

CHAPTER V.

THE DIFFERENTIAL DIAGNOSIS OF PREGNANCY.—SPURIOUS PREGNANCY.—THE DURATION OF PREGNANCY.—SIGNS OF RECENT PREGNANCY.

THE differential diagnosis of pregnancy has of late years assumed much importance on account of the advance of abdominal surgery. The cases are so numerous in which even the most experienced practitioners have fallen into error, and in which the abdomen has been laid open in ignorance of the fact that pregnancy existed, that the subject becomes one of the greatest consequence. Fortunately it is less so from an obstetrical than from a gynecological point of view, inasmuch as the converse error, of mistaking some other condition for pregnancy, is of far less consequence, as it is one which time will always rectify. But even in this way carelessness may lead to very serious injury to the character, if not to the health, of the patient; and it will be well to refer briefly to some of the conditions most liable to be mistaken for pregnancy, and to the mode of distinguishing them.

Adipose enlargement of the abdomen may obscure the diagnosis by preventing the detection of the uterus; and if, as is not uncommon with women of great obesity, it is associated with irregular menstruation, the increased size of the abdomen might be supposed to depend on pregnancy. The absence of corroborative signs, such as auscultatory phenomena, mammary changes, and the hardness of the cervix as felt *per vaginam*, make it easy to avoid this error.

Distention of the uterus by retained menstrual fluid, or watery secretion, is an occurrence of rarity that could seldom give rise to error. Still, it occasionally happens that the uterus becomes enlarged in this way, sometimes reaching even to the level of the umbilicus, and that the physical character of the tumor is not unlike that of the gravid uterus. The best safeguard against mistakes will be the previous history of the case, which will always be different from that of ordinary pregnancy. Retention of the menses almost always occurs from some physical obstruction to the exit of the fluid, such as imperforate hymen; or if it occur in women who have already menstruated, we may usually trace a history of some cause, such as inflammation following an antecedent labor, which has produced occlusion of some part of the genital tract. The existence of a pelvic tumor in a girl who has never menstruated will of itself give rise to suspicion, as pregnancy under such circumstances is of extreme rarity. It will also be found that general symptoms have existed for a period of time considerably longer than the supposed duration of pregnancy as judged of by the size of the tumor. The most characteristic of them

are periodic attacks of pain due to the addition, at each monthly period, to the quantity of retained menstrual fluid. Whenever, from any of these reasons, suspicion of the true character of the case has arisen, a careful vaginal examination will generally clear it up. In most cases the obstruction will be in the vagina, and is at once detected, the vaginal canal above it, as felt per rectum, being greatly distended by fluid; and we may also find the bulging and imperforate hymen protruding through the vulva. The absence of mammary changes, and of ballottement, will materially aid us in forming a diagnosis.

The engorged and enlarged uterus frequently met with in women suffering from uterine disease, might readily be mistaken for an early pregnancy, if it happened to be associated with amenorrhœa. A little time would, of course, soon clear up the point, by showing that progressive increase in size, as in pregnancy, does not take place. This mistake could only be made at an early stage of pregnancy, when a positive diagnosis is never possible. The accompanying symptoms—pain, inability to walk, and tenderness of the uterus on pressure—would prevent such an error.

Ascites, *per se*, could hardly be mistaken for pregnancy; for the uniform distention and evident fluctuation, the absence of any definite tumor, the site of resonance on percussion changing in accordance with alteration of the position of the woman, and the unchanged cervix and uterus, should be sufficient to clear up any doubt. Pregnancy may, however, exist with ascites, and this combination may be difficult to detect, and might readily be mistaken for ovarian disease associated with ascites. The existence of mammary changes, the presence of the softened cervix, ballottement, and auscultation—provided the sounds were not masked by the surrounding fluid—would afford the best means of diagnosing such a case.

