adherent. The conditions may be fully established by the bimanual method of examination, and in all probability this will not be done with perfect satisfaction without the assistance of an anæsthetic, and ether is by far the best agent to use. By this method of examination it should, first of all, be ascertained whether or not the ovaries are in their proper place on each side of the uterus. If they cannot be found, it is most probable that the retro-uterine tumor is an ovary, and more particularly if it be adherent I would recommend the greatest caution in dealing with it, for I have more than once seen a smart attack of pelvic peritonitis set up by too rough handling. If the tumor be a fundus, it will probably easily be dealt with; but if it be an ovary, very great difficulty indeed may be met with in treating the case satisfactorily. If the gland is not adherent, it may be replaced by a pessary, adapted so as to keep it in place, or at least far enough up to be out of harm's way; but, if it be adherent, it may be taken as certain that no pessary can be borne. The best pessary for this purpose is one which I introduced many years ago, under the name of the "wedge pessary," and which is here figured. I have frequently had cases brought to me in which the sufferings of the patient had been greatly increased by well-intended efforts to replace by pessary an adherent ovary.

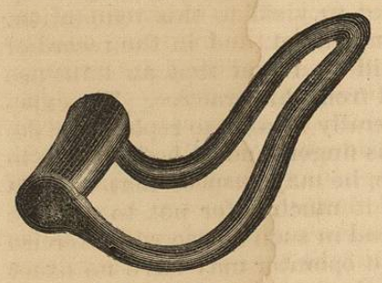

Fig. 18.—Wedge Pessary.

The general treatment should consist of absolute physiological rest; that is to say, that during the menstrual period the patient should be confined absolutely to bed, and that there should be a cessation of intercourse. Any kind of treatment which will tend to improve the patient's general health should be employed, and by far the most effectual remedy will be a judicious administration of ergot and the salts of potash. What has proved in my experience to be the best method of giving these drugs is to put the patient on a prolonged course of the bromide and chlorate for alternate months, in doses of from five to twenty grains twice daily, and taken continuously; and to this is to be added a pill containing from half a grain to two grains of ergotin, to be taken for a few days before the appearance of menstruation, and during the whole of the period. I am bound to say that no other treatment by drugs has seemed to me to be of the slightest use. Professor Goodell speaks in high praise of

a combination of the ammonic and mercuric chlorides, but I have not found them of much use. He gives them in the following formula:

℞. Hydrargyri chloridi corrosivi..... gr. j.
Ammonii chloridi..... ʒ ij.
Mist. glycyrrhizæ co..... f. ℥ vj.
M.

S.—One dessertspoonful after each meal, in a wineglassful of water.

In addition to this, Professor Goodell recommends treatment by the genu-pectoral position, as introduced by Dr. Campbell; and in some cases of dislocated ovaries which were not adherent, accompanied by retroflexion and subinvolution of the uterus, I have found this plan to be distinctly effectual. It is, however, very harassing to the patient, for it requires prolonged use, and I have not found many women sufficiently persevering to give it an extended trial; the misfortune in these cases being, like very many others in this line of practice, that almost any treatment requires to be continued for so long a time that most sufferers are apt to lose patience, and seek other treatment at the hands of some fresh practitioner. I take the following description of this postural treatment from Professor Goodell's writings:

"A very excellent way of keeping up the ovaries—one which, in every case, I adopt, and one which I shall now teach this patient—is the knee-breast posture, devised by Dr. C. F. Campbell, of Georgia. Two or three times a day, or more frequently if needful, this woman will unhook her dress, loosen her underclothing, and kneel on her bed as she now kneels on this table. Her body is then bent forward until the breast is brought down to the surface of the bed, while her head is turned to one side and supported in the palm of her left hand. Her knees should be about ten inches apart, and the thighs perpendicular to the bed. If she now refrains from straining, and breathe naturally, a reversal of gravity will be established. With the fingers of her free hand she will next open her vulva. Air will rush in, and the abdomen and its contents will at once sag down. This will, of course, draw up the womb and the displaced ovaries out of the pelvic canal. As it is rather awkward for a woman, while in this posture, to free one hand and reach the vulva, Dr. Campbell advises that, previously to taking this attitude, she should insert into the vagina a small glass tube, open at both ends, and long enough to project externally. This will leave an air-way, and dispense with the use of the fingers. With such tubes as I

now show you I furnish each one of my patients; but you will find a good substitute in the empty barrel of the old-fashioned cylindrical "female syringe," as it is called. After staying in this posture for a few minutes, the woman will remove the tube and slowly turn over on her side, where she will lie as long as she can. Such constant replacements are of great service, for they lessen the throbbing, they give the limp ligaments a chance of shrinking, and they teach the ovaries good habits of staying at home."

