A Lecture

ON

MALFORMATIONS OF THE FEMALE
GENITAL ORGANS IN THEIR
CLINICAL ASPECTS.DELIVERED AT THE MEDICAL GRADUATES' COLLEGE AND
POLYCLINIC.

BY

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SOME kinds of malformation, though of great interest from a morphological or developmental point of view, cannot be said to possess any clinical importance. Others are both interesting and important from a clinical point of view, and I propose to illustrate my remarks by cases that have come under my personal observation.

The clinical aspects of malformation have relation to the question of sex, to menstruation, to marriage, and to child-bearing.

1. *Malformations Leading to Confusion of Sex.*

These form the group known as pseudo-hermaphroditism. In the case of the ordinary child the external sex organs are regarded as affording sufficient indication of sex. The "testes," as the name indicates, are the witnesses that the child is a boy; and if they should be undescended at birth, the penis and scrotum are regarded as circumstantial evidence, pending the later appearance of the authentic witnesses. Similarly the vulva is taken to indicate that the child is a girl. But in the case of pseudo-hermaphrodites, these indications are indecisive or misleading: an essential male, possessing testes that have not descended, may have the outward conformation of a female, when the condition is described as androgyna; or an essential female with ovaries that may either remain in the pelvis or come down through the inguinal rings, may possess a well-formed penis and simulate the male; this is the condition known as gynaandra. It is remarkable that we should be unable to tell the sex of a person with certainty except by microscopical examination of the genital glands. The following case illustrates this difficulty:

CASE I.—*A Case of Androgyny, the Patient Living as a Married Woman.*

Some years ago a woman, aged 28, who had been married ten years, came to the out-patient department, complaining of a swelling in the left inguinal region. It felt like an irreducible hernia. A statement to the effect that she had only menstruated twice in her life led to an examination, when I found that the vagina was shorter than usual, and ended above in a smooth cul-de-sac, in which there was no trace of a cervix. Bimanually there was no sign of a uterus. The vulva was quite normal in appearance, and the breasts were fairly well developed. She was admitted, and the "hernia" was operated upon. It was soon evident that it was not a hernia of bowel; in fact, there was no true peritoneal sac, but a glandular structure was discovered, extraperitoneal in position. This was removed, the peritoneal cavity was opened, and a finger introduced. There was no uterus, the peritoneum passing down from the back of the bladder on to the rectum, as in the male; and on the right side, at the brim of the pelvis, a glandular structure was felt, like the one in the left inguinal canal. The hernial orifice was closed, and subsequent microscopic examination of the gland removed showed that it had the typical structure of the testes. The patient was an example of androgyny.

The case had undoubtedly great medico-legal possibilities, but it seemed both unnecessary and undesirable to allow of their development, and the patient went out as she had come in—a "woman."

2. *Malformations that Preclude or are Unfavourable to Child-bearing, but Allow Menstruation and Marriage.*

(a) In this category are cases of under-development of the uterus of minor degree; menstruation is usually rather scanty and sometimes painful; the uterine cavity, as measured by the sound, may show a length of 2 to 2½ in., and the cervix presents the typical appearance of the "conical cervix" with pinhole os. We have probably all met with a number of cases of this type, as they are not very rare. When the condition is known beforehand,

should such a patient be allowed to marry? If it were of great importance that the family should have an heir, it would be our duty to advise against the marriage; and whether an heir were important or not we should have to point out the improbability of issue.

Some modern young couples would profess to view such a prospect with equanimity, if not with satisfaction. Let them, then, accept the responsibility of choice and be prepared to abide by the result without mutual recriminations later on.

Can treatment improve the chances of conception? To this we must reply that if the stimulus of marriage is not sufficient to complete the development of the pelvic organs the prognosis is not good. Nevertheless, dilatation of the cervical canal has occasionally been followed by conception.

(b) Occasionally the uterus is not only small, but congenitally retroverted; and I met with one such that had a fortunate sequel, from which we might infer that treatment may be successful.

CASE II.—*Congenital Retroflexion and Under-development: Hysteropexy: Pregnancy.*

The patient, aged 27, had been married two years. She complained of difficulty in intercourse and was anxious to have a child. On examination, the vagina admitted only one finger; the uterus was small and retroverted. The vaginal orifice was dilated with specula, and the uterus was raised and brought forward. At intervals afterwards attempts were made to keep the uterus forward, and several pessaries were tried without avail. I advised hysteropexy, and this was carried out in May, 1908, three years after her first visit. In August of the following year she had a normal confinement of a boy, and in January of this year a girl followed. It was a case in which I should have given a very unfavourable prognosis as regards child-bearing.

