

Vaginal Discharges Non Bloody

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VAGINAL discharges in women during the reproductive period are a very common occurrence and under normal circumstances do not cause any discomfort. It is reasonable to assume that particularly in married women, the secretion of the cervical glands is fairly active, but it is only when the discharge becomes abnormal in amount, or causes discomfort, that the patient seeks advice.

Congenital erosion of the cervix is occasionally seen in virgins or unmarried adult females, and may cause a discharge and is probably chemical in origin.

Of the symptom-producing discharges, by far the most common is the trichomonas infestation of the vagina. Then there is the discharge which occurs from chronic infection of the cervix and that due to monilia.

Trichomonal and monilial vaginitis are very distressing to the patient and the proportion of the trichomonal to monilial infestation is about fifteen to one.

Group Classification of Vaginal Discharges

1. During Reproductive Period
 - (a) Irritating Discharges
 - (b) Non Irritating Discharges
2. Pre-Pubertal
 - (a) Gonorrhea
 - (b) Foreign Bodies
3. Post Menopausal
 - (a) Senile
 - (b) Pessary

Group I

- (a) Trichomonas Vaginalis
Monilia Infestation
Chemical Vaginitis
- (b) Chronic or Acute Cervicitis
Foreign Bodies
Carcinoma of Cervix or Endometrium

Trichomonas vaginalis vaginitis: this is the most common of the irritating vaginal discharges and is characterized by (1) intense itching of the vulva and vagina, (2) profuse usually greenish yellow discharge, and (3) dyspareunia.

On examination, the inner labia and the vagina are fiery red and covered with numerous punctate hemorrhagic spots. The discharge is profuse, creamy, foamy with a definite greenish tinge and on speculum examination, the whole vagina as well as the cervix is reddened. On palpation in the typical acute case, one gets the sensation as though there were grains of sand underneath the mucosa and naturally dyspareunia is a prominent symptom because of the intense inflammation.

The condition is caused by the trichomonas vaginalis which is a spherically shaped organism with a flagellum and which flourishes in a weak acid, neutral or alkaline medium.

The trichomonad is readily recognized under the microscope in a hanging drop, by the violent jerky movement of the cells, and the fact that in addition to the normal number of epithelial cells present there are innumerable pus cells.

The condition is contagious, and is often acquired by contact with infected clothing, toilet seats, douche bags, etc. It is one of the most distressing affections in the female genital tract.

The treatment in most cases is simple and consists of using acid douches or suppositories containing sulphonamides. The form of treatment used must be continued over several weeks. The writer likes Vagicaps made by Horner and Company, one inserted high into the vagina at bedtime followed the next morning by a vinegar douche using three ounces to the quart, and this is done daily for 12 days, not interrupting the treatment during menstruation. The vinegar douches are continued every second day for two more weeks, then once or twice weekly indefinitely. Feminine hygiene is important, the cleansing of the anal region should be away from the vagina and the drying after voiding, should be with a downward motion, not upward. The majority can be cleaned up by this or a similar form of treatment.

In recurring cases, our policy in the Department is to give these patients what we call active "antitrich" treatments which consist of the following: Vigorous washing of the vagina with green soap, rinsing the vagina with water, then drying: Tinture of iodine on a wool applicator into the cervical canal for a minute or two, followed by the insufflation of the vagina with Stovaginal powder making sure that all the vaginal wall, the vestibule, the anus and both labia are powdered with this material and then instill into the urethra a few drops of acriflavine emulsion. This treatment is carried out daily for six days and the patient is sent home on daily vinegar douches as above.

In resistant cases it is wise to find out whether the husband has any urethral discharge because apparently the male can harbour the trichomonad without giving rise to any symptoms apart from a urethral discharge.

Under these circumstances, it is better to treat the male, and in any event, it is wise in the recurring cases for the male to wear a condom for a month or so, during and after treatment.

Monilia infestation of the vagina is fairly common and particularly so in pregnancy. It is the same as monilial infections elsewhere in the body, like thrush, for instance. The symptoms are the same as trichomonas except that the discharge is not as profuse and as a rule, is white in color. Examination of the patient shows an intense vaginitis or vulvitis. The discharge is white, thick and cheesy like, which here and there may be adherent to the vaginal mucosa and is sometimes difficult to remove, leaving a hemorrhagic area underneath it when it is removed. Microscopically, the diagnosis is confirmed by finding in a hanging drop preparation, long bamboo-like structures. An average number of epithelial cells will be present and in the absence of a cervicitis, pus cells are not particularly common.

The treatment, in addition to rendering the vagina alkaline, is Gentia-jel which comes already prepared in individual applicators and is used nightly for ten nights, then two or three times a week until the condition clears up.

(b) *Non Irritating Discharges*

Cervicitis, either acute or chronic is the most common cause, the discharge being mucopurulent and depending on the extent of the infection, either profuse or moderate.

The acute cervicitis is usually of Neisserian origin but we get a fairly large number of patients with chronic cervicitis showing erosion with or without follicles. Other causes in this group may be a pessary which has been worn too long, neglected tampons used in treatment, or occasionally tampax which could not be removed.

Carcinoma of cervix or endometrium may produce a thin watery discharge which should always be kept in mind as a possible cause of a non irritating vaginal discharge.

The diagnosis of cervicitis is made by examination with a speculum, and the treatment consists of cauterization, never forgetting the possibility of a neoplasm in an eroded cervix.

If the smear of the discharge shows G. C. then of course antibiotics are the treatment of choice.

Group 2

Gonorrhoea will produce an acute vulvitis or vaginitis in the pre-pubertal child with a profuse purulent discharge and irritation. Neglected foreign bodies which are sometimes found in this group of cases will produce a purulent discharge that as a rule does not cause much irritation.

The diagnosis is made on smear for G. C. and if this is negative the vagina should be explored for the possibility of foreign bodies. New growths in the vagina in this group usually produce a blood stained discharge.

Group 3

Senile vaginitis is the most common cause of vaginal discharge in women past the menopause, and is characterized by a local irritation and a thin type of discharge which is not as a rule profuse. On examination, these women will show a vaginal mucosa which is irritated in areas and in other areas the normal pink color of the mucosa has disappeared and whitish areas are seen. It is important to rule out diabetes.

The best treatment for senile vaginitis is hormonal therapy locally, by means of estrogen cream applied with an applicator. This should be done daily for a week or two and then perhaps twice a week, gradually reducing the number of times that it is done, until all symptoms disappear. If there should be recurrence, the patient should be instructed to do this at the first sign of any irritation, as before.

In this group of cases, we sometimes will see women who have worn pessaries for a long period of time particularly to control prolapse. Here, of course, the treatment is to remove the pessary and treat the existing infection by antibiotics or douches.

In this group also, we must not forget the possibility of carcinoma of the cervix or body of the uterus. In these cases, the discharge associated with neoplasm is usually blood stained.

Management Of The Non-Conclusive Toxemias Of Pregnancy

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TOXEMIAS of pregnancy still remains one of the leading causes of mortality among pregnant women and especially their babies. The term always suggests the patient with high blood pressure, proteinuria and oedema, (pre-eclampsia), and especially the possibility of the occurrence of convulsions (eclampsia). Statistics show that 8-10 per cent of pregnant women show some evidence of toxemia during their pregnancy. Although prenatal care may not materially reduce this incidence, its benefit lies in the field of preventing the development of the severe types of toxemia, especially the convulsive stage with its high maternal and fetal mortality.

Prenatal care will therefore be of value if the physician properly interprets the various symptoms and signs, which almost invariably manifest themselves from about the 24th week of pregnancy. Since the general practitioner sees the great percentage of these patients in his office or in the home, it becomes necessary for him to be ever on the alert in recognizing and preventing imminent eclampsia. When such cases are to be transferred to hospital, the prevention of the sometimes fatal eclamptic convulsion may be obtained by careful and sufficient sedation for such a trip.

It is an accepted fact that pre-eclampsia and eclampsia are more common in young primipara than in the older multiparous patients. For this reason, such young patients should be the more carefully followed.

There seems to be no general agreement as to the cause of pre-eclampsia, but we do have sufficient knowledge to direct treatment, if not to the cause, then at least to the results of the disease process itself.

It would seem that the harmful effects of the disease stems from the arteriolar spasm which results from it, and generally speaking, that the severity of the pre-eclamptic state is more or less proportional to the degree of the hypertension. This state of spasm with its consequent interference with blood supply to vital organs maintained over a period of time, usually results in disordered function of such organs, and when we understand this, we will be better able to treat the condition in a more intelligent manner.

Classification

The following classification is now in more or less general use.

GROUP A — Diseases not peculiar to pregnancy

1. *Hypertensive Disease*
 - (a) Benign (essential) — mild, severe
 - (b) Malignant
2. *Renal Disease*
 - (a) Chronic Vascular Nephritis or Nephrosclerosis
 - (b) Glomerulonephritis — acute, chronic
 - (c) Nephrosis — acute, chronic
 - (d) Other forms of severe renal disease.

GROUP B — Diseases dependent on or peculiar to pregnancy

1. *Pre-eclampsia*
 - (a) Mild
 - (b) Severe
2. *Eclampsia*
 - (a) Convulsive
 - (b) Non-convulsive (coma with findings at necropsy typical of eclampsia).

GROUP C — Vomiting of Pregnancy**GROUP D — Unclassified Toxemias**

We will concern ourselves mainly with discussion of Group B, plus a short resume of Group A (2).

Since there is no real prophylaxis against the initial development of toxemia, it resolves itself into the prevention of the more severe forms of the disease and the management of the toxemia itself. During the initial visit of the patient, one should record a good history, blood pressure, urinalysis, weight, and any complaints patient may have. With each subsequent visit, similar records should be kept and any unusual signs or symptoms noted. In order that the physician can recognize toxemia developing, he should acquaint himself with the usual findings of normal pregnancy.

Weight and Edema. The average gain in weight for normal pregnancy is 21-24 pounds. A more significant index is the weekly gain, which for the last trimester, if over one pound per week should be regarded with suspicion, and if over $1\frac{1}{2}$ pounds per week, should be regarded as beginning evidence of toxemia. Hamlin states "almost every young primipara destined to have pre-eclampsia or eclampsia in the last ten weeks of pregnancy has, between the 20th and 30th weeks, given a clear warning of the destiny which awaits her. This warning is the record of her weight during these important weeks. If such a young primipara does increase her weight by more than 8 lbs. between the 20th and 30th weeks, she will (unless controlled in time) proceed almost inevitably to oedema of the fingers around the 32nd week, rise in both systolic and diastolic pressures between the 34th and 37th weeks, and may suddenly deteriorate to pre-eclampsia or eclampsia at term or in labor, especially if her labor is long drawn out and difficult. The multipara and the essential hypertensive whose weight gain is greater than 8 pounds between the 20th and 30th weeks can be safely observed at longer intervals than would be allowed in the case of the young primipara."