It will, however, often happen that, after all kinds of treatment have been employed, and many practitioners consulted without the slightest improvement, or even, it may be, only with the result of increasing the patient's sufferings, that she settles down as a permanent invalid, her life being rendered absolutely miserable, and she being hopelessly invalided by her dislocated ovary. Then there remains as her only hope the operation of ovariotomy. The discussion of this important subject is by no means yet complete, and it is unfortunately one in which much unnecessary and most unfair criticism has been introduced. I shall in another chapter consider more fully the arguments upon this question, but here it will probably be quite enough to quote again the words of Professor Goodell, with the remark that I endorse every word which he says:

"Once in a while, however, such lasting tissue-changes take place in the ovaries as no medication can reach. The hypertrophied glands keep heavy, and refuse to float up. Now, must the unfortunate owner of these organs drag out the rest of her menstrual life burdened with the distressing ovaralgia, the crippled locomotion, and with all those aches, and pains, and throbs which I have described to you? No, indeed! The source of all this mischief—the ovaries themselves—must be removed. Nor need you fear that such an operation will unsex a woman. In the cases in which it has been performed by myself and by others it in nowise changed the voice, the appearance, or the character of the woman. It merely brought on, more abruptly than nature does, that change of life which every woman longs to reach, and which, while taking away all hope of future offspring, makes her no less a mother or a wife."

A great deal of discussion has taken place concerning the merit of having first proposed this operation, and Dr. Marion Sims has thrown the whole weight of his justly great authority in claiming for it an American origin; and for Dr. Battey he asserts the credit of it, having named it "Battey's operation." I must, however, in justice to myself, protest against this; and I have to point out that, so far as the records of this operation

are known, Professor Hegar, of Fribourg-im-Breisgau, was the first to perform it, and that my first case preceded that of Dr. Battey by several days—all three operations having been performed within a fortnight. Further, I have to point out that in the first edition of this book, written in 1872 and published in 1874, the essay to which was awarded the Hastings gold medal of the London meeting of the British Medical Association, the following passage occurs:

"The ovaries are liable to certain displacements, which may give rise to many disagreeable symptoms without any actual disease of the gland. Thus, one or both ovaries may, by a relaxation of their peritoneal investments, drop into the retro-uterine *cul-de-sac*, and there be a source of great trouble. This will be especially the case if there be at the same time retroflexion or retroversion of the uterus; for I have known such a displacement of an ovary utterly to prevent the application of any apparatus for the replacement of the uterus, and cause so much suffering as almost to make us discuss the question of ovariotomy."

The details of the history of this operation will be fully discussed in a special chapter.

In cases where the pelvic viscera are displaced downward so as to form more or less complete protrusion, the ovaries of course share in the dislocation, and they may incidentally increase the amount of distress caused by such a condition; but as this belongs more to diseases of the uterus, I shall not dwell further upon it; and similarly may dismiss the displacement of the ovaries involved in the inversion of the uterus. A more rare displacement of the ovary occurs as the result of an excess of embryonic transition, the gland being carried downward and forward in the direction taken by the testicles of the male in the course of descent. I have not been fortunate enough to have had any experience of this peculiar form of hernia, and what information I can give upon it must be by quotation. It is, however, a matter of such importance that I feel perfectly justified in quoting at length some of the more notable cases which have been placed on record. The instance which has attracted most attention is that narrated by Mr. Percival Pott, of a patient, aged twenty-three, admitted to St. Bartholomew's Hospital, who had two small swellings, one in each groin, which had been for some months so painful as to entirely prevent her following her occupation as a domestic servant. Her menstruation had been perfectly regular, and the tumors were more painful at that time. Mr. Pott found the tumors to be the ovaries, which had come down through the inguinal canal. He removed them suc-