One of the most frequent sources of difficulty is the differential diagnosis of large abdominal tumors, either fibroid or ovarian, or of some enlargements due to malignant disease of the peritoneum or abdominal viscera. The most experienced have been occasionally deceived under such circumstances. As a rule, the presence of menstruation will prevent error, as this generally continues in ovarian disease, while in fibroids it is often excessive. The character of the tumor—the fluctuation in ovarian disease, the hard nodular masses in fibroid—and the history of the case—especially the length of time the tumor has existed—will aid in diagnosis, while the absence of cervical softening (*vide p. 143*) and of auscultatory phenomena will further be of material value in forming a conclusion. Some of the most difficult cases to diagnose are those in which pregnancy complicates ovarian or fibroid disease. Then the tumor may more or less completely obscure the physical signs of pregnancy. The usual shape of the abdomen will generally be altered considerably, and we may be able to distinguish the gravid uterus, separated from the ovarian tumor by a distinct sulcus, or with the fibroid masses cropping out from its surface. Our chief reliance must then be placed in the alteration of the cervix, and in the auscultatory signs of pregnancy.

Spurious Pregnancy.—The condition most likely to give rise to errors is that very interesting and peculiar state known as *spurious pregnancy*, or *pseudocyesis*. In this, most of the usual phenomena of pregnancy are so strangely simulated that accurate diagnosis is often far from easy. There are hardly any of the more apparent symptoms of pregnancy which may not be present in marked cases of this kind. The abdomen may become prominent, the areolæ altered, menstruation arrested, and apparent fetal motions felt; and, unless suspicion is aroused, and a careful physical examination made, both the patient and the practitioner may easily be deceived.

There is no period of the childbearing life in which spurious pregnancy may not be met with, but it is most likely to occur in elderly women about the climacteric period, when it is generally associated with ovarian irritation connected with the change of life; or in younger women, who are either very desirous of finding themselves pregnant, or who, being unmarried, have subjected themselves to the chance of being so. In all cases the mental faculties have much to do with its production, and there is generally either very marked hysteria, or even a condition closely allied to insanity. Spurious pregnancy is by no means confined to the human race. It is well known to occur in many of the lower animals. Harvey related instances in bitches, either after unsuccessful intercourse, or in connection with their being in heat, even when no intercourse had occurred. In such cases the abdomen swelled, and milk appeared in the mammae. Similar phenomena are also occasionally met with in the cow. In these instances, as in the human female, there is probably some morbid irritation of the ovarian system.

The physical phenomena are often very well marked. The apparent enlargement is sometimes very great, and it seems to be produced by a projection forward of the abdominal contents due to depression of the diaphragm, together with rigidity of the abdominal muscles, and may even closely simulate the uterine tumor on palpation. After the climacteric it is frequently associated, as Gooch pointed out, with an undue deposit of fat in the abdominal walls and omentum, so that there may be even some dulness on percussion, instead of resonance of the intestines. The fetal movements are curiously and exactly simulated, either by involuntary contractions of the abdominal walls, or by the movement of flatus in the intestines. The patient also generally fancies that she suffers from the usual sympathetic disorders of pregnancy, and thus her account of her symptoms will still further tend to mislead.

Not only may the supposed pregnancy continue, but, at what would be the natural term of delivery, all the phenomena of labor may supervene. Many authentic cases are on record in which regular pains came on, and continued to increase in force and frequency until the actual condition was diagnosed. Such mistakes, however, are only likely to happen when the statements of the patient have been received without further inquiry. When once an accurate examination has been made, error is no longer possible.

We shall generally find that some of the phenomena of pregnancy

are absent. Possibly menstruation, more or less irregular, may have continued. Examination *per vaginam* will at once clear up the case, by showing that the uterus is not enlarged, and that the cervix is unaltered. It may then be very difficult to convince the patient or her friends that her symptoms have misled her, and for this purpose the inhalation of chloroform is of great value. As consciousness is abolished, the semi-voluntary projection of the abdominal muscles is prevented, the large apparent tumor vanishes, and the bystanders can be readily convinced that none exists. As the patient recovers the tumor again appears.