(c) A third class of case is that in which there is some malformation of the tubes. Such a condition would not be discovered by ordinary examination. The following is an instance:

CASE III.—*Congenital Occlusion of the Fallopian Tubes.*

A married woman, aged 23, was operated upon for a fixed retroversion. On opening the abdomen, the fundus was found adherent in the pouch of Douglas. Both tubes presented a remarkable appearance, as if they had been cut across; about 1½ in. from the uterus each tube had a rounded, closed-up end, resembling the tip of the appendix, and further out, connected with the corresponding ovary, was the remains of the fimbriated extremity. I concluded that the condition was brought about by the formation of intraperitoneal bands, perhaps in fetal life. I made an artificial ostium at the end of each tube (salpingostomy), but I do not know if pregnancy ever occurred, for I was unable to trace the patient later on.

3. *Malformations that Preclude Child-bearing and Menstruation, but not Marriage.*

Two types of this class are met with.

(a) The uterus is markedly undeveloped, being either merely a rudiment or infantile, the sound passing in 1 to 1½ in.

CASE IV.—*Infantile Uterus: Primary Amenorrhoea.*

I met with such a case recently. A single woman, aged 23, came to the out-patient department at the Prince of Wales's Hospital, Tottenham. She stated that she had never menstruated. The vulva was well developed, but the pubic hair was rather scanty, and the breasts were childish. I admitted her for examination under anaesthesia, when it was found that the uterus was infantile in shape and quite small, the sound passing in only 1½ in.

(b) In the second type the uterus appears to be normal, and has the usual measurements; nevertheless menstruation does not occur. The secondary sexual characters may be these typical of the female. In such a case we are driven to the inference that the condition is one of defective ovulation, due to some ovarian abnormality. It must be borne in mind, however, that such a patient may be an instance of the type of pseudo-hermaphroditism that we have spoken of as androgyna.

In cases of both these types, with primary amenorrhoea, the non-occurrence of pregnancy must be regarded as not only probable but certain, and if our advice be asked with regard to marriage, we must state that while such a patient may fulfil the requirements of wifehood she cannot expect motherhood.

4. *Malformations that Preclude Marriage and Child-bearing, but not Menstruation.*

These are cases of stenosis of the vaginal orifice. There is a sufficient aperture to allow of the escape of menstrual

blood, but intercourse is impossible, and consequently pregnancy.

With regard to prognosis, these cases present the characteristic that the condition can be remedied by surgical interference in such a way as to make marriage possible; but we should be very guarded in making any statement as to the probability of pregnancy following. I am not speaking of cases of mere rigidity of the hymen, because with these the difficulty can often be overcome without the aid of surgery, and the prospect of child-bearing is quite good. I refer more particularly to cases of a different kind, which the following examples will serve to illustrate:

CASE V.—*Stenosis of the Vagina, probably Acquired.*

The patient, aged 22, was sent to me by Dr. Herman in February, 1908. She had had some kind of ulceration in early life, which led to much scratching and rubbing of the vulva. The vulvar orifice was narrowed by cicatricial tissue, which would have made coitus and child-bearing impossible. She desired to marry. I performed a plastic operation, making a vertical incision through the posterior vaginal wall, drawing out the edges so as to make the raw surface diamond shaped, and then sewing together the upper and lower edges so as to make a transverse seam. The result was quite satisfactory, and early this year the patient's mother came to ask for a certificate of nubility for her daughter; after seeing the patient and inspecting the vagina I was able to give this.

CASE VI.—*Congenital Stenosis of the Vaginal Orifice.*

A married woman came to see me at Tottenham recently, complaining of difficulty of intercourse. She stated that menstruation was regular, though scanty. On examination there appeared to be complete atresia of the vaginal orifice, and I was so sceptical as to the occurrence of menstruation that I asked her to come to see me when the period was going on. This she did, and it was evident that there was a minute orifice in the vaginal septum, for I could see blood oozing through, a drop at a time. I admitted her and made a free incision in the septum, sewing over each edge to prevent reunion.

In both these cases the effect of operation will be to render intercourse possible; but I fear that the uterus may not be in a condition to make the prospect of pregnancy a good one.

5. *Malformations that Preclude Menstruation, Marriage, and Child-bearing.*

These are cases in which there is no vaginal orifice, and they fall into two categories; in the first the condition is in a measure remediable, whilst in the second it is irremediable.

(a) *Remediable.*—The malformation that answers to this description is atresia of the vaginal orifice. The typical history of such a case is that a girl of 16 or 17 comes complaining of having never menstruated and of monthly pains in the lower abdomen, with, perhaps, some swelling. Inspection of the vulva shows atresia of the vaginal orifice; where the opening should be there is a bulging membrane, and on rectal examination a boggy swelling is detected in the situation of the vagina. When the membrane is incised, dark thick blood escapes. The condition is known as haematocolpos. When a free incision is made with strict aseptic precautions the retained fluid is all evacuated, and the uterus and appendages settle down to the normal performance of menstruation.

The following case is a typical one of this malformation, but illustrates how such a case may go wrong.