Excessive gain in weight usually results from an abnormal retention of water and salt. It is a commonly accepted fact that pre-eclampsia usually begins with this retention of water which at first may only be suspected by abnormal weight gain (occult oedema) but, which will later manifest itself as pitting edema of the extremities. Where control of weight gain is indicated, a dietary regime should be outlined, though no limitation on water intake is advised.

Hypertension. It is well known that many patients show evidence of hypertension when seen the first time. This may be due to excitement. The

first trimester of pregnancy is normally characterized by some decrease in blood pressure, whereas at term there has usually been a 15-20 mm. rise in systolic pressure. Mild pre-eclampsia is diagnosed when the systolic blood pressure rises to 140-160 mm. and the diastolic to 90-100 mm. in patients with normal readings prior to 24 weeks or therabouts. Severe pre-eclampsia will include those with a sustained systolic pressure of more than 160 mm. and a diastolic of 110 mm. or higher, and accompanied by other signs such as albuminuria, oedema, etc.

One must keep in mind however, that about one-half the cases of pre-eclampsia which become eclamptic, may do so with few or no signs in the progression between the earliest manifestations of the toxemia and the eclamptic convulsion. Hence, the urgency for considering pre-eclampsia as a disease fraught with danger to both mother and child.

Many patients with hypertension only have the primary or essential type, and in many such cases pregnancy may stimulate an increase in blood pressure, where there was a predisposition to it. They almost invariably tolerate pregnancy and delivery well, without suffering the risks which a true pregnancy toxemia represents. The term chronic nephritis should not be used for this group of patients who have primarily hypertension in pregnancy.

Proteinuria — Normally there is no increase in the amount of albumin in the urine in pregnancy. Its presence is abnormal and in the absence of contamination from the vagina, or urinary tract infection, should suggest toxemia. Hence the necessity for a catheter specimen of urine when indicated. The testing of a single specimen of urine may be misleading, as some may contain albumin and others not, hence a sample from the mixed 24 hour urine is of greater value. A persistent albuminuria calls for a thorough examination of the urine (amount of albumin excreted, casts, blood cells, etc.) and blood (uric acid, N.P.N., etc.) to determine its cause. As long as the total amount of protein excreted in 24 hours is less than 3 grams, one need not be too concerned about its effect on the pregnancy.

A simple method of estimating albumin is to acidify a test tube of urine, boil it a few minutes, allow to stand one hour. Half a test tube sample of precipitated albumin indicates approximately 6 grams of albumin per liter.

Prophylaxis — Since we have no real knowledge of the actual pathogenesis of the toxemia of pregnancy, there is no true prophylaxis against the disease itself. It does resolve itself, however, in endeavouring to avoid the development of the severer types of toxemia, especially eclampsia, with its high maternal and fetal mortality. Therefore, the early recognition and control of the deviations from normal, indicative of toxemia are of primary importance in prophylaxis. Patients with a history of previous toxemia should be carefully watched in subsequent pregnancies.

The onset of such signs as (cerebral) headaches, visual spots, (gastro intestinal) pain in epigastrium and (renal) albuminuria, or anuria in a patient who manifests the other signs of toxemia already outlined, should be regarded with gravity as they are usually the precursors of convulsions.

TREATMENT—Ambulatory Patients.

Patients with toxemia should be seen frequently, say every two weeks up to the 30th week of pregnancy, and about every week after that. Every effort should be made to carry the patients to 32 weeks and preferably 34-36 weeks before terminating the pregnancy.

If the symptoms are mild, there is no limitation on water intake. The patient is allowed a general diet of about 1600 to 1700 calories, preferably high in protein and vitamins, and low in carbohydrate and salt. It should include daily an egg, one quart of milk, a serving of boiled meat or cheese with low salt content, bread, vegetables and fruit. No salty foods should be taken and no salt used in cooking or at the table. Fats of any kind should be carefully watched and avoided, along with bread, if weight gain continues.

Rest is important, and an hour's bed rest in the morning and an hour or two in the afternoon, plus ten hours rest at night is advised. Excessive exercise such as long walks, heavy washes, house-cleaning, etc. are prohibited.

If no improvement occurs within two weeks, she is put on a diet of fruits, cereal, vegetables, eggs, toast, tea and coffee. These are all salt poor foods, and should not be maintained longer than 3 weeks.

When oedema requires treatment, considerable benefit is often obtained by the oral administration of an ounce of concentrated magnesium sulphate solution every second day, or ammonium chloride 6-8 grams daily for not more than 5-6 days. The latter may be repeated after the lapse of several days.

If further restrictions are necessary because of lack of definite improvement, a diet of fruits and fruit juices is advised, and complete bed rest. Such a diet can only be continued for about one week. Phenobarbital gr. $\frac{1}{2}$ three to four times daily is helpful in maintaining bed rest. At this time, unless marked improvement is noted, hospitalization is advisable to provide absolute bed rest, and it becomes imperative if one or more of the following signs or symptoms develop:—a rise in systolic blood pressure of 30 mm. or more, a 3 plus albumin in the 24 hour urine specimen, the onset of cerebral, visual, or gastro-intestinal symptoms. Such developments place the pre-eclampsia in the severe grouping, the immediate precursor of eclampsia.

Hospital Patients — The treatment is essentially that outlined for ambulatory patients, except absolute bed rest is added. A salt poor, high protein, vitamin-rich, pre-eclamptic diet is prescribed, to which amino-acids are usually added, preferably by mouth or intravenously if necessary. Fluid intake and output are recorded and fluids are not restricted unless the output is considerably below the intake (intake should not exceed output by more than 600-700 cc. daily). The patient is weighed every other day. Blood pressure is recorded twice daily, and the fetal heart checked at the same time. A catheter specimen of urine should be checked every 2nd or 3rd day. Blood chemistry studies which include uric acid, blood urea, N.P.N. and plasma proteins should be estimated. Hemoglobin and red cell counts should be carefully checked and repeated at intervals, as such patients tend to be anemic. Where anemia is present, one should not hesitate to give blood transfusions. Sedatives are given in sufficient dosage to ensure rest and quiet, and visitors are kept at an absolute minimum and for only short periods of time. Phenobarbital grs. 1 three or

four times daily will usually be sufficient. Many prefer magnesium sulphate, 5 cc. of a 50 percent solution intramuscularly every 6-8 hours, with phenobarbital at bedtime, with reduction of dosage when the situation warrants it. Some others prefer sodium amytal, 3 grs. subcutaneously or intramuscularly twice daily. While morphia is still a useful drug for emergency use, especially in those cases of threatened eclampsia, its continued use is not advisable because of its unfavourable side-effects. I rarely use it now, and never repeat it. Where fluid intake is minimal or low, and output similarly low, one liter of 5 percent glucose-distilled water intravenously is given once daily. In the more severe type of toxemia, the glucose may be repeated with benefit twice daily, depending on urinary output of the patient, as it acts not only as a diuretic but also helps to protect the liver from depletion of glycogen. Examination of the fundi is certainly desirable when the patient is admitted to hospital and checked at intervals.

Success in treatment will be determined by loss of oedema with corresponding loss in weight, adequate urinary output with reduction in protein excreted, reduction and/or stabilization in blood pressure, and freedom from symptoms generally.

Since the cure of the pre-eclampsia depends upon the termination of the pregnancy, the patient should preferably remain in hospital until delivered. If she must be discharged, she should remain in bed at home, be checked frequently there, the urinary output measured (easily done with measuring cups) and a sample examined in the office every 2nd or 3rd day.

Following hospitalization, the management will depend upon the severity of the toxemia, whether there is improvement within a reasonable time and the duration of the pregnancy itself.

The importance of the vasopressor state in the pathology of toxemia has already been noted. When this vasoconstriction state exists, it has been noted that there is reduced blood flow to the uterus, to the brain, and in the kidney. From this arose the hope that in the management of the hypertension associated with toxemia, drugs capable of reducing blood pressure might have an important role. It is indeed doubtful, however, if the mere lowering of the blood pressure is in itself sufficient unless, by the action of the drug there is also an accompanying improvement in the circulation to the placenta, (reducing anoxia to the fetus), to the brain and to the kidney. None of the anti-hypertensive agents available at the present time meets all these conditions. One frequently used at the present time is a purified alkaloid of the once popular *veratrum viride* known as veratrone. Another is apresoline, with or without *rauwolfia serpentina* added which seems to fulfil most of the requirements noted above, except for the unfavourable side effects of headache, vomiting, skin flushing and tachycardia noted with its use over several days. Some favorable reports have been noted with a combination of *veratrum viride* and apresoline.

There is a question in my mind whether such antihypertensive agents are necessary in the management of those cases of toxemia which have not developed convulsions, unless the blood pressure is unusually high and not controlled by complete rest and other measures previously outlined. If veratrone is employed, it is given intravenously in doses of 0.2 ml. in the glucose solution

already running. It can also be given intramuscularly in slightly larger doses. The blood pressure should be checked every 10-15 minutes, and the dose may be repeated in 30 minutes, if the blood pressure is not lowered. Most patients seem to tolerate veratrum alkaloids when continued over several days, and blood pressure readings taken at frequent intervals may be used as an index for increasing or reducing the dose. Keeping the blood pressure down to, say, 140-150/90 probably reduces the danger of convulsions but does not necessarily abolish such danger.

If the signs and symptoms of the toxemia show definite improvement with this regime, an attitude of watchful expectancy is assumed. If close to term, she may be allowed to go into labor spontaneously, or induced by medical means or by artificial rupture of the membranes. If she is not close to term, every effort should be made to carry the pregnancy to viability (28 weeks) at least, or preferably to 32-34 weeks in the interest of fetal survival.

If on the other hand, the patient's condition does not improve within 48-72 hours, or is becoming worse in spite of treatment, more active measures must be instituted to prevent the onset of the convulsive phase, and termination of the pregnancy is now paramount, even though she may be several weeks from term. If the patient's condition is not too critical, and the cervix is soft and partly effaced or admits a finger easily (which a multiparous cervix usually will do), rupture the membranes, and if labor does not soon begin, 8 minims of pitocin to 500 cc. of 5 per cent glucose-distilled water solution given at a starting rate of 10 drops per minute and increasing to 30 drops per minute can be administered. If after two hours the uterus has failed to be stimulated to active contractions it is doubtful if the induction will be successful at this time. Many still prefer 1 to 2 minim. doses of pitocin subcutaneously every 30-60 minutes for several doses instead of the intravenous drip method and probably with as good results. In either method, especially the former, the uterus has to be watched constantly by medical or nursing personnel.