Duration of Pregnancy.—The duration of pregnancy in the human female has always formed a fruitful theme for discussion among obstetricians. The reasons which render the point difficult of decision are obvious. As the large majority of cases occur in married women, in whom intercourse occurs frequently, there is no means of knowing the precise period at which conception took place. The only datum which exists for the calculation of the probable date of delivery is the cessation of menstruation. It is quite possible, however, and indeed probable, that conception occurred, in a considerable number of instances, not immediately after the last period, but immediately before the proper epoch for the occurrence of the next. Hence, as the interval between the end of one menstruation and the commencement of the next averages twenty-five days, an error to that extent is always possible. Another source of fallacy is the fact, which has generally been overlooked, that even a single coitus does not fix the date of conception, but only that of insemination. It is well known that in many of the lower animals the fertilization of the ovule does not take place until several days after copulation, the spermatozoa remaining in the interval in a state of active vitality within the genital tract. It has been shown by Marion Sims that living spermatozoa exist in the cervical canal in the human female some days after intercourse. It is very probable, therefore, that in the human female, as in the lower animals, a considerable but unknown interval occurs between insemination and actual impregnation, which may render calculations as to the precise duration of pregnancy altogether unreliable.

A large mass of statistical observations exist respecting the average duration of gestation, which have been drawn up and collated from numerous sources. It would serve no practical purpose to reprint the voluminous tables on this subject that are contained in obstetrical works. They are based on two principal methods of calculation. First, we have the length of time between the cessation of menstruation and delivery. This is found to vary very considerably, but the largest percentage of deliveries occurs between the 274th and 280th day after the cessation of menstruation, the average day being the 278th; but, in individual instances, very considerable variations both above and below these limits are found to exist. Next we have a series of cases, from various sources, in which only one coitus was believed to have taken place. These are naturally always open to some doubt, but, on the whole, they may be taken as affording tolerably fair grounds for calculation. Here, as in the other mode of calculation, there are

marked variations, the average length of time, as estimated from a considerable collection of cases, being 275 days after the single intercourse. It may, therefore, be taken as certain that there is no definite time which we can calculate on as being the proper duration of pregnancy, and, consequently, no method of estimating the probable date of delivery on which we can absolutely rely.

Methods of Predicting the Probable Date of Delivery.—The prediction of the time at which the confinement may be expected is, however, a point of considerable practical importance, and one on which the medical attendant is always consulted. Various methods of making the calculation have been recommended. It has been customary in this country, according to the recommendation of Montgomery, to fix upon ten lunar months, or 280 days, as the probable period of gestation, and, as conception is supposed to occur shortly after the cessation of menstruation, to add this number of days to any day within the first week after the last menstrual period as the most probable period of delivery. As, however, 278 days is found to be the average duration of gestation after the cessation of menstruation, and as the method makes the calculation vary from 281 to 287 days, it is evidently liable to fix too late a date. Naegele's method was to count seven days from the first appearance of the last menstrual period, and then reckon backward three months as the probable date. Thus, if a patient last commenced to menstruate on August 10, counting in this way from August 17 would give May 17 as the probable date of the delivery.

Matthews Duncan has paid more attention than anyone else to the prediction of the date of delivery. His method of calculating is based on the fact of 278 days being the average time between the cessation of menstruation and parturition; and he claims to have had a greater average of success in his predictions than on any other plan. His rule is as follows: "Find the day on which the female ceased to menstruate, or the first day of being what she calls 'well.' Take that day nine months forward as 275—unless February is included, in which case it is taken as 273—days. To this add three days in the former case, or five if February is in the count, to make up the 278. This 278th day should then be fixed on as the middle of the week, or, to make the prediction more accurate, of the fortnight in which the confinement is likely to occur, by which means allowance is made for the average variation of either excess or deficiency."

