2. The standard methods employed for the administration of these three drugs are considered.

3. A new method for abdomino-perineal resection of the rectum under nupercaine anæsthesia is presented.

4. All things considered, pontocaine affords the most advantageous form of spinal anæsthesia for the average surgical operation below the diaphragm.

5. The importance of pre-operative and operative sedation and routine pre-operative ephedrine is stressed.

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PITFALLS IN GYNÆCOLOGICAL DIAGNOSIS*

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THE rational treatment of disease is based on accurate diagnosis. Mistakes in diagnosis are more often responsible for incorrect treatment than lack of knowledge of treatment. The mental picture of a diagnosis is built up from two components—the complaint of the patient and the findings of the physician. Many early diagnoses are missed by a casual dismissal of significant symptoms. At other times there is a confusion of cause and effect as some minds work in terms of symptoms rather than of underlying pathology. It is also true that anatomical change is more readily appreciated than are physiological derangements. Knowledge of pelvic anatomy is concrete and established, while the science of female pelvic physiology is in a constant state of flux. It is natural that the obvious may sometimes obscure that which is partly hidden and so treatment fall short of cure because of a faulty diagnostic foundation.

The misconception that irregularities in the menses are to be accepted as normal during the menopause is deeply rooted in the minds of many, including, unfortunately, a certain number of physicians. After working for some years in a gynæcological cancer clinic, one is impressed by the large number of women with advanced carcinoma of the cervix who have been treated with ergot or some other medication without a vaginal examination. The growing tendency today to treat menorrhagia at the menopause by other means than surgery, either irradiation or some endocrine preparation, results in an inexcusable neglect of curettage. The only hope of lowering the death rate from uterine cancer is early diagnosis based on curettage or biopsy.

Vaginal discharge should not be treated until the nature and localization of the causative factor is known. Palpation and visual examination of the vaginal walls and cervix with smear and culture may uncover anything from unsuspected carcinoma to *Trichomonas vaginalis* vaginitis. Carcinoma in any location may progress to a very advanced state as a silent disease, and cancer-conscious watchfulness is essential. The widespread age incidence of the disease should not be forgotten. A short time ago a young woman in her twenties was treated for weeks on our own service for acute cervicitis before the malignant nature of the trouble was determined by biopsy.

When a woman has an irregularity of menstruation two conditions should be kept in mind—malignant disease and pregnancy. Even intra-uterine pregnancy may be difficult to determine in the early weeks, but with the exception of endometriosis no other pelvic condition presents so many difficulties in diagnosis as ectopic pregnancy.

The so-called subacute and chronic types of ectopic pregnancy present the most perplexing problem. The difficulty of establishing the fact of pregnancy in its early stages, the vagueness of the history which so many patients give, and failure of interpretation by the physician, all contribute to the difficulty. The diagnosis lies between abortion, pelvic inflam-

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mation and ectopic pregnancy. The irregular bleeding which marks this condition comes on occasionally before a period has been missed. More often, after some delay in menstruation, irregular spotting occurs. Profuse bleeding, however, does not rule out the possibility of ectopic pregnancy. Pain is practically a constant feature. It is due to the escape of blood into the peritoneal cavity and inflammatory reaction about the tube. It is crampy and intermittent, and entirely different from the tearing prostrating pain which marks the case of acute tubal rupture.

Examination usually demonstrates the presence of a pelvic mass, and there is tenderness on deep abdominal palpation and on moving the cervix. Much has been said, pro and con, regarding the merit of posterior colpotomy. It is a valuable diagnostic measure but has two drawbacks, namely, the danger of infection from indifferent aseptic technique, and the confusion which may arise from any bleeding that occurs from the operation itself. Needle puncture has its advocates but the margin of error is high.

The Ascheim-Zondek test, when time permits, is invaluable in establishing a diagnosis of pregnancy. The combination of a high white blood count, which in our experience has been as high as 26,000, a low hæmoglobin content and a slow sedimentation time are highly indicative of ectopic pregnancy. Broadly speaking, the picture is one of pelvic inflammation and anæmia.

Hæmorrhage from the ovary, either from a Graafian follicle or from a corpus luteum, may present findings which make diagnosis difficult. Occasionally, the condition may be mistaken for ectopic pregnancy, but in the majority of cases the diagnosis is confused with appendicitis. During the last ten years, 72 such cases have been diagnosed on the public wards of the Toronto General Hospital. Fifty-two, that is, 72 per cent of the patients, were between fifteen and twenty-five years of age. Typically the onset of pain is about two weeks after a menstrual period which coincides with the generally accepted time of ovulation. Variations in this relationship may be accounted for by irregularities in the periodicity of ovulation or in other cases where the hæmorrhage came from a corpus luteum. A review of the cases suggests that in a patient with right-sided lower abdominal pain and tenderness it is possible to simulate the condition of mild hæmorrhage from a follicle by traumatizing the ovary in drawing it up through the limited opening of a McBurney incision. It would appear that an incision which allows more ready exploration of the pelvis should be used in the female whenever the diagnosis is doubtful.