The use of oxytocin is hazardous in the grand multipara or where any suspicion of disproportion exists, owing to the very definite incidence of uterine rupture in such cases.

The membranes should not be ruptured, after labor has been induced with an oxytocic, in breech presentations.

If the cervix is long, closed and unsuitable for induction, a low segment caesarean section should be performed. The choice of anesthetic agent is often an important one. It is probably best to avoid centrally-acting anesthetics. Local anesthesia is highly preferable. Spinal anesthesia, using novocain only, seems to offer safety and efficiency, and is rather widely used. Glucose and water solution intravenously during the operation is advisable.

It is my own feeling that a most important part of therapy in the more severe types of toxemia is keeping the kidneys secreting. One of the best ways of accomplishing this, is by the use of 1000 cc.'s of a 20 percent solution of glucose in distilled water, given intravenously over a period of 60 to 90 minutes, and repeated every 12 hours if necessary providing no contraindications exist for such amounts of fluid (pulmonary oedema, urinary suppression).

So far we have only discussed the non-convulsive type of toxemia. If it progresses to **the convulsive stage**, the prognosis for life becomes less favorable for mother and babe, the mortality rate rises with the number of convulsions, hence the necessity for the prompt institution of treatment. While it is true that the pregnancy is responsible for the eclampsia, and its removal an important part of treatment, the decision as to when and how the pregnancy should be terminated may mean the difference between the life and death of the patient. The combination of medical treatment and bringing the toxemia under control followed by delivery when the patient's condition warrants it will give the most satisfactory results.

In the treatment of eclampsia, reduction of the blood pressure should not be a primary consideration, as it will usually be reduced as a result of the drugs given to control the convulsions. Too much reduction in pressure may reduce the urinary output, an undesirable feature in eclampsia.

The patient should be isolated in a quiet, darkened room, with someone in constant attendance; noise in the room should be kept to a minimum and plugging the ears with cotton will help eliminate some noises from disturbing the patient. Administration of oxygen by mask or nasal catheter, especially following a convulsion is advised, and using a tongue depressor wrapped with gauze during the convulsive seizures is important to prevent damage to the tongue.

A suction apparatus to remove secretions from the pharynx should be at hand.

An indwelling catheter is placed in the bladder and urine drained off every hour and measured.

Sedation in sufficient amount to control the convulsions becomes paramount. Morphia gr. $\frac{1}{4}$ is usually quickly available and may be given at once, but not repeated. We have found sodium amytal intravenously in doses of 5 to 7 $\frac{1}{2}$ grains given over a period of 3-5 minutes quite satisfactory in the control of convulsions. It may be repeated when indicated by the reaction of the patient. To this we frequently add 3-5 grains of sodium luminal intramuscularly every 4-6 hours depending again on the wakefulness or otherwise of the patient. Sodium pentothal intravenously also enjoys very considerable popularity.

Many clinics rely on magnesium sulphate as a sedative agent. The usual dose is 2 gm. (30 grs.) in 20 cc. of distilled water intravenously. This is repeated at intervals of one to four hours depending on the effect on the convulsions. The blood pressure should be watched carefully. Some advocate much higher doses, such as 4 gm. (60 grs.) in 20 per cent solution in water intravenously, given over a period of about five minutes. At the same time 5 gm. of 50 per cent solution is given intramuscularly in either buttock. Following this initial combined dose of 14 gm., 5 gm. in 50 per cent solution is given intramuscularly every four hours as long as the patellar reflex is obtainable or the urinary output is not less than 100 cc. every four hours. These are heroic doses and probably necessary in only very severe cases. This may be continued until delivery and for some hours post-partum. The patellar reflex should be checked before each injection because it is one of the first to disappear when a toxic amount has been given. The effects of magnesium sulphate can be neu-

tralized by 10 per cent calcium gluconate intravenously, and should be at hand for such use. One should keep in mind that oversedation may be as hazardous as the eclampsia, and repeated doses of sedative should be ordered when it becomes necessary to reduce nervous and muscular irritability, and not so much by a prearranged time schedule.

Termination of the pregnancy constitutes the final step in treatment, but should be avoided while the disease is still active, owing to the high mortality it carries. However, one often finds such patients in spontaneous labor and since delivery from below is almost always possible, nothing is done to prevent its progress. In fact, where it is advisable, because of slow progress, rupture of the membranes may expedite the labor, providing such manipulation is not liable to precipitate further convulsions. In most cases, labor should be induced within 24-36 hours after the toxemia has been brought under control. If rupturing the membranes does not initiate labor in one or two hours, a pitocin drip can be started. If, with such measures labor has not begun within a reasonable time, caesarean section should be considered, providing the baby is still alive, (fetal mortality in utero is extremely high in eclampsia), but most patients with eclampsia can be delivered vaginally. At delivery, no inhalation anesthesia should be used. Local infiltration or pudendal block may be used as indicated, and low forceps certainly permissible. When caesarean section is done, spinal anesthesia with novocain properly administered appear to offer no increased hazard, but local infiltration can be tried in selected cases.

One must not be too complacent about these cases during the early puerperium. Severe pre-eclampsia may progress to eclampsia, and the treatment instituted before or during labor should be continued (sedation, fluids to stimulate diuresis, etc.) until the danger of recurring convulsions has passed and the patient is on the way to recovery.

If the patient remains free of convulsions for 48 hours, and no complications have developed, no special treatment need be continued further. At this time, salt in small amount, may be added to her diet, sedation discontinued or reduced, but fluid intake should be maintained at a high level. It is not unusual for the blood pressure to remain relatively high for several weeks following eclampsia, but it will settle to its normal level within 6-8 weeks as a rule. At this time a catheter specimen of urine should be checked.

The complications of eclampsia may figure in the mortality of eclampsia as much as the disease itself, and proper efforts should be made to prevent or correct them. A most worrisome one — pulmonary edema or cardiac failure, may be relieved by venesection and rapid digitalization. Blindness, due to detachment of the retina usually corrects itself within a few days or weeks. Vascular collapse may be a very serious complication, and is probably due to hemorrhage and/or necrosis in the adrenal cortex. Adrenal necrosis should be suspected where the blood pressure continues to fall and usual forms of treatment fail to change it, where coma remains persistent or deepens, and urinary function is failing. In such cases cortisone should be given, an initial dose of 100 mg. followed by 50 mg. every 6 hours until the patient shows definite improvement.

The question as to whether pre-eclampsia recurs or produces permanent vascular changes can be partly answered. According to Dieckmann, at least

half the women with pre-eclampsia will have normal pregnancies later, while the remainder will again be complicated by toxemia. Convulsive toxemia recurs in considerably less than 10 per cent of succeeding pregnancies, but eclamptics have an increased incidence of convulsive toxemia during the latter part of gestation. Proper prenatal supervision should largely prevent **any** toxemia from becoming a serious risk to life and avert permanent damage.

The fetal mortality may be as high as 50 per cent in eclampsia. Death may result from prematurity, placental anoxia, the toxemia itself, or the drugs used for its treatment.

The Vascular-Renal Group

A discussion of this kind would hardly be complete without mentioning this important group, which comprises only slightly less than half of the toxemias of pregnancy. The term is probably more suitable than chronic nephritis, and though some of these patients have kidney impairment due to sclerosis of the renal vessels, the hypertension is really, the primary disease. These patients may have eclamptic convulsions, though generally speaking, the patient who shows hypertension primarily, rarely has convulsions. A chief concern in these patients is fetal death in utero, due either to premature separation or marked infarction of the placenta.

If the blood pressure does not appreciably increase in these patients they can often be carried to term. A sudden increase in blood pressure of 30 mm. or more, or an increasing albuminuria, warrants hospitalization of these patients. Where the systolic pressure remains in the vicinity of 180-200 mm. and the diastolic 100 mm. or thereabouts, one should be satisfied to carry them up to 34-36 weeks and terminate pregnancy. The babies in these cases are usually small, but if they are allowed to go to term, intrauterine death of the fetus will reach a high percentage. These patients have an incurable disease and should not have many pregnancies.

In managing these patients, where the cervix is soft and ripe, rupture of the membranes is probably the preferable method of inducing labor. If, however, the cervix is closed and uneffaced, caesarean section should be given high priority in these cases.

Conclusion

The toxemias of pregnancy constitute one of the leading causes of maternal mortality and the fetal loss associated with the disease is high.

Intelligent prenatal care **will** prevent the occurrence of eclampsia. Is it too much to expect that it will eliminate pre-eclamptic toxemia?

The incidence of non-convulsive toxemias of pregnancy has not been materially decreased by prenatal care, but many cases have undoubtedly been prevented from becoming severe or serious. Furthermore, early diagnosis and recognition of the underlying pathology will at times necessitate therapeutic abortion to increase the life expectancy of the mother, or premature termination of the pregnancy to give the fetus its best chance of survival.

There should be no temporizing in the progressively severe case of toxemia of pregnancy.

Convulsive toxemias should be treated along medical lines until the patient's condition warrants interference with the pregnancy.

Specific medications, hormone therapy, prophylactic penicillin, generally offer little or fail altogether to cause improvement in patients with definite toxemia.

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Books

For the man in practice who wants an obstetrical text that he can use as a reference book, Greenhill-DeLee, is perhaps the best. While its material may not be as well arranged as Williams-Eastman, another extremely fine book, it does tend to go into greater detail in the management of the unusual case for which a reference book is required. In gynecology there is no better general text than Novak. For the man interested in the operative side, or doing more specialized work, Lowrie's system with its companion on surgical techniques is a comprehensive reference book, while Te Linde and Wilfrid Shaw's works are excellent on surgical techniques and beautifully illustrated. An illustrated text entitled, *The Gist of Obstetrics*, illustrated with line drawings, which embodies the teaching at Dalhousie and has grown out of the old obstetrical notes, *Obiter Obstetrica*, will shortly appear on the market.

The Value Of X-Ray In Obstetrics

I. A. Perlin, M.D.

AT first glance the use of the X ray in obstetrics may appear to be rather inconsequential. Are not most of the babies born normally? The answer of course is in the word "most." What about the rest? What about that group of obstetrical patients where trouble does arise, and how can we anticipate whether trouble might be expected? The aid that we have received from the X-ray has indeed been remarkable in this group. We use this help in the same manner as any other apparatuses designed to augment our clinical investigation of other parts of the body.

