratory methods and clinical findings.

Headache was a prominent feature in 29 per cent. of cases. Pain in the right side was complained of by 27 per cent., and pain on the left side by one patient.

In 84 per cent. of the cases the respirations at the first visit ranged between 40 and 47; in 16 per cent. of cases 27 to 34. Within six hours of commencing treatment in over 50 per cent. of cases the respirations had come down to somewhere in the region of 27. Within two days of treatment the respirations ranged between 16 and 20, and the patient was apparently well on the third day.

With three exceptions the temperature recorded when the patient was first seen was between 103° and 104° F. In one of

the three exceptions the temperature did not rise above 99° F., although the physical signs and symptoms were definitely those of lobar pneumonia; this patient had also a marked pleural effusion on the left side. In all cases in which oxygen was administered the same day for a quarter of an hour, every hour, passing the gas through a Littré's tube, the patient's temperature reached the normal within three days.

The following case, selected at random from over one hundred cases, is typical of all patients so treated:

A man, aged 48, when first seen had a temperature of 103.8° F.; the respirations were 40, the pulse 109, and the malar flush was marked. There was frontal headache, and pain on the right side of the chest which was said to be much increased by deep breathing. He wanted to cough, but was prevented by the pain. The urine was very dark, with a trace of albumin; the faeces were well formed, but had an offensive odour. He complained of slight thirst, but when water was given he refused it.

Oxygen was administered as previously described. Six hours later the temperature was 102° F., the respirations were 25, the pulse 85, and the headache had almost gone. The pain in the chest was much relieved; he was able to cough, but there was no sputum. The urine was not so dark, but contained albumin. The patient had not had any further rigors, though there had been some previously. Although breathing was still not as free and easy as normal, nevertheless the patient had a good sleep.

The next day at 10 a.m. the temperature was 102° F., the respirations 24, and the pulse 68. There was no pain in the chest, and no headache. The sputum was free and thick, but only suggestive of the "rusty" colour. The urine contained no albumin. He had passed faeces which were well formed and normal in colour. The typical physical signs of lobar pneumonia were disappearing, and fine crepitations were heard at the base.

On the third day at 4 p.m. the temperature was 98° F., the respirations 15, and the pulse 70. The sputum was diminishing, the urine was dark, but contained no albumin, and the patient had passed a normal motion.

Recovery was rapid and complete, the disease being apparently cured within three days, the patient getting up on the fourth day, and out on the sixth day. When last seen he was enjoying a swim.

The crisis appeared in most cases to occur during the night, when the patient was asleep. None of these patients felt weak or complained of any disability whatsoever, and they breathed rather freely all the time.

Oxygen does more than merely increase metabolism: it destroys disease.

DANGER OF INTRAVENOUS CALCIUM THERAPY.

BY

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INTRODUCTION.

CALCIUM has been given intravenously in the treatment of lead poisoning, infantile tetany, tuberculosis, Bright's disease, haemorrhage, heart disease, and in the pre-operative preparation of jaundiced patients. Cushny (1924) stated that calcium injected directly into the blood stream acted much like digitalis in that it accelerated and strengthened the heart beat in small doses, but in large doses it seemed to be poisonous, tending to bring the heart to a standstill. Brown, MacLachlan, and Simpson (1920) observed that doses of 1.25 grams of calcium lactate, given intravenously to infants suffering from tetany, resulted in drowsiness, dyspnoea, cyanosis, and sometimes collapse. Neumann (1920) reported favourable results in cases of haemorrhage and of acute and chronic diarrhoea from the intravenous injection of 5 to 10 c.cm. of a 10 per cent. solution of calcium chloride. Grove and Vines (1921) pointed out the value of the intramuscular injection of 100 minims of a 1 per cent. solution of calcium chloride in cases of haemorrhage. Walters (1921) reported the use of calcium chloride in 10 per cent. solution intravenously in the pre-operative preparation of jaundiced patients. The treatment was efficacious in producing a shortening of the blood-clotting time. This author stated that calcium in small doses, as 10 c.cm. of a 10 per cent. solution, might be given intravenously without harm.

In a further study of the action of calcium chloride given intravenously Walters and Bowler (1924) found that approximately twice the amount of the salt was required to raise the blood calcium of jaundiced dogs to the same level as that of normal dogs, and this in spite of the fact that the blood calcium content was practically the same in the jaundiced and normal dogs before and after