CASE XI.—*Uterus Unicornis: Pelvic Right Kidney: Normal Pregnancies.*

In October, 1936, I operated on a woman, aged 34, on account of proclitelia and what appeared to be a right ovarian tumour. She had had three children, the confinements being normal. On opening the abdomen the tumour was found to be the right kidney, fixed in the hollow of the sacrum; the left kidney was in the normal position. The right side of the uterus was undeveloped, only a rudimentary tube and ovary being present; the tube was connected with the main part of the uterus by means of a slender cord-like structure, the rudimentary horn. The right round ligament was also quite rudimentary, but the left was unusually well developed, so I used it to sling up the uterus to the abdominal wall. Later on the patient became pregnant and again had a normal confinement. Dr. W. H. Paine, who attended her, wrote to me about it, and mentioned that he had been puzzled by a firm swelling in the hollow of the sacrum, which did not, however, interfere with labour. I was able to tell him what the swelling was.

It was noteworthy in this case that the malformation of the right half of the uterus was correlated with the pelvic position of the corresponding kidney.

(b) Secondly, we have the condition known as double uterus, in its three degrees of septus, bicornis, and didelphys. With all these three malformations, pregnancy may occur and labour proceed normally without any suspicion being excited; on the other hand, various complications and difficulties may occur. I need not enumerate these in detail, but will refer you to some observations I made on the subject in a paper on uterus didelphys.¹ I will content myself here with relating a few cases that I have met with.

CASE XII.—*Uterus Septus with Fibromyoma.*

The only case of uterus septus that I have had to do with was in a single woman, aged 53, on whom I operated for a large fibroid in December, 1901, at the Tottenham Hospital. Supravaginal hysterectomy was done. The cervix was single, and it was only on cutting open the tumour afterwards that two distinct cavities were found in the body of the uterus.

CASE XIII.—*Uterus Bicornis with Ovarian Cyst.*

In 1904 I saw a single woman, aged 25, who had what appeared to be an ovarian tumour the size of a fist to the right of the uterus. She was admitted to the Chelsea Hospital for Women. On opening the abdomen I found the condition of uterus bicornis; the right horn was in close proximity to an ovarian cyst the size of an orange, and the horn and cyst together had given the impression of a larger ovarian tumour. Ovariectomy was done, and the uterus was left undisturbed. In this case the cervix was single (uterus bicornis unicollis), so there was nothing on vaginal examination to suggest that there was a double uterus. The patient married later on, and I saw her some years afterwards, but she had not then had any children.

In this case the fact that the condition was not recognized before operation was not important, because the ovarian cyst required dealing with in any case. In the next case the condition led to an unnecessary exploratory coeliotomy.

CASE XIV.—*Uterus Bicornis: Exploratory Coeliotomy.*

In November, 1910, a single woman, aged 22, came to the out-patient department at the Prince of Wales's Hospital. On examination she appeared to have a small, firm ovarian tumour on the right side. She was admitted for operation, when the condition was found to be one of uterus bicornis, both ovaries being quite normal. The abdomen was closed, and the state of things was afterwards explained to the patient in order that she might not have the abdomen opened with unnecessary frequency. In this case, as in the last, the cervix was single and menstruation was normal.

CASE XV.—*Uterus Didelphys.*

This case was reported in the *Obstetrical Transactions*, as previously mentioned. The patient complained of something coming down, and on examination I found a fold projecting from the lower part of the posterior vaginal wall. It looked like a rectocele. On examination under the anaesthetic the fold proved to be the remains of a septum running all down the posterior vaginal wall; traces of attachment of the septum on the anterior vaginal wall were also found. There were two cervixes, and the two halves of the uterus were quite distinct. The patient had had a miscarriage soon after marriage, followed by the birth of a living child, the confinement being normal, and the double uterus had not been suspected. The septum between the two vaginæ probably gave way during labour.

(c) The third group comprises cases with the persistence of both longitudinal and transverse septa—that is to say, double uterus and vagina with atresia of one half of the vagina. The patent half allows of menstruation, marriage, and child-bearing; but the retention of menses in the occluded half may lead to a diagnosis of a tumour, or if undetected before the onset of pregnancy it may lead to obstructed labour.