Where then can the added advantage of a detailed picture help us in handling the obstetric patient more intelligently?

To Determine Pelvic Size

There is little doubt that it is extremely difficult to estimate accurately the size of the pelvis by any other clinical measure. We mean particularly the inlet and mid-pelvis. As far as the outlet is concerned one can perhaps become better acquainted with this plane clinically because it is there right before the examiner in his routine pelvic examination — he can practically see this area, he can certainly feel it in its entirety — the ischial tuberosities, the sub-pubic arch, the tip of the sacrum — and he can get exact measurements by the use of calipers if he so desires. But when one attempts to assess the size of the mid-pelvis, then one is making but an approximation; and in the case of the inlet it becomes even more of a guess. It is here that the X-ray picture can help to categorize the pelvis into:

1. One that is hopelessly small, or
2. One that should give no trouble, or
3. One where extra caution in labor should be exercised because the architecture of the pelvis is such that the baby might well be held up — it is particularly in this latter group where the X-ray can emphasize the expected problems in labor as far as the pelvis is concerned and where the clinical impression alone would be inadequate.

Frequently we find patients in labor for a long time, not making the progress they should, the pelvis apparently satisfactory clinically, but presenting on X-ray a flattened inlet with a wide lower pelvis; or an extremely shortened anteroposterior diameter of the mid-pelvis and a straight sacrum with or without unusually prominent ischial spines, preventing proper descent and rotation of the head. This type of pelvis is clinically difficult to assess but readily picked up on X-Ray.

What method of pelvimetry to use? There are many methods in vogue in the various medical centers and hospitals and no doubt all of the standard ones are good. Some, however, are technically difficult, and require specially trained technicians; and still others are more difficult from the interpretation standpoint. We have found the Thoms method the best suited to our needs — the technique of taking the films is not a particularly difficult one and the reading of the films is quite straight forward. With a true inlet film and an upright lateral, one gets all the information necessary or pertinent about the con-

tour of the pelvis and the relationship of the baby to the pelvis. Because a scale is incorporated in each picture, and at the same distance from the film as the subject was, accurate measurements of the different diameters, can be made directly from the film.

Determining Fetal Presentation and Position

We certainly can all admit to the fact that at times it is difficult to be sure of the exact fetal position and presentation. More particularly is this true in the presence of a contracting uterus. How often have we not asked ourselves: is the presenting part high because of pelvis or baby; is it breech or vertex; is it anterior or posterior; if a breech, are the legs extended? Let us say the membranes have ruptured early and we note meconium-stained fluid during the labor — fetal heart seems O.K. at the moment — is the meconium a sign of fetal distress? It might well be with a vertex presenting, but not necessarily where meconium and breech go together.

If the pelvis is known to be adequate then a simple A.P. of pelvis and/or lateral will bring to light the true presentation or position.

Frequently we miss a diagnosis of multiple pregnancy on clinical examination — we may be suspicious but we daren't say for sure. It has been said in the past that one cannot be sure it's twins until the babies are in the bed.

The X-ray can help us here — a simple A.P. and lateral may do much to solve the question and thus result in a more pleasant reaction for the parents. It is much more of a shock to them to be presented with a set of twins or triplets unexpectedly after delivery, than to have had pre-labor warning so they could prepare (and certainly less embarrassing to the physician).

The case of polyhydramnios presents a problem in diagnosis. A tense abdomen does not allow for the proper determination of fetal presentation and position. The frequent association with this condition of abnormalities in the baby, particularly of its head, asks, if possible, for a pre-delivery diagnosis. The X-ray here again is most helpful — a hydrocephalic may be seen although not felt in the presence of excessive fluid. An anencephalic can be seen — although the latter may not present any difficulty at delivery, it is useful to anticipate its arrival. One may not wish to tell the mother of the existence of such a monstrosity because her labor may be upset, but it goes better for patient — family — physician relationship if at least the husband or other close relative is cognizant of the fact, and can be present following delivery to inform and console the mother much more effectively than usually the physician or nurse can do.

Determining Position or Placenta

A great deal of help can be obtained from radiographs in the handling of bleeding in the last trimester of pregnancy. Suppose we have a patient who starts to bleed p. v. with yet another 6 or 7 weeks to go to term — the situation is not yet acute requiring immediate delivery, but the establishment of a diagnosis is important. We don't want to be pushed into doing something too soon, we'd like, if at all possible, to carry the pregnancy on further so that the babe will have a better chance for survival. A vaginal examination would of course, help in diagnosis, but the examining finger probing the cervical canal

to assess the possible presence of a placenta over the os might well start bleeding, excessive enough to require immediate action. A placenta on the posterior wall of the lower segment of the uterus displacing the presenting part forward and not allowing a proper fit to pelvis, presents a problem in delivery and yet can readily be missed by clinical evaluation. It is for these reasons that we have found the visualization of the placenta by X-ray to be of the very greatest value.

There are several ways of doing placentography. We have found that the "soft tissue" studies using the upright lateral views have been very satisfactory and are certainly more simple technically. Furthermore, this method is as accurate as the other more complicated techniques such as those using contrast media in the bladder.

Intrauterine Death of the Fetus

Occasionally one is faced with the problem of making a pre-labor or pre-delivery diagnosis of fetal death. The patient claims that she has not been feeling fetal movements, the physician cannot be sure that he hears the fetal heart. The X-ray might be a valuable aid in the decision. We use a two-film method — both A.P. views of pelvis, but one in upright position, the other supine — where there is fetal death, there is overlapping of the fetal skull bones and a collapsed appearance of the spine in the upright film as compared to the supine one.

Summary

Labor is a complicated process and conditions have to be right for its successful conclusion. Since the mechanism is a physiological one the majority of deliveries occur without incident, but there are still a goodly number of cases where the threads don't quite mesh correctly due either to faulty parts or inadequate power and hence complications. The size and contour of the pelvis, the size of the baby, its position and the moldability of its head, the forces of the uterine contraction and the mother's emotional and psychological preparation for her labor all play leading roles in the final outcome. It is not too long ago since very little of any of the above factors was really understood and deliveries were conducted with the realization that nature will look after things and mortality and morbidity were to be expected. With our gradually increasing knowledge, some of the process has become more readily understood so that less and less is left to chance. Anything that we can do, therefore, when there is difficulty, to rule out certain things as being the cause, the easier does the problem lend itself to solution. The X-ray can at least tell whether the pelvis is the likely cause, whether some unusual position or an abnormal fetus is present. It can help in giving more definite knowledge of progress in labor where the clinical evaluation has not been satisfactory.

It has been our policy in recent years (and it is the policy that is becoming popular with all practitioners) to do routine pelvimetry in all primipara in the last month of pregnancy — also of multipara who had small babies the first time or a difficult delivery. We do the X-rays in the final month because we not only get the pelvic size but also the final position of the baby and the relationship between baby and pelvis.

At the first sign of trouble in labor even though the pelvis had previously been reported satisfactory, we often do a progress lateral film as part of the general appraisal of the situation prior to making a decision.

When we are not sure of the fetal position we are not stubborn about depending on our clinical ability alone but we check by radiography.

In the bleeding woman where diagnosis is important in relation to the possible necessity of immediate delivery, a placentagram often gives the complete answer.

Finally, it is not suggested the X-ray is to be used to supplant clinical evaluation — it is but an aid in solving some of the complex mechanisms of the labor process.

Bleeding During Pregnancy

James McD. Corston, M.D.

Causes:

1. Abortion
2. Placenta Praevia
3. Abruptio Placentae
4. Extraneous Cause

1. Abortion:

This condition is defined as the expulsion of the ovum from the uterus before the foetus has become viable — that is, before it (the foetus) is capable of maintaining an independent existence which begins approximately at the 26th to 28th week of pregnancy.

About 25 per cent of all pregnancies end in abortion and it may occur spontaneously, by criminal interference or induced as a therapeutic procedure.

Aetiology:

Most abortions occur in women who are apparently healthy in all respects. This problem is being currently studied over a five year period by a team in the Victoria General Hospital under the direction of a gynecologist, and consisting of an endocrinologist, psychiatrist and biochemist. Suffice it to say at the present time, that many of the old theories of the causation of abortion have been exploded. Retroversion of a pregnant uterus may, because of its position, have a tendency to abort as the result of coitus.

Clinical Features

Haemorrhage and Pain

Bleeding is almost always the first symptom and is caused by the separation of the ovum or some part of the decidua from the uterine wall. This bleeding may be profuse.

The pain is usually intermittent and is due to uterine contractions. There may be continuous pain and in fact more severe than labour pains in a full term pregnancy. After the discharge of the ovum from the uterine cavity, the pain ceases.

Terminology:

- Threatened Abortion
- Inevitable Abortion
- Incomplete Abortion
- Complete Abortion

These four conditions may of course be a continuation of the same process and the main point of differentiation is the state of the cervix.

Treatment:

If the abortion is threatening — that is, some bleeding but with no passage of tissue and the cervix closed — the treatment is the same as it was twenty years ago, viz: rest in bed and sedation. Hormone therapy in various combinations has been tried and found to be of no avail.

If the abortion becomes inevitable or incomplete, then evacuation of the uterus is indicated in most cases so that further haemorrhage is prevented and

the patient is safeguarded against shock. One has seen quite often in cases of inevitable and incomplete abortions the development of severe shock in the absence of much in the way of bleeding. In these cases, placental or foetal tissue may be found in the cervical canal. When this tissue plug is removed from the cervical canal, the clinical picture improves dramatically. It is believed that the presence of this tissue in the canal of the cervix causes extraneous stimuli to the autonomic nervous system which results in the clinical picture of shock.

Hydatidiform Mole:

This condition is rare but when it does occur the bleeding is usually severe. It is preferable, because of the danger of perforating the uterus, to treat these cases with parenteral injections of ergometrine to minimize the bleeding and to hasten the evacuation of the mole. A curettage — gentle and with a blunt curette should be performed when most of the tissue has been passed spontaneously. If the patient with a hydatidiform mole is over forty years of age and the diagnosis has been made with certainty then there is a definite place for a hysterotomy or hysterectomy. The incidence of chorio epithelioma developing subsequently is much higher in the older age groups.

2. Placenta Praevia:

About one third of all the cases of ante partum haemorrhage is due to placenta praevia.

Why does the bleeding occur in these cases?

This depends on the mechanism of the dilation of the cervix. When labor begins a double mechanism comes into force.

(a) The advance of the lower pole of the ovum.