cessfully, and the patient's health and comfort were speedily and completely re-established; and menstruation never reappeared, the last observation on this point having been made several years after the operation. In the record of the case no mention is made as to whether or not Mr. Pott removed the tubes, or any part of them. In the work of L. C. Deneux many very remarkable examples of displacement of the ovary are given, such as its appearance under the crural arch, through the ischiatic notch, as part of the contents of an umbilical hernia, and of various eccentric ventral and vaginal protrusions. Dr. Busch gives seventy-eight similar observations which he has collected, including fourteen cases in which there was more or less pronounced absence of the uterus, thirteen cases of various kinds of spurious and true hermaphroditism, and four of unicornual or bicornual uterus. These observations go to show—and I think all the facts of comparative anatomy indicate it—that the male organism is an advance upon that of the female, and that these cases would have to be regarded more as arrests of development in the direction of the male organs than hypererchesis of the female.

Kiwisch narrates an instance of an ovary forming part of a hernia through the foramen ovale. When the ovary is displaced in this way, it is, of course, quite as apt to undergo cystic degeneration as an ovary in its normal position; and therefore it is not surprising to find that there is at least one case on record where a cystic ovarian tumor has been removed from outside the inguinal ring. One of the most remarkable cases on record is that published by Mr. W. M. Jones, in the *British Medical Journal* for 1877, in which the patient seems to have had double congenital hernia of the ovaries, and yet became pregnant.

"A. E. C——, aged twenty-three, came to the out-patient room on August 1st, complaining of dragging pains about her abdomen and a swelling in both labia. She was married, and had one child. Ever since she could remember, when she stood up a small lump descended into each labium, going back again on lying down. She had always suffered from pains in the abdomen, and at her menstrual periods the lumps themselves were painful. On examination, a small, roundish tumor was found in each labium, feeling like a testicle, and quite easily returnable into the abdomen through the inguinal canal. It was perfectly dull on percussion, and there was no impulse on coughing. Double ovarian hernia was at once diagnosed, and the diagnosis was confirmed on her coming the following week, during her catamenial period, with both tumors swollen and tender. An ordinary double inguinal truss was given her, which effectually prevented the descent of the tumors, and she reported herself last week as being quite well, and entirely free from her abdominal pains. The great interest in this case lies in its analogy to the descent of the testicle in the male, and in the fact that, notwithstanding the malposition of both ovaries, she had actually been impregnated, and given birth to a living child."

Dr. Werth, of Kiel, narrates an instance of removal of both ovaries on account of double ovarian inguinal hernia. The patient was twenty-three years of age, and had never menstruated, but at each monthly period there was severe abdominal pain. The vagina was occluded, the clitoris was unusually large, and was furnished with a large prepuce; and under the skin, over the inguinal canal on each side, was a body about the size of a pigeon's egg, resembling a testicle in shape and consistence. These bodies lay symmetrically in the axis of the inguinal canal, the upper end corresponding to the inguinal ring, while the lower and inner end corresponded to the anterior margin of the labium majus. At the upper part of each body was an ill-defined substance of the size, form, and consistence of an epididymis. They were both quite irreducible, and looked so very like testicles that the sex of the patient was extremely doubtful. An operation was undertaken for their removal, which was completely successful, and on subsequent examination they proved to be unquestionable ovaries, for they possessed the characteristic follicles containing ova.

Weinlechner (*Wiener med. Wochenschrift*, 1877) relates a case of inguinal hernia produced by a stumble, and for which a truss had been worn for eighteen weeks, when it came down again and became irreducible. This was followed by vomiting and acute pain; as taxis failed, and the symptoms of incarceration became more severe, she was admitted into hospital. In the right groin was a tumor the size of a goose-egg, which was marked into two divisions by Poupart's ligament. The symptoms of incarceration were not quite perfect, and the patient asserted that the hernial tumor increased at the menstrual periods, that the probability of an ovarian hernia was recognized, and it was confirmed by operation. The swollen and irreducible ovary was removed after ligation of its pedicle, and the patient recovered well.

Dr. J. H. Balleray has written an extremely interesting paper upon a case of this kind, to which he appends some valuable references, and I therefore here insert the whole of his observations.