Various periodoscopes and tables for facilitating the calculation have been made. The periodoscope of Dr. Tyler Smith is very useful for reference in the consulting-room, giving at a glance a variety of information, such as the probable period of quickening, the dates for the induction of premature labor, etc. The following table, prepared by Dr. Protheroe Smith, is also easily read, and is very serviceable:

TABLE FOR CALCULATING THE PERIOD OF UTERO-GESTATION.¹

Nine calendar months.			Ten lunar months.	
From	To	Days.	To	Days.
January 1	September 30	273	October 7	280
February 1	October 31	273	November 7	280
March 1	November 30	275	December 5	280
April 1	December 31	275	January 5	280
May 1	January 31	276	February 4	280
June 1	February 28	273	March 7	280
July 1	March 31	274	April 6	280
August 1	April 30	273	May 7	280
September 1	May 31	273	June 7	280
October 1	June 30	273	July 7	280
November 1	July 31	273	August 7	280
December 1	August 31	274	September 6	280

The date at which the quickening has been perceived is relied on by many practitioners, and still more by patients, in calculating the probable date of delivery, as it is generally supposed to occur at the middle of pregnancy. The great variations, however, of the time at which this phenomenon is first perceived, and the difficulty which is so often experienced of ascertaining its presence with any certainty, render it a very fallacious guide. The only times at which the perception of quickening is likely to prove of any real value are when impregnation has occurred during lactation (when menstruation is normally absent), or when menstruation is so uncertain and irregular that the date of its last appearance cannot be ascertained. As quickening is most commonly felt during the fourth month, more frequently in its first than in its last fortnight, it may thus afford the only guide we can obtain, and that an uncertain one, for predicting the date of delivery.

Is Protraction of Gestation Possible?—From a medico-legal point of view the question of the possible protraction of pregnancy beyond the average time, and of the limits within which such protraction can be admitted, is of very great importance. The law on this point varies considerably in different countries. Thus, in France it is laid down that legitimacy cannot be contested until 300 days have elapsed from the death of the husband, or the latest possible opportunity for sexual intercourse. This limit is also adopted by Austria, while in Prussia it is fixed at 302 days. In England and America no fixed date is admitted, but while 280 days is admitted as the "legitimum tempus pariendi," each case in which legitimacy is questioned is to be decided on its own merits. At the early part of the century the question was much discussed by the leading obstetricians in connection with the celebrated Gardner peerage case, and a considerable difference of opinion existed among them. Since that time many apparently perfectly reliable cases have been recorded, in which

¹ The above obstetric "Ready Reckoner" consists of two columns, one of calendar, the other of lunar, months, and may be read as follows: A patient has ceased to menstruate on July 1: her confinement may be expected at soonest about March 31 (the end of nine calendar months); or at latest on April 6 (the end of ten lunar months). Another has ceased to menstruate on January 20: her confinement may be expected on September 30, plus twenty days (the end of nine calendar months), at soonest; or on October 7, plus twenty days (the end of ten lunar months), at latest.

the duration of gestation was obviously much beyond the average, and in which all sources of fallacy were carefully excluded.

Not to burden these pages with a number of cases, it may suffice to refer, as examples of protraction, to four well-known instances recorded by Simpson,¹ in which the pregnancy extended respectively to 336, 332, 319, and 324 days after the cessation of the last menstrual period. In these, as in all cases of protracted gestation, there is the possible source of error that impregnation may have occurred just before the expected advent of the next period. Making an allowance of 23 days in each instance for this, we even then have a number of days much above the average, viz., 313, 309, 296, and 301. Numerous instances as curious may be found scattered through obstetric literature. Indeed, the experience of most accoucheurs will parallel such cases, which may be more common than is generally supposed, inasmuch as they are only likely to attract attention when the husband has been separated from the wife beyond the average and expected duration of the pregnancy.