(b) The "drawing up" of the cervix and the lower uterine segment over the lower pole of the ovum like a sleeve.

The part of the placenta lying near the cervix is torn off from its attachments to the lower segment wall partly by the advance of the placenta downwards and partly by the drag of the uterine wall upwards. The torn uteroplacental vessels bleed and this becomes obvious clinically. This same explanation can be applied to the bleeding of placenta praevia anytime during the last trimester of pregnancy, because the normal painless contractions cause a "taking up" or effacement of the cervix.

Diagnosis of Placenta Praevia:

There is one symptom only and that is *painless bleeding*.

A helpful sign in these cases is instability of the presenting part or malpresentation. Therefore, in all cases of transverse or oblique lie and in cases when the foetal head can't be made to "bite" into the pelvic inlet, placenta praevia must be suspected even in the absence of bleeding.

Soft tissue shadow X-Ray will be of help in these cases.

Treatment:

Since the war, there has been a great change in the treatment of these cases. Now the emphasis is on the conservative approach so as to prolong the pregnancy and do away with pre-maturity. The result has been to save many babies who would otherwise have been too small to survive.

Formerly the stillbirth and neonatal death rates in this condition was between 50 per cent and 60 per cent. Now it is about 14 per cent. Our own figures at the Grace Maternity Hospital for a five year period, since adopting the conservative treatment are as follows:—

Total number of cases of placenta praevia — 34.

Foetal mortality — 5 or 14 per cent.

Specific Outline of Treatment:

(a) *Domiciliary Treatment.*

First we must emphasize that there is no place for treatment at home of a patient suspected of having a placenta praevia.

When the doctor is called to his patient's bedside because she is bleeding in the last trimester of pregnancy, there are certain definite rules to follow. The examination in the home should consist of blood pressure recording; pulse rate; abdominal palpation, and if abdominal palpation shows the presenting part to be engaged in the pelvis, then you can be positive that you are not dealing with a major degree of placenta praevia; arrangements should be made for immediate removal of the patient to hospital by ambulance with an attendant if the journey is a long one. *Vaginal and rectal examinations in these cases cannot be condemned too strongly.* These examinations can be and have been the cause of profuse haemorrhage with possibly fatal results. In any case, nothing is to be gained by such an examination in the patient's home.

(b) *Hospital Treatment.*

Upon admission to hospital the patient's blood is grouped and cross matched at once and blood for that patient is kept always available in the hospital until that particular patient is delivered.

The decision is then made whether to attempt to conserve the pregnancy in order to get a more mature baby or to terminate the pregnancy forthwith.

If the woman is bleeding profusely and/or the pregnancy has reached the 36th week or more, then there is no point in waiting. The patient is taken to the O. R. and with all preparations made she is examined vaginally. The *preparations* must be insisted upon by the attending doctor even although occasionally he may not be too popular — especially at 2 a.m. when he finds, as a result of his examination, a Caesarean Section is not indicated!

These *preparations* referred to, consist of having the O. R. staff scrubbed, gowned and the instruments laid out; the anaesthetist and assistant ready in the O. R.; bottles of blood available in the O. R. The doctor scrubs as for a Caesarean Section and examines his patient vaginally. If he feels the edge of the placenta encroaching even partially over the internal os then he proceeds at once with a Caesarean Section. If he feels the edge of the placenta at the tip of his finger, well up from the internal os, the treatment is to rupture the membranes and to expect a vaginal delivery. The one exception is if the placenta is situated on the posterior wall of the lower segment. Even if the placenta in this position is situated well up from the internal os, a Caesarean Section should be done. This posterior placenta praevia has been called "The Dangerous Placenta" by Stallworthy of Oxford because its position doesn't allow the presenting part to compress the bleeding sinuses and haemorrhage will continue in spite of ruptured membranes.

Conservative Expectant Treatment.

If the bleeding occurs before the 36th week of pregnancy and is not severe then the primary aim is to conserve the pregnancy until the baby grows larger and becomes more mature and thereby increase its chance of survival. At the same time of course, the mother is safeguarded. Cross matched blood is always kept available in the hospital. The patient is kept in bed until 48 hours after all bleeding has stopped. The nursing staff is alerted so that the bedside bell is answered at once. A soft tissue X-Ray may be taken to help in the diagnosis of placenta praevia but the only certain way to diagnose placenta praevia is by vaginal examination.

If the patient doesn't bleed again and lives near the hospital, she may be allowed to go home while waiting for the 37th week.

This regime is followed until the 37th week of the pregnancy when a vaginal examination in the O. R. with all necessary preparations is made. The method of delivery is decided upon depending on the findings.

It will be seen therefore that the two methods of treatment for placenta praevia are rupture of the membranes with vaginal delivery or Caesarean section. The other methods of treatment such as internal version, Willett's forceps, pressure bags in the lower segment have pretty well been discarded.

3. Abruptio Placentae

This condition is also called Accidental Haemorrhage because originally it was thought to be due to "some accidental circumstance."

While it is often associated with toxæmia of pregnancy this is by no means always the case. In 40 per cent of cases no coincidental toxæmia is found.

The bleeding is due of course to the partial separation of a *normally situated* placenta. The bleeding may be severe or slight, depending upon the area of placental separation and the haemorrhage may be obvious or not, according to whether the blood is retained in utero or expelled into the vagina.

Abruptio placentae is characterised by pain, shock and hardness of the uterus. In mild cases, pain and shock are absent but there will probably be tenderness on palpation of the uterus.

Pathology:

The bleeding begins and forms a retroplacental blood clot. The uterine muscle at this site is ploughed up by extravasated blood and this tears and injures the uterine muscle fibers in this area. The damaged muscle fibers can't contract and retract and therefore in these cases, there often is an atony of the uterus.

Afibrinogenemia is a danger in cases of severe abruptio. The mechanism is more or less as follows. When the placenta becomes partially separated, thromboplastin is forced into the peripheral circulation in excessive amounts. This leads to fibrin deposits at the expense of the circulating fibrinogen and the clotting mechanism fails. The patient is then in grave danger of bleeding to death. A practical clinical test for this condition consists in collecting blood from the vagina in a sterile test tube. If this blood fails to clot or if the clot, such as it is, disintegrates when the test tube is gently agitated, then the continued maternal bleeding is probably due to afibrinogenemia. The treatment of this complication is to transfuse with *fresh* blood and to administer fibrino-

gen intravenously. A supply of fibrinogen is kept available at all times in the Red Cross Blood Depot in Halifax.

Treatment of Abruption Placentae

Caesarean Section is being used more and more in the interests of the baby in cases of mild abruption. In severe cases in which there is much bleeding — concealed or revealed or both types — the mother is given massive transfusions and the optimum time is chosen for surgery if the patient is a primipara with an “unripe” cervix. If the cervix is dilating and the baby is dead, the membranes are ruptured to promote more active labour. Post partum haemorrhage must be anticipated and guarded against in these cases because of the atony of the uterus. If the placenta is not expelled with the baby, it should be removed manually at once and ergometrine given to minimize bleeding.

4. Extraneous Causes of Bleeding in Pregnancy

In each and every case of bleeding in pregnancy the doctor must approach the patient with the ever present thought — *is this bleeding due to some cause unrelated to the pregnancy!* Therefore, although the presumptive diagnosis may be abortion, placenta praevia, abruption placentae, we must exclude other causes. The cardinal rule must therefore be to carry out a *gentle speculum examination* 48 hours after bleeding has ceased. This visual examination of the cervix will exclude cancer of the cervix; cervical polyp; a congestive cervical erosion; hemangioma of cervix or vagina.

Bleeding during pregnancy can be a worrisome and sometimes hazardous condition. Given modern techniques, blood transfusions, modern transportation, antibiotics and obeying certain rules of treatment, only the very exceptional case with grave complications will end fatally. How much easier it is for us with all these modern aids than it was for the old timers even twenty years ago!

Diagnosis in Ectopic Pregnancy: No one will have 100 per cent perfect diagnostic record in this condition, but the mark will be higher if every woman in the child-bearing age with low abdominal pain and some anomaly of menstruation is considered to be an ectopic until she is proved otherwise — *no matter what other signs and symptoms she may have.*

Hormonal Dyscrasias

M. G. Tompkins, Jr., M.D.

IN discussing the problem of hormonal dyscrasias in the female, one must first consider the basic physiological mechanisms that exist in the normal female, an understanding of which will facilitate the diagnosis and intelligent treatment of the patient who has abnormal hormonal function.

The first sign of normal hormonal function in women is the development of secondary sex characteristics. At about eight years of age, the breasts first show evidence of development. However, the most striking manifestation of puberty is the onset of the first menstrual period. This usually occurs between 13 and 14 years of age — yet it may occur as early as 8 and as late as 16 years of age.

Most authorities agree that the diagnosis of primary amenorrhea should be made only if no menses occur by the age of 18 years. That this condition may be caused by some developmental factor, such as hematocolpos, will be evidenced by the fact that breast development and the distribution of axillary and pubic hair may be normal despite the absence of bleeding.

One first naturally expects the pituitary-ovarian axis and their inter-relationship to bring about the cyclic changes in the uterus which are seen as ordinary, self limited menstrual bleeding.

What initiates this complex sequence of events? Why should the ovary remain dormant for the first decade and suddenly be stimulated by the pituitary to function? No one knows.

The pituitary is not an autonomous body — its function is influenced and altered by the reciprocal action of the other ductless glands, mainly, the adrenal, the thyroid and to a lesser extent the remaining glands; it is also under the control of the hypothalamus and higher cerebral centres.

Current concepts of the hypothalamic control of the gonadotrophic functions are as follows: The hypothalamus and anterior pituitary are linked into a single functional unit by the hypophysial portal vessels which permit transmission of humoral agents originating from hypothalamic fibres. This connection is essential for many functions of the anterior lobe. Stimuli arising in or transmitted by the central nervous system reach the pituitary through this pathway.

It is thus evident that something more than pituitary stimulation per se is required for normal cyclic activity of the ovaries. Available evidence indicates that ovulatory function is dependent on:

- (1) The qualitative action of several pituitary hormones,
- (2) The action of these hormones in proper sequence,
- (3) The hormonal balance at each stage of the cyclic activity,
- (4) The absolute and relative levels of hormonal stimulation, and
- (5) The timing of hormonal action in relation to the ovarian response rate and

in relation to the ovarian response rate.

FSH (follicular stimulating hormone) is the controlling factor in initiating and maintenance of follicular growth. Initially many graafian follicles are stimulated but only one, "the favourite follicle," will mature to ovulation. The early stimulation of many follicles serves the purpose of liberating initially

an increased amount of estrogen which acts as a stimulus to growth thus bringing about cessation of bleeding and the healing of the endometrium from the epithelium of the remaining glands in the basalis.