"The hernial tumor was large, and seemed to be divided into

two portions by a sulcus; the skin covering it was somewhat inflamed and tender to the touch. There was something very peculiar about the feel of the tumor, especially at its lower portion. The sensation communicated to the finger was such as to satisfy me at once that I had to deal with something out of the usual order of things, but as to what the real character of the hernial tumor was I had no definite idea. I therefore requested my friend, Dr. E. J. Marsh, to see the case with me. He did so, and seemed to be as much puzzled as I was. He suggested, however, the possibility of the ovary having found its way into the hernial sac. Taxis having failed to effect reduction of the hernia, and the patient's condition being critical, both Dr. Marsh and myself were convinced that an operation was imperative, and that it should be performed without delay.

"Having informed the patient's husband of the result of our deliberations, he requested that we should proceed with the operation at once, if in our judgment it was necessary. Accordingly, with the kind assistance of Drs. Marsh and Rogers, I proceeded to operate. Having cut down to the sac, this was cautiously opened, and about four ounces of brownish yellow fluid escaped, when, to my surprise, there was neither intestine nor omentum to be seen, but the left ovary was found lying near the lower portion of the sac, and tightly strangulated by a firm, fibrous band, which extended from one wall of the sac to the other, and constricted the ovary at about its upper third. This band was divided, and the ovary liberated. It was found to be very deeply congested, but as its vitality did not seem to be destroyed, I decided, after consultation with my *confrères*, to return it into the abdominal cavity. The wound was then closed in the usual way, a pad and bandage applied, and the patient put to bed.

"She rallied well from the operation, and at the end of the third week she was convalescent. The enterocele returned, however, after she began to walk about, and she has, therefore, been obliged to wear a well-adjusted truss, which enables her to attend to her household duties with a greater degree of comfort than she had enjoyed for years before.

"In January, 1864, Mr. Holmes Coote reported, at a meeting of the Royal Medical and Chirurgical Society, a 'case in which the left ovary was found in the sac of an oblique inguinal hernia.' A young woman was brought into St. Bartholomew's Hospital with a swelling in the left groin, and suffering from the symptoms of strangulated hernia. In the course of a few hours the usual operation was performed, when the ovary and Fallopian tube were found in the sac. The left ovary was removed, some thickened omentum cut away, and the patient was put to bed; but the sickness and constipation continued, and she died four days after the operation. The cause of the sickness, etc., was displacement of the stomach and transverse arch of the colon. In the discussion which followed the report of this case, Mr. Cæsar Hawkins stated that he had met with two cases in which the ovary was found in the hernial sac. In one of these the patient was an elderly woman, and died of peritonitis. In these cases he thought the better practice was to leave the ovary in the sac, as its removal was attended with danger.

"Dr. Frank H. Hamilton, of New York, assisted by Dr. Terry, collected reports of twelve cases of ovarian hernia occurring in the inguinal region, most of which were operated upon before a diagnosis was made. These cases were published in the 'Bellevue Hospital Reports,' 1870, p. 159. Dr. Hamilton himself has seen one example of congenital ovarian inguinal hernia. The late Dr. J. C. Nott met with a case of ovarian hernia at the inguinal ring, in a lady sixty years of age, which, being strangulated, he was able to reduce by taxis. A very interesting case is also reported by Dr. Alfred Meadows, in the 'Transactions of the Obstetrical Society of London,' vol. iii., p. 438.

"In cases of strangulated ovary, the question as to whether the ovary should, after division of the stricture, be returned into the abdominal cavity or left in the hernial sac, ought, in my judgment, to be determined by the condition of the organ itself. The rule by which the surgeon is governed in the management of strangulated intestine or omentum is, I think, applicable to these cases.

"According to Hamilton ('Principles and Practice of Surgery'), Neboux, Mulert, and Krieger returned the ovary into the abdomen, and their patients got well. Deneux, on the other hand, cut away the ovary, and the patient was well in twenty-nine days. Bérard found both the ovary and Fallopian tube in a sac, which he supposed to be a serous cyst. Having opened it, suppuration ensued and the patient died.

"The method of dealing with the ovary adopted in my own case was, I think, justified by the result, and in similar cases I would recommend similar treatment. But in cases in which, from long continuance of the strangulation, or excessive tightness of the stricture, the tissues of the ovary either are or are likely to become gangrenous, removal of the organ is, in my opinion, the proper course to pursue."