My colleague Mr. Gillespie, when taking charge of my cases recently at the Prince of Wales's Hospital, met with a case of unilateral atresia in a young girl of 17. As almost invariably happens, the diagnosis was pelvic tumour, and it was only when the abdomen was opened that the nature of the condition was recognized.

REFERENCE.

¹ *Trans. Obst. Soc. of London*, vol. xxxvii for 1895.

THE INEFFICIENCY OF THE PRESENT METHODS OF SALINE INFUSION.

A DESCRIPTION OF A NEW METHOD.

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DR. COUTTS in his letter to the *BRITISH MEDICAL JOURNAL* of September 16th, referring to the fact that the "seawater injections" are given "at the ordinary temperature of the room," says:

Babies with severe diarrhoea are almost invariably collapsed when first seen, and to inject 100 c.cm. of cold fluid into infants in such a condition is to court disaster, and is a procedure to be unhesitatingly condemned.

With this remark I am in entire agreement, but to me it is a strange fact that for some years past medical men have been infusing patients subcutaneously with saline solution believed to be at body temperature, whilst no one appears to have taken the trouble to investigate whether the fluid is really at body heat or not.

As a result of experiments I am firmly convinced that none of the present methods—not even the one used at the East London Hospital for Children and described by Drs. Waller and Walker—ensure that the patient receives saline at a temperature appreciably, if at all, greater than that of the surrounding atmosphere.

To an adult it makes far less difference whether the saline be at the temperature of the body or some degrees lower; but of one thing I am certain, and that is, that for a child already collapsed it is absolutely essential that the solution be hot.

The appearance of Dr. Coutts's letter, and also a paper on "The Management of Epidemic Summer Diarrhoea and Vomiting, including the Use of Saline Injections," by Drs. Waller and Walker in the same number of the *JOURNAL*, has led me to make known some recent observations and experiments on the subject of saline infusions.

Drs. Waller and Walker describe the method of infusion used at their hospital, and in the following words seem to suggest that the infants so infused receive the fluid at a temperature of 105° F. They write:

The amount of saline prescribed . . . is put in at a temperature of 120° F. This allows for a drop of 15° F. in transit through the tubing, and at 105° F. the fluid has been found to be absorbed most readily.

Further on they state:

The amount usually ordered is about 7 oz., and takes two hours to run in.

They proceed to give particulars of the apparatus they use. The idea on which it is based is good and sound; but, apart from relieving the nursing staff of a considerable amount of work, I very much doubt if the method which they adopt is an advance in the direction of insuring the patients getting the saline hot.

For some time I have used an instrument similar to the one which they suggest, though less crude, and since the publication of their article I have fitted up an apparatus exactly like the one described by them. With the latter instrument I set out to prove or disprove, as the case might be, the contention that by filling the flask at 120° F. and permitting the fluid to flow out at the rate of "7 oz. in two hours" the infant actually received the saline at 105° F.

As a result of repeated observations I was able to demonstrate that the temperature at which the child received the fluid was between 75° F. and 77° F., the atmospheric temperature at the time of the experiment being 64° F. The method which I used for recording the

temperature at which the fluid would enter the body was that suggested by Drs. Waller and Walker—namely, allowing the fluid to drop on the bulb of a thermometer surrounded by wool. The method, however, which I usually adopt for such readings is slightly more accurate. It consists of a glass T-piece encased in wool and put in the course of the fluid, immediately adjoining the needle, so that the salt solution on its way to the patient has to pass through one limb of the T-piece. Into the limb at right angles to the direction of the flow I introduce a small thermometer, so that the bulb is constantly in the stream of fluid. In this way a fairly accurate reading is obtained of the temperature at which the saline enters the body. As a matter of fact, the temperature thus recorded is usually a degree or so higher than that obtained when dropping the solution directly on to the thermometer.