CASE VII.—*Atresia of the Vagina: Haematocolpos: Incision: Infection: Pyosalpinx.*

A girl, aged 17, was admitted to the hospital as a case of retained menses; before admission the membrane had had a small incision made into it. A small incision does not allow free escape of the thick retained fluid, but it readily allows the entrance of pathogenic organisms, which find in the thick blood an ideal culture medium; this is what had happened. The girl had a high temperature and the vaginal contents were purulent. A free incision was made and the vagina was irrigated, but as the temperature kept up, a further examination was made and it was found that the tubes were greatly distended. The abdomen was opened and the tubes, which had become converted into pus-sacs, were removed. After a somewhat stormy convalescence the patient got well.

In the next case menstruation had never been attempted.

CASE VIII.—*Atresia of the Vagina: Absence of Menstruation.*

Some years ago I saw a girl, aged 16, at the St. Marylebone Dispensary; she had not menstruated and there was vaginal atresia. She was admitted to the Tottenham Hospital, and on

incising the occluding membrane a small quantity of a whitish fluid escaped; it was composed of epithelial debris and cholesterol crystals.

In a case like No. VII, if all went well, treatment would render normal menstruation and marriage possible; in such a one as Case VIII it would permit of marriage but not necessarily menstruation. I doubt whether in either case pregnancy would follow, for I have never heard of a case in which a patient who had been operated upon for vaginal atresia had become pregnant. I have an impression that the changes brought about in the uterus as the result of retention of the menses would be unfavourable to conception; but if any of my readers have ever known of a case of pregnancy following I should be grateful for an account of it.

(b) *Irremediable.*—In this type of malformation no treatment will render either menstruation, marriage, or child-bearing possible. I refer to cases of absence of the vagina. With this malformation the uterus may be rudimentary, infantile, or large enough to menstruate, and in the last variety great trouble is caused by accumulation of blood in the uterus and perhaps in a small sac of vagina round the cervix. My colleague, Dr. Fenton, had such a case some years ago at the Chelsea Hospital for Women; it was impossible to make a vagina, and the only available treatment was hysterectomy, which was successfully carried out. Of the other two degrees of uterine development I have met with examples.

CASE IX.—*Absence of Vagina: Hernia of an Infantile Uterus in the Left Inguinal Canal.*

I saw lately at the Prince of Wales's General Hospital, Tottenham, a single woman, aged 22, who complained of primary amenorrhoea and of a swelling in the left inguinal region that felt like an omental inguinal hernia. On inspection of the vulva there was no trace of a vaginal orifice, and on rectal examination neither vagina nor uterus could be felt. The girl was engaged to be married. She was admitted for operation, and I first made a dissection to see if there were a vagina, but, after reaching a depth of about 2 in. between the urethra and rectum, I could find no evidence of a vagina and therefore desisted. Turning to the hernia I found a large hernial sac whose inner margin was so extensive that one could hardly speak of it as having a neck; the contents of the sac consisted of an infantile uterus; the left round ligament was short and unusually stout, and it appeared to have played a part in drawing the uterus into the canal. I divided the round ligament, returned the uterus into the abdomen and closed the large gap in the inguinal canal. It was necessary to explain to the patient and to her fiancé that marriage was out of the question.

CASE X.—*Absence of Vagina: Rudimentary Uterus: Horseshoe Kidney in the Pelvis.*

In September, 1904, a single woman, aged 20, came to the hospital at Tottenham, saying that she had never menstruated. She stated that an operation had been done at the University College Hospital for the removal of a tumour. On inspection of the vulva there was no trace of a vaginal orifice, but on rectal examination a large firm swelling was felt impacted in the pelvis. She was admitted for operation, and on opening the abdomen it was at once evident that the swelling was a horseshoe kidney occupying the hollow of the sacrum. The uterus was quite rudimentary, consisting of little more than the meeting point of two unusually long Fallopian tubes. On tracing these outwards the ovaries were found, long and narrow as in the fetal stage, and placed well above the brim of the pelvis. There was no trace of vagina. It was evident that at her previous operation this condition had been discovered, and the abdomen closed without doing anything—a course which I had no alternative but to follow.

It is interesting to note that in the normal condition the kidneys remain lumbar in position and the ovaries descend into the pelvis; whilst in this case the reverse condition obtained. The next case will illustrate the reversal on one side only.

6. *Malformations that Allow of Menstruation, Marriage, and Pregnancy, but may be Attended by Complications.*

(a) The first of these is the condition known as uterus unicornis, in which one half of the uterus fails to develop. The important complication that may occur is impregnation in the undeveloped horn, when the case runs the course of an extrauterine pregnancy, from which it is undistinguishable clinically. I assisted my colleague, Mr. H. W. Carson, at an operation for this condition some years ago at the Tottenham Hospital. But a patient with this malformation may fulfil successfully the functions of motherhood, as in the following instance:

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