One of the most remarkable cases of ovarian hernia is the following, narrated by Dr. Leopold, in which the left cornu of the uterus was included in the protrusion, and removed with its corresponding ovary.

A woman, aged twenty-eight, the issue of parents who had had seventeen children well formed, experienced for the first time, at the age of fourteen, the menstrual molimen. This molimen reappeared regularly every twenty-six or twenty-eight days, but was not followed by any loss. It was accompanied with pains which were localized in the left inguinal region, lasting several days. In process of time the patient remarked that, from the first day of the molimen, a body of the size of a plum rose in the left groin, and that this body became larger every day, and only resumed its former volume several days after the period. At length there resulted from it an excessive irritability and a grave alteration of the nervous system. Married at twenty, she, with the advice of her husband, had recourse to a gynecologist, who, finding the vagina absent, endeavored, by incision and dilatation with tents, to form a passage to the uterus, in order to remedy a supposed retention of the menstrual blood. The treatment was fortunately interrupted, but there occurred afterward, and especially in 1877, vicarious hemorrhages from the nose and lungs.

In March, 1878, she placed herself under the care of Dr. Leopold, who, after having treated her for more than twelve months, published this remarkable observation :

"The breasts, pelvis and vulva were well conformed, but the vagina terminated in a cul-de-sac 3 ctm. in depth. In this place there was no indication of a vaginal portion, and above there was no trace of either uterus or ovaries.

In the left groin, on a level with the external inguinal ring, was perceived an uneven tumor of about the size of half a hen's egg, painful, hardly movable, almost on a parallel in its great axis with the inguinal fold, and resembling an ovary abnormally situated. On the right side the inguinal region was normal ; but on deep pressure a small body was felt, resembling that met with on the left side, but more movable, less painful, and much smaller.

The pain caused by the tumor on the left side became at length so acute that an operation was performed on February 15, 1879. The tumor was removed. It was not, as had been diagnosed, *an ovary*, but a *rudimentary uterine cornu*. At the same time the neighboring tube and ovary were removed. After the abdominal cavity had been thoroughly cleansed, and the ligatures cut short, the T-shaped wound was closed by five deep sutures of silver wire, including the peritoneum, and by several superficial sutures of silk thread, and at the point of union of the two incisions a small drainage-tube was introduced to a depth of about one centimetre.

No fever followed, and fourteen days afterward the wound had perfectly healed. The time of the menstrual epoch passed without the least trouble, only that there were some contractions in the muscles of the left leg.

The amputated cornu uteri, of the size of the thumb, presented the histological structure of the uterus ; that is, smooth fibres, conjunctive tissue, vessels, and glands. The ovary presented all the characteristics of normal structure, with yellow bodies and vesicles at various stages of development. The tube has a pavilion beautifully fringed, but there was no canal continuous with the infundibulum."

Dr. Alfred Meadows has also placed upon record, in the "Transactions of the Obstetrical Society" (vol. ii.), a case in which he removed a hernial ovary.

I have also met with a very singular case of ovarian displacement, where the condition was evidently congenital, and was discovered only when an operation had to be performed for the removal of the misplaced ovary on account of cystic degeneration. The tumor was of very large size, and for its removal the usual median incision was made between the umbilicus and the pubes. No difficulty was encountered until I attempted to drag the upper part down through the incision, when I found a broad band of union extending upward from the umbilicus. The peritoneum passed from the abdominal walls on to the tumor, just as it does on to the rectum, and the union was evidently not merely inflammatory adhesion. On dividing the peritoneum, I found that the common tendon formed part of the cyst-wall, and that the fibres of the rectus abdominis muscle were inserted into the cyst. The round ligament of the liver ran through the cyst-wall to the umbilicus, and, on being cut through, the umbilical vein contained in it bled profusely, and had to be tied. Very careful dissection had to be made to remove the cyst, and when it was completed it was found that a large triangular gap was left in the abdominal wall, covered only by skin, and having its base at the umbilicus and its apex at the xiphoid cartilage. This gap was closed by subcutaneous stitches of silver wire, and the patient made a complete recovery, and has since been safely confined of a living child. Careful examination of the tumor satisfied me that the only explanation which could possibly be offered of these unusual conditions was that the ovary had become attached to the cleft in the visceral arches during early embryonic life, and had subsequently been affected by cystic degeneration.