Having satisfied myself on this point, I next proceeded to find out at what temperature it was necessary to have the fluid in the flask in order that it might be delivered at 105° F. if running at the rate of "7 oz. in two hours." I found that a temperature of 194° F. was necessary, not 120° F., as suggested by the writers referred to.

It will be self-evident to every one that the temperature at which the patient receives the saline depends very much on the rate of flow, and herein, I believe, lies the secret of hot infusions. A child can, as a rule, take its 7 oz. in much less time than two hours, and, indeed, often takes much larger quantities with strikingly beneficial results, provided only that the saline be hot. To distend a child's skin with fluid at about 70° F. to 80° F. does much more harm than good. Over and over again one sees collapsed infants breaking out into a cold, clammy sweat, and becoming still more collapsed after the administration of a subcutaneous saline. This deplorable condition, I venture to think, can be prevented by giving saline which is really hot. But now comes the question, How is this to be done?

In the course of my experiments I have investigated most of the present-day instruments in frequent use, but it will suffice if I state a few facts about the more popular of them.

The Barnard infusion apparatus, I am told by the instrument makers, is sold in great numbers, and is the most popular appliance. It has long been the custom at this as well as at many other hospitals to use this instrument by infusing with saline kept at a temperature of about 110° F. to 120° F. in the reservoir, or flask, from which the fluid flows. It is indeed pathetic to see a pains-taking nurse or sister striving to keep the fluid at about this temperature, and fearing that if it were to rise above 130° F. or so, the little victim would be scalded. As a result of accurate experiment I can state positively that the temperature at which the patient receives the solution is usually between 70° F. and 85° F., provided, of course, that the rate of flow is reasonable. Only when it reaches the absurd rate of 120 oz. in the hour with saline at 110° F. in the flask does the thermometer read 105° F. at the needles.

The chief point which makes this instrument extremely unsatisfactory is that the temperature at the point of introduction to the body falls; even though the fluid in the flask be kept at a constant temperature. For instance, saline flowing at the rate of 17 oz. an hour was started at the temperature of 130° F. in the flask. This was emitted from the needles at 96° F. for the first few minutes, but within half an hour it had fallen gradually to 84° F., although the saline in the flask was kept at the original temperature by means of a "water jacket."

The main loss of heat takes place in the ball in the course of the tube, in which the fluid stagnates. To obviate this it is suggested that one should have a basin of hot water with the tube coiled in it. Theoretically this is good, but practically it is unsatisfactory.

The only practical way of ensuring hot saline with this instrument is to start it with fluid at 140° F. in the flask, the rate of flow being 12 oz. in the hour, and within five minutes add hot water to the jacket, until at the end of fifteen minutes the saline is at 180° F., and then keep it at this temperature. It may be said by some that 12 oz. an hour is too fast a rate for a child. If so, then the Barnard apparatus is useless for hot salines.

Another form of infusion apparatus in frequent use is Arbuthnot Lane's bag. This is quite as unsatisfactory as

the other method, and, in addition to the temperature falling rapidly, the rate of flow also diminishes, owing to the formation of a vacuum in the bag. This slowing of the stream helps to cool down the fluid still more. With this apparatus it is necessary to have the saline in the bag at a temperature of at least 140° F., with the rate of flow 12 oz. in the hour, to get saline delivered from the needles at 95° F. A further objection to this appliance is the fact that there is no method of estimating the rate of flow or the temperature in the bag.

The Lane instrument was, of course, designed for use on adult patients, and its adoption for use on children is utterly impracticable.

There is at present on the market an apparatus devised by Murphy for continuous proctoclysis. Its use for subcutaneous salines has been suggested, and it is claimed that one can estimate the rate of flow by means of a drop appliance. The chief point about this instrument is the vacuum flask for keeping the fluid hot, but this object is entirely frustrated by the drop device, which is placed within a very few inches of the flask, and, being made of glass, causes the saline to be cooled down to the air temperature as it drops. Such an instrument is useless for the administration of hot solutions to infants.

There does not appear to be any instrument at present made, so far as I know, which really guarantees the patient getting hot saline.