The next fraction, LSH (lutein stimulating hormone) is secreted from the pituitary. Originally it was felt that this alone was concerned with corpus luteum formation and maintenance. Recent investigation supports the generally accepted views that FSH is the controlling factor in initiation and maintenance of follicular growth; that LH maintains the interstitial tissue and controls or is essentially involved in the production of luteinization. Both these hormones also appear to be required for estrogen secretion, LH being involved in the production of ovulation and transition to corpus luteum.

While the formation of corpora lutea is dependent on the action of FSH and LSH, the secretion of progesterone by these structures is controlled by luteotropin, which stimulates the lutein cells to produce progesterone. The duration of corpus luteum function is determined, within limits, by the duration of luteotropin secretion.

In the non pregnant state, withdrawal of these hormones bring about decay with the corpus luteum undergoing abruptive changes with loss of hormonal function and resultant endometrial breakdown due to lack of growth support. If pregnancy ensues the corpus luteum is maintained, the endometrium is converted into an early decidua which facilitates implantation and growth of the trophoblast. The corpus luteum is maintained until the trophoblast is capable of hormonal secretion in sufficient quality and quantity to sustain the uterus. The mechanism by which the corpus luteum is maintained until the transfer of hormonal control from corpus luteum to the trophoblast is not clearly understood.

The ovary, like the testis has both an endocrine and an ovum-producing function. On the other hand, the human ovary, unlike the testis, produces its characteristic steroid hormones only when its ova are present and developing. The production of the characteristic steroid hormones of the testis appears to be independent of the presence of its spermatozoa.

Estrogen production is dependent on the developing follicle or on those undergoing involution. During the latter years of reproductive life, varying greatly from woman to woman, estrogen production ceases; at this time no ova are found and no developing follicles.

It is of biologic interest that the human female is the only species which shows complete cessation of rhythmic genital activity associated with loss of hormone production, and loss of ova, in a definite relation to calendar years.

The two hormones produced by the cyclic changes as we have seen are estrogen, which is present throughout the whole cycle and progesterone, which is present only during corpus luteal formation and secretion.

Without ovarian function, estrogen is absent from the body with the exception of a small amount which may be produced in the adrenal or by administration as therapy.

In discussing these two hormones we should consider the biological effect of each on the different organs of the body.

(1) *Uterus*

The characteristic histologic changes induced in the uterus by estrogens are well known. Cell division and hypertrophy of the endometrium and muscular layer take place; however, only the characteristic proliferative state is reached. The administration of progesterone is necessary to develop the full secretory phase.

The estrogens have a definite effect on uterine motility and muscular activity. Estrogens increase the reactivity of the uterus to oxytocin, while progesterone exerts an inhibitory effect.

(2) *Vagina*

Keratinization of the superficial cells of the vaginal mucosa and growth activity of the basal cells appear to be solely under the control of the estrogens. At puberty the cells of the middle layers begin to store intracellular glycogen, which varies with the stages of the ovarian cycle. To date, no specific effect of progesterone has been noted on the vaginal mucosa.

(3) *Breasts*

The physiology of the ovarian steroids on the mammary gland and the breast is complicated. In the pubescent girl, the growth of the breast and increased amounts of fat and connective tissue are associated with proliferation of the duct system of the mammary tissue itself. These effects result from the growth-promoting action of the ovarian estrogens. Estrogens appear to be the only necessary endocrine agents for the growth and development of the breast and mammary gland in women. The more involved hormonal interaction required for milk production and lactation requiring progesterone and luteotrophin or prolactin need not be discussed in this paper.

We can thus see that dysfunction may be encountered from any one of the five different points; (1) the hypothalamus and its higher control, (2) the pituitary, (3) the interaction of hormones secreted by other ductless glands, (4) by the ovary, and (5) failure of endocrine response by the uterus. These abnormalities may manifest themselves either in the form of diminished or excessive stimulations. Hypergonadism, primary hyperovarianism or female eunuchoidism is a rare condition and is associated with tall stature, small atrophic breasts and a scant amount of pubic and axillary hair. There also may be delayed maturation of the osseous system.

Secondary amenorrhea — The commonest manifestation of hypofunction is evidenced by secondary amenorrhea. The definition of secondary amenorrhea is the cessation of menstruation after cyclic behaviour has once been established. The cause may lie in the end organ response, for example, tuberculosis of the endometrium may be responsible for the amenorrhea. Occasionally hypopituitarism caused by Sheehan's syndrome or tumor may result in cessation of menstrual cycle. Secondary amenorrhea is found in cases of obesity, malnutrition and anorexia nervosa; in addition, hyperthyroidism and often hyperadrenalism (Cushing's syndrome or adrenogenic syndrome) may account for this condition. It also may be found in Addison's disease, especially when the patients have not been given sufficient substitution therapy. Perhaps the most common cause of amenorrhea is the so-called hypothalamic or emotional state. The effect of the psyche on the menses is by no means

clear, but there is no doubt whatsoever that there is a distinct connection between the two. The anterior pituitary which regulates ovarian functions, in turn, appears to be under higher nervous control. In the "hypothalamic state" the excretion of gonadotropin and estrogens is usually normal.

The female state of hypofunction is represented by the menopause due to failure of ovarian hormonal activity. It is conceivable that the appearance of urinary estrogens in postmenopausal women may be caused by adrenal activity or that estrogens are being given as therapy.

Hypergonadism

The physiologic state of hyperovarianism may be caused by ovarian stimulation from higher control, namely the pituitary or neural centers above the pituitary. This condition shows itself as precocious puberty, exclusive of ovarian tumors. Premature stimulation of the pituitary-ovarian system results in breast development, ovulation, menstruation and the possibility of pregnancy. The etiology of the majority of such cases is unexplained and they are designated "constitutional precocious puberty." A rare case may be associated with polycystic fibrous dysplasia of bone, together with a peculiar "coast of Maine" pigmentation. Even more rare is the association of precocious puberty with hypothalamic disease or encroachment of certain brain tumors upon the hypothalamus.

Hyperestrogenism is thought to be the causative factor in functional excesses of uterine bleeding. Often the endometrium presents the histologic picture of cystic glandular hyperplasia which is thought to result from estrogen excess without sufficient progesterone effect. This occurs most commonly in adolescent girls and premenopausal women.

We can thus see that many different factors enter into the hormonal control of the female mechanism.

In studying these problems, a great deal of investigation and work is required. In treatment, these hormones cannot be administered empirically because of the intra-relations of the different hormones. To investigate one of these problems different factors are necessary; first of all, all the emotions should be thoroughly explored, since it is often the major factor, secondly, the function of the pituitary gland is investigated by urinary assay of the gonadotropins. After that the activity of other ductless glands, especially the adrenal and the thyroid need investigation.

The adrenal is assayed by means of urinary studies of 17-Ketosteroids; the thyroid by means of BMR, protein-bound iodine and cholesterol, the ovaries by their end organ response, normal physical development of breasts, uterus and vulva are interpreted. More exact information is obtained by timed D. & C. and endometrial tissue examination.

Finally it must be obvious that the treatment of these conditions is still an unsatisfactory undertaking. This is particularly true because the hormonal assay of the ovarian function at present is complicated and inaccurate. It is also because of the great difficulty of being able to ferret out as between the endocrine organs, minor deviations from the normal and finally because of the great difficulty of determining whether the condition is psychologically or psychomically produced.

Fissures Of The Nipple

S. C. Robinson, M.D.

Case Reports

Mrs. J. T., primigravida, age 25, was delivered of a healthy female infant after a normal labor. During the next 24 hours, the baby was put to each breast for 3 minutes, every 8 hours. During the next 3 days, she nursed every 4 hours, increasing the time gradually. On the fourth day, the breasts were engorged, and the nipples were painful. The following day the right nipple showed a fissure. The baby was taken from the breast which was pumped. The next day both breasts were extremely painful and both nipples were fissured. Efforts to nurse were abandoned and the baby was placed on a formula. This is an oft-heard account of how a mother and child are denied the benefits of a healthy feeding and love relationship.

This mother had large, heavy breasts, with nipples which appeared to be adequate though tending to be flat. Despite instruction, there had been no real attempt to prepare the nipples during pregnancy, and with the onset of lactation the baby's efforts to nurse were a struggle ending in failure. What could have been the story?

Mrs. V. A., age 24, a woman of similar proportions, and in her first pregnancy, began about the sixth month to prepare her breasts. Twice daily she removed her brassiere (obtained particularly to meet her changed requirements in pregnancy and give firm uplifting support), rubbed the breasts over the nipple area with a towel and then rolled and drew the nipples gently, using the thumb and forefinger of the opposite hand. The breasts were kept clean with soap and water. After her delivery, when the baby began to nurse, the nipples stood out well and were easily grasped. True, there was some tenderness, especially when the baby began to suck, but after nursing, the nipples were wiped off with sterile water and a little of one of the soothing, commercially available creams (such as Masse or Mammol) was applied. A small square of wax paper was then used in order that the cream would remain, and to prevent the clothes from sticking. On the fourth day, the breasts were a little engorged, but were promptly pumped after nursing and the pressure and stretching were relieved at once. The next day a small fissure appeared on the left nipple. Tr. Benzoin Co. was applied twice a day to the fissure, and the breast was emptied only by hand pump for 48 hours. After this period she resumed nursing from this breast, using a shield for 3 days. Within 2 weeks, the milk supply had adapted to the baby's demand, the tenderness at nursing had disappeared and no application was required. The breasts were cleaned with soap and water (no milk was allowed to remain and cake), and were comfortably supported by the adequate garment. She had learned to nurse comfortably lying on her bed and used these periods for rest and relaxation. She wisely alternated the side used first, thus insuring complete emptying.

This is a different, happier story — because simple, sensible principles were told this mother and she carried them out. Her attendants too were alert to early warnings and trouble was averted.

The pregnant woman who is bleeding may have carcinoma.

The Symptomatic Retroverted Uterus

S. C. Robinson, M.D.

Case Report

Mrs. N. F., age 29, gravida $\bar{\bar{II}}$, para $\bar{\bar{II}}$, had been delivered 2 and 5 years before this admission of normal children. Both deliveries were spontaneous, following labors of less than 4 hours. Otherwise she had always been in good health.