The evidence in favor of the possible prolongation of gestation is greatly strengthened by what is known to occur in the lower animals. In some of these, as in the cow and the mare, the precise period of insemination is known to a certainty, as only a single coitus is permitted. Many tables of this kind have been constructed, and it has been shown that there is in them a very considerable variation. In some cases in the cow it has been found that delivery took place 45 days, and in the mare 43 days, after the calculated date. Analogy would go strongly to show that what is known to a certainty to occur in the lower animals may also take place in the human female. The fact, indeed, is now very generally admitted; but we are still unable to fix, with any degree of precision, on the extreme limit to which protraction is possible. Some practitioners have given cases in which, on data which they believe to be satisfactory, pregnancy has been extremely protracted; thus Meigs and Adler record instances which they believed to have been prolonged to over a year in one case, and over fourteen months in the other. These are, however, so problematical that little weight can be attached to them. On the whole, it would hardly be safe to conclude that pregnancy can go more than three or four weeks beyond the average time. This conclusion is justified by the cases we possess in which pregnancy followed a single coitus, the longest of which was 295 days.

Dr. Duncan² is inclined to refuse credence to every case of supposed protraction unless the size and weight of the child are above the average, believing that lengthened gestation must of necessity cause increased growth of the child. This point requires further investigation, and it cannot be taken as proved that the fetus necessarily must be large because it has been retained longer than usual *in utero*; or, even if this be admitted, it may have been originally small, and so, at the end of the protracted gestation, be little above the average weight. There are, however, many cases which certainly prove that a prolonged

¹ *Obstet. Memoirs*, p. 84.
² *Fecundity and Fertility*, p. 348.

pregnancy is at least often associated with an unusually developed fetus. Dr. Duncan himself cites several, and a very interesting one is mentioned by Leishman, in which delivery took place 295 days after a single coitus, the child weighing 12 lbs. 3 oz.

It seems possible that, in some cases of protracted pregnancy, labor actually came on at the average time, but, on account of faulty positions of the uterus or other obstructing cause, the pains were ineffective and ultimately died away, not recurring for a considerable time. Joulin relates some instances of this kind. In one of them the labor was expected from the 20th to the 25th of October. He was summoned on the 23d, and found the pains regular and active, but ineffective; after lasting the whole of the 24th and 25th they died away, and delivery did not take place until November 25th, after the lapse of a month. In this instance the apparent cause of difficulty was extreme anterior obliquity of the uterus. A precisely similar case came under my own observation. The lady ceased to menstruate on March 16, 1870. On December 12th, that is, on the 273d day, strong labor pains came on, the os dilated to the size of a florin, and the membranes became tense and prominent with each pain. After lasting all night they gradually died away, and did not recur until January 12th, 304 days from the cessation of the last period. Here there was no assignable cause of obstruction, and the labor, when it did come on, was natural and easy.

The curious fact that in both these cases, as in others of the same kind that are recorded, labor came on exactly a month after the previous ineffectual attempt at its establishment, affords, so far as it goes, an argument in favor of the view maintained by many that labor is apt to come on at what would have been a menstrual period.

Signs of Recent Delivery.—From a forensic point of view it often becomes of importance to be able to give a reliable opinion as to the fact of delivery having occurred, and a few words may be here said as to the signs of recent delivery. Our opinion is only likely to be sought in cases in which the fact of delivery is denied, and in which we must, therefore, entirely rely on the results of a physical examination. If this be undertaken within the first fortnight after labor, a positive conclusion can be readily arrived at.

At this time the abdominal walls will still be found loose and flaccid, and bearing very evident marks of extreme distention in the cracks and fissures of the cutis vera. These remain permanent for the rest of the patient's life, and may be safely assumed to be signs of an antecedent pregnancy, provided we can be certain that no other cause of extreme abdominal distention has existed, such as ascites or ovarian tumor.

Within the first few days after delivery, the hard round ball formed by the contracted and empty uterus can easily be felt by abdominal palpation, and more certainly by combined external and internal examination. The process of involution, however, by which the uterus is reduced to its normal size, is so rapid that after the first week it can no longer be made out above the brim of the pelvis. In cases in which an accurate diagnosis is of importance, the increased length of

the uterus can be ascertained by the uterine sound, and its cavity will measure more than the normal two and a half inches for at least a month after delivery. It should not be forgotten that the uterine parietes are now undergoing fatty degeneration, and that they are more than usually soft and friable, so that the sound should be used with great caution, and only when a positive opinion is essential. The state of the cervix and of the vagina may afford useful information. Immediately after delivery the cervix hangs loose and patulous in the vagina, but it rapidly contracts, and the internal os is generally entirely closed after the eighth or tenth day. The remainder of the cervix is longer in returning to its normal shape and consistency. It is generally permanently altered after delivery, the external os remaining fissured and transverse, instead of circular with smooth margins, as in virgins. The vagina is at first lax, swollen, and dilated, but these signs rapidly disappear, and cannot be satisfactorily made out after the first few days. The absence of the fourchette may be recognized, and is a persistent sign.