Klob has described a twisting of the ovary on its axis, which is probably congenital, and has not yet been found to be of any pathological importance in an otherwise healthy ovary. In the cystic ovary a similar twisting has been observed to a more complete extent, and with disastrous results, as will afterward be described. The ovary is said sometimes to be completely detached from its normal position and relations, and forms new attachments elsewhere. This occurs with the healthy ovary, and, as Mr. Spencer Wells has shown, also probably after it has undergone degeneration. How and when it occurs have not yet been satisfactorily explained, but in all probability the curious axial rotation to which ovarian tumors are subject, as described in a subsequent chapter, has something to do with it.

In some rare instances we find the peritoneal layers so deficient that the ordinary mesenteries and ligamentous folds are completely absent. I have described several cases of congenital defects of the peritoneum (*Dublin Quarterly Journal of Medical Science* for February, 1869), but the most interesting I have met with is one I published in the *Obstetrical Journal* for October, 1876. There the peritoneal sac was wholly absent, the intestines being connected together by an abundance of extremely loose cellular tissue. In the pelvis it was absolutely impossible, on post-mortem examination, to identify any organ but the uterus, from the entire absence of any of the usual peritoneal limitations. Thus, the bladder was torn open in removing the uterus, under the impression that it was some of the loose areolar tissue, and its nature was recognized only by the escape of urine. Two masses close to the uterus, one on either side, when cleared of the abundant connective tissue and laid open, proved to be the ovaries, and in the left there was the clot of a recent Graafian follicle, the ovum of which, if it ever were extruded, must have been arrested in the surrounding tissue. Over the right ovary the Fallopian tube seemed to course in a normal direction, but it became lost in a mass of connective tissue, and I could find no appearance of the fimbriated expansion. On the left side there was an appearance of a rudimentary tube in a fold of tissue.

The menstrual history of the patient, as ascertained by my friend Dr. Hickinbotham, in consultation with whom I saw the patient during her life, was in no way abnormal, and she was twenty-five years of age. The cause of her death was the obstruction of scybalous masses in a bunch of coils of intestine, along which they could not pass, apparently because the intestines were unable to move about.

Another class of remarkable errors of development of the ovary consists of those to which I have given the name of hy-

pererchesis. So far as I know, they are limited to the development of fetal structures in the ovum before it has left the follicle, this taking place probably during the fetal existence of the ovary, and constituting, in after-life, the variety of ovarian tumor known as "dermoid," under which head this remarkable change will be found fully discussed. They are also seen in the peculiar growths resulting, as I believe, from the extended life of ova which have been dropped out of the follicle into the peritoneal cavity, and there have continued their existence, becoming developed into huge cysts, instead of perishing, as they usually do. In the chapter upon ovarian tumors several instances of these will be described.

The errors of development of the Fallopian tube partake very much of the same character as those affecting the ovary. When the gland is insufficiently developed, its tube will be found correspondingly defective. I have, however, already narrated a case in which, coincident with defective development of the peritoneum, the growth of the tubes had been apparently arrested, while the ovaries had not suffered in this way. Sometimes, also, we find the tubes are displaced by congenital defect, being placed either too low, or being too short, or having their infundibula too small to enable them to acquire their periodic relations to the ovaries properly, and in these cases there is of necessity a resulting sterility. Conversely, we sometimes find that a badly developed ovary, or, it may be, an ovary which has suffered from inflammation, is displaced downward and outward, beyond the reach of the normal tube; and here again sterility is produced.

In some instances of arrested development of the tubes they are found to be occluded at both ends, and distended by the fluid into cysts. I have found, in several instances, that this occlusion at the outer extremity of the tube was formed by an adhesion of a permanent kind to the infundibulum of the ovary, perhaps of a congenital origin, but more probably the result of inflammation. In these cases extreme menstrual pain has resulted from periodic distention of the tubes, the patients have been sterile, and, when married, have been wholly unable to perform their marital functions. They have wandered about from one practitioner to another, and from hospital to hospital, vainly seeking relief, and the only means of giving it to them is to remove the ovaries and the tubes. Two or three characteristic examples of this condition I propose here to describe.

Such inflammatory affections as spread into the uterus are apt to pass along the tubes and produce ovarian or peritoneal