The apparatus which I have designed and used resembles in the main features that described by Drs. Waller and Walker, but I contend that it has several distinct advantages over theirs, the chief being that the patient does really receive hot saline, and that I can not only accurately observe the rate of flow, but I can record the amount of saline the child has received.

The instrument is simple and easily worked. Once the saline is started, it requires no further attention beyond clipping it off when the patient has had the prescribed amount.

A diagram will simplify the description of this instrument.

The essential part is a vacuum flask, the neck of which is fitted with a rubber cork and three glass tubes, one long and extending to the bottom of the bottle, the other two short. The case in which the flask is held is fitted with a handle, and on each side a glass tube is securely fixed and graduated by experiment in ounces. To one of the short glasses passing through the cork a piece of rubber pressure tubing is attached to convey the saline to the patient. To the other glass tubes fitted in the cork small pieces of rubber tubing are attached, and when the bottle is filled and corked these short tubes are connected up with the graduated glasses, one on each side. The result of having them both graduated is that it matters little which tube is attached to which glass, for either will register. This simplifies the appliance somewhat.

When the flask is inverted and the saline running, air is carried to the top of the bottle by means of the long glass tube, and, the fluid escaping into the glass tube of the opposite side, acts as a register.

The register can be graduated to record the amount in the flask, or, as I prefer it, the amount the patient has received.

The solution is conducted to the patient by a short length of rubber pressure tubing. Pressure tubing is used to prevent the loss of heat, since rubber is a poor conductor.

This, like most other appliances, is fitted with a Y-piece, so that it can be connected to two needles and the patient infused in two places at the same time. Ordinary infusion needles are used, and screw clips to regulate the rate of flow.

A most important point about this instrument is that the total length of rubber tubing to each needle should not exceed 10 in.

The screw clips for regulating the rate of flow are not depicted.

When in use the apparatus is hung on a hook above the baby's body, or it may be put on a suitable stand.

A few words may be added as to the sterilization of the instrument, and the method of using it. To sterilize it, I keep it always full of formalin solution, 1 in 250, and wash it out immediately before use with hot sterile saline and then fill it up with fluid for use. The rubber tubes, cork, glasses, and needles, are all boiled.

The method of infusion which I adopt is to fill the flask with saline at a temperature of 135° F. and allow it to flow at the rate of 8 oz. an hour. This insures the infants getting saline at a temperature of 104° F.

In conclusion I would say that I do not for one moment suggest that this instrument is in any way perfect, but I claim for it that it is a decided improvement on all others, and that it does actually deliver the saline solution hot, which is, after all, the most important point.

PAINLESS SWELLINGS OF THE PAROTID SECONDARY TO LOCAL SEPSIS.

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THE following cases, although occurring in natives, I think are worthy of note, as they are associated with some peculiarities not commonly found in other inflammatory conditions of the parotid.

CASE I.

An Indian female, aged 18, was admitted on April 26th, 1911, with a soft, painless, oedematous swelling in the region of both parotids, which was most marked between the lobe of the ear and the angle of the lower jaw. The temperature was 98.6°, the pulse 82, and the breath extremely foul. No other signs were discernible. On May 2nd the patient complained of toothache, and I found the gums red and puffy. A few days afterwards they became more spongy, marked pyorrhoea was evident, and the teeth were loosening. I gave the patient pil. calcium sulphide, gr. ij, t.d.s., with a mouth-wash of potassium permanganate. The gums began to improve, and the swelling of the parotids completely disappeared by May 21st.

CASE II.

A native male, aged 16 years, was admitted May 12th, 1911, complaining of a sore throat and swelling in the region of both parotids. The swelling was soft, puffy, and painless, and most marked between the lobe of the ear and the angle of the jaw. The submaxillary glands on both sides were enlarged. The patient had definite follicular tonsillitis, the right tonsil being much the worse of the two. This corresponded with the larger swelling of the parotid on the right side. The pulse was 84 and the temperature 98.4°. Treatment consisted in gargles, a tonic containing iron, and fomentations to the swellings. The patient left hospital on May 21st cured.