The presence of the lochia affords a valuable sign of recent delivery. For the first few days they are sanguineous, and contain numerous blood corpuscles, epithelial scales, and the débris of the decidua. After the fifth day they generally change in color, and become pale and greenish, and from the eighth or ninth day till about a month after delivery they have the appearance of thick opalescent mucus. They have, however, a peculiar, heavy, sickening odor, which should prevent their being mistaken for either menstruation or leucorrhœal discharge.

The appearance of the breasts will also aid the decision, for it is impossible for the patient to conceal the turgid, swollen condition of the mammae, with the darkened areolæ, and, above all, the presence of milk. If, on microscopic examination, the milk is found to contain colostrum corpuscles, the fact of very recent delivery is certain. In women who do not nurse it should be remembered that the secretion of milk often rapidly disappears, so that its absence cannot be taken as a sign that delivery has not taken place. On the whole, there should be no difficulty in deciding that a woman has been delivered, as some of the signs are persistent for the rest of her life; but it is not so easy, unless we see the case within the first eight or ten days, to say how long it is since labor took place.

CHAPTER VI.

ABNORMAL PREGNANCY, INCLUDING MULTIPLE PREGNANCY, SUPERFETATION, EXTRA-UTERINE FŒTATION, AND MISSED LABOR.

THE occurrence of more than one foetus *in utero* is far from uncommon, but there are circumstances connected with it which justify the conclusion that plural births must not be classified as natural forms of pregnancy. The reasons for this statement have been well collected by Dr. Arthur Mitchell,¹ who conclusively shows that not only is there a direct increase of risk to the mother and her offspring, but that many abnormalities, such as idiocy, imbecility, and bodily deformity, occur with much greater frequency in twins than in single-born children. He concludes that "the whole history of twin births is exceptional, indicates imperfect development and feeble organization in the product, and leads us to regard twinning in the human species as a departure from the physiological rule, and therefore injurious to all concerned."

The frequency of multiple births varies considerably under different circumstances. Taking the average of a large number of cases collected by authors in various countries, we find that twin pregnancies occur about once in 87 labors; triplets once in 7679. A certain number of quadruple pregnancies, and some cases of early abortion in which there were five fetuses, are recorded, so that there can be no doubt of the possibility of such occurrences; but they are so extremely uncommon that they may be looked upon as rare exceptions, the relative frequency of which can hardly be determined.

The frequency of multiple pregnancy varies remarkably in different races and countries. The following table² will show this at a glance:

RELATIVE FREQUENCY OF MULTIPLE PREGNANCIES IN EUROPE.

Countries.	Proportion of twin to single births.	Proportion of triplets.	Proportion of quadruplets.
England	1 : 116	1 : 6,720	
Austria	1 : 94		
Grand Duchy of Baden	1 : 89	1 : 6,575	
Scotland	1 : 95		
France	1 : 99	1 : 8,256	1 : 2,074,306
Ireland	1 : 84	1 : 4,995	1 : 167,226
Mecklenburg-Schwerin	1 : 88.9	1 : 6,436	1 : 183,236
Norway	1 : 81.62	1 : 5,442	
Prussia	1 : 89	1 : 7,829	1 : 394,690
Russia	1 : 59.05	1 : 4,051	
Saxony	1 : 79	1 : 1,000	1 : 400,000
Switzerland	1 : 102		
Württemberg	1 : 862	1 : 6,464	1 : 110,391

¹ Med. Times and Gaz., Nov. 1862.² Pucch: Des Naissances Multiples.