Six months ago, she developed an intermittent aching, left lower quadrant pain. This would occur every few days and last several hours at first, but gradually became more constant. There was no radiation and it was unrelated to the menses or any activity, nor was there dyspareunia. At first she obtained relief with simple analgesics, but later saw her physician and was treated with hot douches, penicillin and finally "Hormone Pills."

On admission to hospital her general physical examination was normal, nor did the history reveal any additional information. She was apparently a mature individual, happily married.

Examination revealed slight tenderness deep in the left lower abdomen. The uterus was retroverted with the fundus lying in the left posterior fornix, but mobile and otherwise unremarkable. The cervix was healthy. A tender, prolapsed ovary (?), was palpable in the Pouch of Douglas.

The differential diagnosis was:

- (1) Endometriosis,
- (2) Retroverted uterus with prolapsed ovaries.

At laparotomy, there was no evidence of endometriosis. The uterus was retroverted with normal ovaries under it. A ventral suspension was carried out.

This woman was examined at 6 weeks and again in 6 months. The uterus remains anteverted and the fornices are clear and the patient has been entirely asymptomatic.

It is now established beyond doubt that in the great majority of instances uterine retroversion is simply an "alternative" asymptomatic position. There remains however, the occasional case where low backache, dysmenorrhea, low abdominal pain, infertility or dyspareunia, cannot be explained on any other basis.

In evaluating these, one should not neglect a satisfactory assessment of the psychological attributes and influences which so often are fixed on the genitalia. More often than not, the prolapsed ovary, rather than the uterus is actually the seat of the distress.

Other things being equal, one can evaluate the possibility of success by a trial with the Hodge Pessary. Preferably this should be followed by another trial without the pessary with every effort being made to rule out any possible suggestion.

Two types of cases are suitable for operation:

- (1) Those where there is evidence or a good probability of other pelvic disease (viz. the case quoted above — endometriosis).
- (2) Those, especially with prolapsed ovary, causing dyspareunia, where trial of pessary has been clearly successful.

The Suspicious Cervix

C. Brennan, M.D.

The following case history serves to illustrate what we mean by the "suspicious cervix."

A 49 year old white female went to her family physician complaining of "burning on micturition" of five days duration. Besides doing a general physical examination and urinalysis, he did a pelvic examination as well.

The past history of this patient revealed that she had had no serious diseases and no previous operations. In fact she had always been in excellent physical health all her life until the present urinary symptom began. She had five children with no pregnancy or puerperal complications. There were no miscarriages. The first child was delivered with forceps.

Menstrual history — menarche at 12 years of age. Periods always regular 3-4/28, 3 pads daily. No menorrhagia, intermenstrual bleeding or vaginal discharge. There was no post-coital bleeding.

There was no family history of cancer. The patient maintained a weight of 150 lbs. for the past few years.

Functional inquiry other than "burning on micturition" was negative.

General physical examination revealed a moderately obese white female of stated age and apparently in good health.

The pelvic examination showed normal external genitalis with a parous introitus, vagina healthy. The cervix was bulky, moderately eroded and bled easily on probing with the applicator stick, although the stick test was negative. There was no area in this erosion which extended around the entire external os that looked any more suspicious than any other. The Papanicolaou Smear of the cervix was taken. The immediate wet smear from vagina revealed only epithelial and pus cells.

The patient was then treated for her urinary symptom. A week later the Papanicolaou Smear was reported as "positive." A second Papanicolaou Smear was sent for examination and it too was reported as "positive."

The patient was then advised to go to hospital for further investigation. The next procedure in the investigation was a wide cone biopsy of the cervix and including the entire eroded area and the mucosa of the cervical canal. Microscopic examination of the specimen revealed an invasive epidermoid carcinoma of the cervix.

While this is an unusual case in that the woman had no symptoms suggesting carcinoma, it shows the value of the cone biopsy in the suspicious cervix with a positive Papanicolaou test.

Touching a crack in a nipple with silver nitrate — taking care to touch only the crack — often gives immediate relief to the pain and really starts healing.

It would be good for women if the vaginal speculum were employed as faithfully as the stethoscope, and that no prescription be written for bleeding until it has been employed.

Leukoplakic Vulvitis

E. Woloschuk, M.D.

THE leukoplakic vulvitis is a chronic affection of the vulva occurring in women near or after the menopause and is characterized by atrophy shrinkage, inelasticity, fissuring and the formation of whitish plaques.

Histologically, the lesion can be divided into an early hypertrophic stage with thickening of the epithelial layer, hyperkeratonization and hypertrophy of the papillae; and an atrophic stage with thinning out of the epithelium, disappearance of the elastic tissue, chronic inflammatory cell infiltration and deposit of the collagen between the epithelium and the connective tissue.

The leukoplakic vulvitis is a precancerous lesion, since it precedes approximately one half of all cases of carcinoma vulvae.

The etiology of the leukoplakic vulvitis is unknown. The theories of estrogen deficiency, achlorhydria associated with Vitamin A deficiency and allergy, as etiological factors in promoting this lesion have been disproved.

It has been a policy of our Department to treat all cases of leukoplakic vulvitis by a simple vulvectomy since this type of treatment not only relieves the patient's symptoms, but also prevents development of the cancer.

CASE REPORT

Mrs. S. H., a 64 year old white female was admitted to 5 West, Victoria General Hospital on October 30th, 1955 with chief complaints of itchiness and soreness of the vulva.

Family history was non contributory.

Past history: The patient had an appendectomy and suspension of the uterus for symptomatic retroversion in 1921, cholecystectomy for cholelithiasis in 1937, and ligation of varicose veins in 1954.

Menstrual history: Menses began at 14 years, irregular cycle of 26 to 36 days, of 7 days duration and of normal flow. Menopause at the age of 49.

Obstetrical history: Seven normal full term deliveries. No complications except for perineal laceration following the last delivery.

The systemic review was essentially negative except for occasional stress incontinence and dysuria.

Present illness: The patient stated that about 5 years ago she began to have itchiness and soreness of her vulva. These symptoms have been getting progressively worse in spite of local use of various salves. She has become irritable and has been suffering from insomnia. For the past year or so she has also been having dyspareunia and coitus has practically been impossible.

Physical examination was essentially negative.

Pelvic examination: The labia majora, labia minora and perineum showed whitish, thin glistening plaques. The whole vulva was atrophic. The introitus of the vagina was narrowed and vaginal mucosa showed signs of senile vaginitis. The cervix, the uterus and the adnexae showed no evidence of any disease.

On October 31st, 1955, the patient was taken to O. R. and under general anaesthesia a simple vulvectomy was performed. Care was taken to remove

not only the entire area of leukoplakia, but also a small amount of surrounding normal skin.

Her post operative course was uneventful. The sutures were removed on the eighth post op. day and the skin edges appeared to be well united.

The patient was discharged home on the ninth post op. day.

She was examined again in O. P. D. Post Op. Clinic two months after the operation.

There was no evidence of recurrence or breakdown and for the first time in five years the patient has been symptom free.

Personal Interest Notes

The Directors of the Karolinska Institute of Medical Research, Stockholm, Sweden, have appointed Dr. N. G. B. McLetchie to the nominating committee for the Nobel Prize in Medicine and Physiology, and have invited him to attend the prize giving ceremonies in 1957 in Stockholm.

Dr. McLetchie's appointment to the Board was made in honour of his discovery of the diabetic action of Alloxan in 1941.

The former Provincial Pathologist in Halifax is now pathologist to the Laconia group of hospitals in New Hampshire, and Professor of Pathology in the extension department of Tuft's Medical College, Boston.

A medical specialist from Halifax, Dr. M. G. Tompkins, Jr., was presented as a newly-admitted Fellow of the Royal College of Physicians and Surgeons of Canada in Toronto, October 27.

The presentation took place at special convocation ceremonies during the Royal College's 26th annual meeting.

Dr. Tompkins is now a Fellow in the College's Division of Surgery.

One of Windsor's best loved citizens, Dr. Owen B. Keddy, was honoured on the 50th anniversary of his graduating from McGill University as a doctor, by congratulatory addresses at the Town Council meeting. Not only has Dr. Keddy served the people of Windsor and vicinity as a practitioner for the past twenty-eight years, but he was Mayor of the Town for thirteen years.

The Way We Treat 'em

Varicose Veins in Pregnancy: As a rule these veins, whether of the legs or of the vulva, can be handled by advising the patient to keep the legs elevated when she is sitting or lying. One thing she can be sure: if the vulva is affected the varicosities will not bother her once the baby is born and she is no longer pregnant. They will, however bother her with subsequent pregnancies and tend to get worse. If, despite rest, or bandages to the legs, the veins cause trouble, there is no reason why they should not be treated either by injection or operation. Injection may be enough for minor degrees of leg varicosity, but only removal by operation will help vulvar varicosities. We do not hesitate to operate if necessary during pregnancy if any type of varicose veins fails to respond to less drastic treatment.

Heart Disease and Pregnancy: Any woman who has had decompensation had better not get pregnant. If she does, she should be warned against over exertion but should get some exercise and not simply lie around like a bump on a log for nine months. If she decompensates, she should be rested and given digitalis. If she recovers, she should be allowed to proceed with the pregnancy. If she decompensates again despite a rigid heart regime, the pregnancy had better be terminated. If she goes along to full term, she should be allowed to go into labor, but labor should be aided with forceps once she begins to bear down. Caesarean section is still used occasionally, but since it also puts a considerable strain on the heart most of us agree that a labor helped with forceps is actually easier on the damaged myocardium. We find that it pays to have an internist working with us on these bad cardiac risks.

Should it be once a Caesarean always a Caesarean? Since it is so comforting for the human mind to get into a groove and stay there come hell or high water, we find great succour in the practice of always doing the operation where it has been done before — no matter what the previous indication. What is more we have some statistic justification for remaining in the groove. There is a definite risk of rupture of the uterus in subsequent labors, no matter what type of operation is done — although much less with the low than the classical. However, there is no doubt that a large number of women who have had the operation done for such an indication as placenta previa, uterine inertia or dysfunction, or any other cause than a definite disproportion, will go through a normal labor subsequently unscathed. What, in such cases, should be the criteria on which a normal labor might be allowed? First of all, an X-ray study of the pelvis should be done to determine its architecture. If there is a combined antero-posterior and transverse measurement of over 23 centimeters, one is dealing with a normal pelvis. If in such a pelvis the head is well engaged at the beginning of labor, and there has been no pain in the suprapubic region just before labor or early in labor, one might allow matters to continue per vaginam. If delivery occurs that way, a hand should be pushed up into the lower uterine segment after the placenta is born and the scar region on the anterior wall of the uterus thoroughly explored. If it seems sound and without any thinning or weakness, subsequent labors may be safely permitted per vaginam. If, however, during such a trial of labor as indicated above the woman develops unusual pain in the suprapubic region this trial should be discontinued and a section done. Although occasionally we allow the previous caesarean

to deliver vaginally, as a rule we follow the dictum, once a caesarean, always, etc. You have less worries that way.