CASE III.

A native female, aged 2 years, was admitted May 23rd, 1911, with a swelling in the region of the left parotid and a discharging sinus behind the same ear. The swelling was soft, oedematous, and painless. Facial paralysis was marked on left side. The temperature was 95° and the pulse 120. The mastoid was opened and drained. The parotid swelling disappeared a few days afterwards.

In each of the cases a definite cause could be assigned—namely, sepsis from neighbouring parts. One would expect some pain to have been present in the parotid swelling, but this was entirely absent. In all three cases that part of the gland which lies in front of the lobe of the ear and the angle of the lower jaw showed the largest amount of inflammation. The character of the swelling did not simulate that of mumps or that due to the more severe forms of inflammation. Fever was entirely absent in all three cases, and the condition quickly subsided after treating the septic focus.

THE Far Eastern Association of Tropical Medicine will hold its second biennial congress at Hong Kong in January, 1912 (20th to 27th), under the presidency of Dr. J. Mitford Atkinson. The work is arranged in the following groups: (1) Protozoology, helminthology; (2) cholera, plague, leprosy, tuberculosis; (3) tropical fevers, malaria, beriberi, dysentery; (4) surgery, obstetrics, infantile diseases; (5) climate, hygiene, sanitation. Dr. Francis Clark, of Hong Kong, is secretary-treasurer general.

SEVENTY-NINTH ANNUAL MEETING

OF THE

British Medical Association.

Held in Birmingham on July 21st, 22nd, 24th, 25th, 26th, 27th, and 28th.

PROCEEDINGS OF SECTIONS.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

EDWIN GOODALL, M.D., F.R.C.P. Lond.,
President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE President, after a few initial observations, opened the work of the Section by reading a paper on the possible relation of toxins to certain forms of insanity.

THE POSSIBLE TOXIC ORIGIN OF SOME FORMS OF INSANITY.

By EDWIN GOODALL, M.D., F.R.C.P. Lond.,
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It is well known that mental disorder can be produced by intoxicants (alcohol, cocaine, hashish). It also occurs in connexion with such diseases as influenza, erysipelas, pneumonia, typhoid. When so occurring it cannot be always explained as due to fever or exhaustion, since it comes on in the prepyrexial stage (as in typhoid, variola), or the apyrexial stage (as in malaria). In these cases the mental disorder must be ascribed to a toxin.

The clinical and anatomico-pathological descriptions of various writers (Martin and Ringenbach, Franca and Anthias, Spielberger, Mott, etc.) show a considerable resemblance between the symptoms due to the trypanosome-toxin and those present in paralytic dementia, and some resemblance in the cerebral lesions. With sleeping sickness there is more fever. No remissions occur, I believe, in this disease, in striking contrast to general paralysis; on the other hand, I believe there is a lymphocytosis in it. As to the occurrence of the same in paralytic dementia, *vide infra*.

That acute delirious mania, acute hallucinatory and confusional states are due to toxæmia is freely assumed, but has not been demonstrated.

Most of the observations as regards micro-organisms in the circulation in mental diseases are isolated and unsystematic. Most of the cases I have personally examined gave negative results, but I have found diphtheroids and cocci in general paralysis, acute delirious mania, and acute mania and melancholia. In these cases there was no known source of secondary infection. The organisms found in the blood and cerebro-spinal fluids by various workers are bacilli, including diphtheroids and *B. coli*, diplococci, short chains of streptococci. Acute delirious mania has been especially investigated, and by Italian workers (Rasori, Ceni, Bianchi, Piccinino). Workers in this country on the subject of the circulation of micro-organisms include Lewis Bruce, Ford Robertson, McRae and Jeffrey, Candler, Marr, Muirhead; in America, Gay and Southard. The three last-named writers have published the most systematic work I am acquainted with.

Summarizing the work of the past twenty years, I should affirm that there are no adequate grounds for believing that the organisms which have been found in the tissues in any case of insanity play more than a secondary rôle. At the same time, they frequently cause death. (We fall victims, it has been said, most often to our secondary