Post-operative vomiting in pelvic surgery: While this will not occur anything like as commonly in the patient who is gotten up and on the move the day following operation (no matter how severe), it does occasionally show itself. The cases more or less resolve into three groups (1) the mild nausea, perhaps due to reaction from the anesthetic or a slight disturbance of the blood chemistry, (2) a more profound and serious change in blood chemistry, and (3) actual intestinal obstruction due to ileus or adhesion. In the first two groups the vomiting shows up the day or so after operation, in intestinal obstruction it may be delayed for several days. The mild case often responds either to a Gravol suppository or an intravenous of 5-10 per cent glucose in saline. Our experience is that it is better to handle the two severer forms by getting a tube down the nose into the stomach and resorting to intravenous therapy before the patient gets blown up like a drum and her pulse starts skyrocketing. So treated, most cases respond fairly quickly. It is in the case where treatment has been delayed that response is slower. It is a long time since we have had to reopen a case for obstruction and we believe the reason is that we decompress the upper intestinal tract at the first indication of trouble. We also find that it helps a great deal to get the internist most interested in biochemistry to help us get the blood chemistry back to approximately normal. It need not mean that an obstruction now present and due to an adhesion requires further operation. Decompression may overcome this evil by allowing an undistended bowel to get used to the adhesion.

Functional Amenorrhea: The woman with this symptom usually consults her doctor in a state of considerable concern. Not that she is necessarily worried about the possibility of pregnancy, but because she has heard that amenorrhea may cause tuberculosis or insanity. She can be told at once and without hesitation (and she *should* be so told) that this fear is an old wives' tale signifying no more than the other one about Friday being an unlucky day to start a journey, or February being a bad month to get pregnant. It is good policy always to examine such patients, especially if they are less than nine months amenorrheic, since they often harbour a uterine enlargement — this despite denials of having entertained a pecker. If the uterus is small and there is nothing to be felt in the ovarian regions, the best treatment is probably no treatment. True enough, the patient can be got to menstruate by the exhibition of an expensive course of endocrines, but when these are stopped the menstruation stops — and since such menstruation is generally conceded to be anovular, the patient has gained nothing from it further than the privilege of sitting in a swamp for a few days each month. She certainly would not get pregnant with anovulatory menstruation, which is the only value menstruation has to a woman. Better than this is to find out her status with regard to pregnancy. If she is married, has no children, or wishes anxiously to get pregnant, one could give her stimulating doses of X-ray to the ovaries and pituitary, and this is frequently followed by ovulatory menstruation and pregnancy. We have known this to happen on several occasions. The geneticists, however, maintain that this radiation may produce changes in the genes of a serious nature, and while this has not been known to occur in any of the cases irradiated

in two generations, it remains a theoretical objection that causes us to employ radiation only when driven to it by the woman's urgency for offspring. If this urgency is not present — and frequently it is not — the best thing to do is to reassure the patient that she will come to no harm whatsoever to her health from the amenorrhea, that her organs appear entirely normal, that it is almost certain that sooner or later she will begin to menstruate again, but that if she does not and wishes to get pregnant she should return again — when the matter of radiation can be discussed.

Ovarian tumors and pregnancy: If the tumor is not large, and does not lie in the Pouch of Douglas where it may obstruct labor, it could be left to be dealt with until after delivery. There are two important reasons why this is not the best policy, (1) an ovarian tumor is very prone to twist its pedicle during pregnancy, and particularly during the puerperium, constituting a surgical emergency, and (2) one never knows with an ovarian tumor whether it is benign or malignant. Our policy is to remove these tumors as soon as they are discovered. Nor has the subsequent abortion rate proven unusually high. In any case most of us would sooner risk an abortion than a malignancy.

Menorrhagia and Irregular Bleeding in the younger woman: The problem of dealing with this woman, when we have assured ourselves that the bleeding is due neither to cancer or fibroid, can be difficult and trying. A great many of these women seem to bleed for no other reason than that they are psychologically badly adjusted to life, or have suffered some severe psychological trauma which triggered the symptom. For that reason it is good practice to inquire into the beginnings of the bleeding to see what was happening in the woman's emotional life. If some potentially initiating factor can be brought forth from this probing and explained to the woman as the probable cause, this may be enough in itself to cause the bleeding to stop. If such a cause cannot be found and the bleeding is a not excessive menorrhagia or a grossly irregular affair, producing little if any anemia, the best treatment is probably to reassure the woman that there is nothing to worry about and that everything will probably regulate itself given time. If the bleeding is so excessive that it is causing anemia, something more than this is required, and one is faced with the problem of deciding between a curettage and hormones. If one elects the hormones two methods can be tried, (1) stilbesterol 6 mgm (or premarin 7.5 mgm) daily for 20 days, with 30 mgm of oral progesterone daily in addition for the last 10 days of the 20, and repeat for two more months starting on the 5th day of the next cycle, or (2) stilbesterol 5-10 mgm every 6 or 7 hours until the bleeding stops, and then 2-3 mgm daily for the next 21 days, starting on the 5th day of the next cycle, and continuing for 21 days. If neither reassurance nor stilbesterol does the trick a curettage should be done and the scraping thoroughly examined microscopically. Often the curettage is curative. Sometimes it is curative for a few years and will work again if repeated after recurrence of the bleeding. Sometimes it does no good. Sometimes it actually makes the bleeding worse. Most of these cases of abnormal bleeding require nothing but reassurance. Although when we encounter them on our service we tend to rush to the curette, in private we try the wiler methods first. We have had little luck with Blutene beyond causing the woman to urinate blue, but every now and then thyroid extract will prove effective if given over a few months.

Leukoplakic vulvitis: There seems to be no medical therapy including hormones, X-ray and cortisone, that will cure this condition, although cortisone ointment may relieve the itching. Since this is the case, and since it is a pre-cancerous condition, our practice is to do a vulvectomy, and we take care to have any areas of skin showing cracks examined by the pathologist. (See Case Report page 393).

The problem of sterility: Considerably more than half of the women who come for help in this condition eventually get pregnant, and it is doubtful in most cases if our treatment has greatly helped. The fact is that the vast majority of sterile couples present no really definite cause for their childlessness. Only occasionally do we find the husband without sperms or the woman with some physical condition precluding pregnancy. A certain proportion of women get pregnant following tubal insufflation or dilation of the cervix, or after being separated from their husbands for a month or two. Many others become pregnant so long after such therapy that the success cannot be credited to the latter. There is probably a large psychological element in some of the cases, just as there is in spontaneous abortion. It can therefore be said that, while the immediate results of treatment and investigation are frustrating to the gynecologist, the ultimate results to the woman are better than fifty-fifty. It is our impression that one of the most salutary things in treatment is to be able to reassure a sterile couple after investigation that nothing can be found grossly wrong with either.

The biopsy for suspicious cervixes: If the cervix is obviously the site of cancer and the biopsy is being done merely to keep the records straight, a punch biopsy is usually all that is required. These days, however, an increasingly large number of women are presenting themselves with cervixes that, while not definitely malignant in appearance, are suspicious. In such, whether or not the Papanicolaou test is positive or negative, but particularly if it is positive, a more comprehensive biopsy, including all the area from which a growth may arise, should be done. This means that all the suspicious area of the vaginal portion of the cervix, together with as much of the cervical canal as possible should be coned out with a cold knife and sent to the pathologist. In these early or suspicious cases the punch biopsy is often negative or inconclusive.

Ovarian Tumors: If a woman has an ovarian tumor it should be removed at the earliest possible moment, whether she is pregnant or not. The reason for this haste is that it is impossible to tell before operation whether or not the tumor is malignant, no matter how young the patient. If the patient is over forty and the tumor palpable per abdomen, especially if it is tender or any nodules can be felt on it per vaginam, it is a good idea to give her a few doses of deep X-ray before operating. This has the effect of producing an edema that makes it easier to get a plane of cleavage if there are dense adhesions — which there often are. All women who have had a malignant ovarian tumor removed should have the benefit of deep X-ray therapy or radium in some form.

Ambulation after labor: Some of us have been getting our patients up the day after delivery and allowing them to use the bathroom as they will for a great many years — in fact as far back as 1928. Despite the prophets of gloom, no woman in that time has ever presented any sign that this practice was harmful — to obtain which evidence we followed up over 1000 cases in 1950. On

the contrary we have considerable evidence that this early activity is both physically and psychologically good for the puerpera.

Endometriosis: Physical examination is not very helpful in many of the cases we have seen. However, if the following syndrome is present — dysmenorrhea, menorrhagia, and pelvic tenderness on bimanual examination — it is possible the woman has this condition. If she has it in major form — that is if the ovaries are badly involved or the recto-vaginal septum is involved, uterus, tubes and ovaries should be removed. If the condition is minimal, and especially if it lies under a retroverted uterus, the little black spots can be excised locally or cauterized with a fine needle cautery, and the uterus suspended without the necessity of removing any organ. This would be the nice thing to do in a girl of 30 or therabouts.

Pregnancy tests: While these are sometimes a help, they can be wrong, and it is our impression that they are wrong a good deal oftener than some of the authorities aver. If a venturesome virgin or an unwary widow, who has always been menstruating regularly, becomes amenorrhoeic she is probably pregnant — no matter what the damned rabbit says.

H. B. A., M. D.

DON'T

Don't tie the baby's cord until it has stopped pulsating and turned white.

Don't put a clamp on the cord — tie it. Clamps can slip.

Don't let the baby out of your hands until it is breathing well, has cried well, and is pink all over.

Obituary

Dr. George Alexander Dunn of Pictou, age seventy-seven, passed away at his home on Saturday, October 20. He was well known throughout the Province as a medical doctor and surgeon, and had been one of Pictou's most respected and devoted medical practitioners for over fifty years. His love for his profession and fellow-man kept him occupied and in active practice up to six weeks prior to his death.

Dr. Dunn had many interests. He had been a member of the United Church choir for many years, was a past president of the Pictou Rotary Club, a former director of the Pictou Community Rink, and a member of the New Caledonia Curling Club. He was, in addition, a past president of the Pictou Medical Society.

He is survived by his wife, the former Janet Claire O'Brien, and two sons, Dr. Stuart D. Dunn of Pictou, and Fred R. Dunn of Dartmouth.