The onset of pain in hæmorrhage from a Graafian follicle is sudden, sharp and sometimes aching. Often there follows a latent painless period and then the pain returns and remains more or less constant. Nausea is common, but vomiting rare. Deep tenderness is present over the lower abdomen, but more often on the right side, as a result of which the diagnosis of appendicitis was made forty-eight times. Rigidity is not marked. The pulse and temperature are elevated at first. Typically the white blood count is raised out of proportion to the pulse and temperature. The highest count recorded in this series was 34,000, and this dropped to 13,000 in twelve hours. Rapid drop in the white blood count is usual, one case showing for example 30,000, 26,000, 14,000 and 5,000 white blood cells at two-hour intervals. Ten other patients had blood counts over 15,000. There seemed to be a relationship between the amount of bleeding from the ovary and the blood count and temperature. Ten patients had temperatures over 100° on admission. The highest temperature recorded was 102°. Generally, however, normal temperature was the rule, even when the pulse was fast.

Four cases of ovarian follicular hæmorrhage were diagnosed as ectopic pregnancy. There was a history of faintness. Pain and tenderness were more general in distribution. Vaginal examination determined an indefinite mass with tenderness to the side of the uterus, and in two cases posterior colpotomy showed free blood in the pouch of Douglas. In the ten-year period greater familiarity with the manifestations of the condition and closer attention to the menstrual cycle have resulted in the diagnosis in these cases changing from appendicitis to appendicitis probably Graafian follicle hæmorrhage, and then Graafian follicle hæmorrhage, probably appendicitis, and, now, often Graafian follicle hæmorrhage. More accurate diagnosis eventually means fewer needless operations.

In 1921 Sampson first drew attention to the condition of endometriosis. He has found it

present 98 times in 322 operations and continues to emphasize its frequent occurrence. The incidence, as reported by others, appears to vary with the keenness of the clinical and pathological observation. No other gynæcological condition presents such difficulty in diagnosis. Wherever endometrial tissue implants it may give rise to pathological change. Typically, the picture is a disturbance of the genital tract. However, the vagaries due to endometriosis are many. For example, at the Toronto General Hospital post-operative pathological report has found it responsible for three recto-sigmoid excisions performed on a clinical diagnosis of carcinoma.

The typical history in endometriosis shows three frequent associations, namely, primary or secondary sterility, a previous pelvic operation, and uterine fibroids. The patient has two complaints, pain and bleeding. Pain generally is located in the lower abdomen, begins sometimes in the fourth decade, and tends to be chronic, with exacerbations in the form of increasing dysmenorrhœa. Menorrhagia is characteristic, but in those rarer cases where the condition involves other structures bleeding may occur from bowel, bladder or vagina.

The usual findings in endometriosis are loss of mobility of the uterus with a tender mass in the pelvis. The tenderness is increased in the premenstrual period. Many times the diagnosis of endometriosis is not considered until the abdomen has been opened. The chocolate blood cyst, the dense, almost inseparable adhesions, the deforming infiltration of tissue, with the small purple-black implantation nodules on the ovary or adjacent surfaces are distinguishing features of the condition.

Most patients seek medical advice because of pain. La Rochefoucauld has said that pain is the greatest liar in the world, and Chipman adds that of all the painful liars backache is the greatest Ananias or Sapphira. Certainly of all female complaints backache so common in occurrence is the most frequently misinterpretated. The two worst examples of faulty judgment frequently observed in gynæcology today are the surgical removal of the so-called painful and sometimes cystic ovary in the absence of inflammatory disease, and the suspension operation for retroversion of the uterus hastily performed in the hope of curing backache.

During the last three years, 206 women admitted to the gynæcological service of the Toronto General Hospital had uterine retroversion, but only 40 per cent complained of backache. These 206 cases were classified into groups such as uncomplicated retroversion, retroversion with associated inflammatory disease, etc., and a table is presented showing the incidence of backache in four of the major groups and the results of suspension operations in the relief of those patients suffering from backache. Discrepancies are due to an incomplete follow-up.

TABLE I.

	Backache	*No backache*	*Suspension operation*	*Cured*	*Failed*
Uncomplicated	33	44	28	8	13
Pelvic inflammation	13	8	10	1	5
Relaxed vagina and perineum	19	13	13	2	2
Prolapse	5	6	4	1	3

It is seen that less than half the women with uncomplicated retroversion had backache, and less than half of those who reported to the post-operative clinic were relieved of backache by operation. Two women in this group with backache, subjected to operation, were not relieved and when the persisting backache was thoroughly investigated x-ray demonstrated spinal arthritis. Twenty-one patients had pelvic inflammatory disease associated with retroversion, generally an adherent retroversion without massive disease of the adnexa. As might be expected, most of these women had backache but the results of suspension of the uterus were very disappointing.

Retroversion with associated relaxation of the pelvic supporting structures presents an interesting study. Thirty-two patients had associated cystocele, rectocele, or relaxed perineum. Unfortunately, only four patients who had a suspension operation reported to the post-operative clinic, and two of these had not been relieved. At the same time two patients who had only a pelvic repair were relieved of backache, although the uterus still remained retroverted. Eleven patients were seen who had well developed prolapse of a retroverted uterus, and only one of four who had had a uterine suspension performed was cured of backache. During the last three years thirteen patients with procidentia have been admitted to the service. Only two of them complained of backache. If the cause of backache is due to a drag on the supporting ligaments it might be concluded that the more

marked the prolapse, the more severe the complaint. The observations as detailed above do not bear out this belief. Another widely held opinion is that the backache associated with retroversion depends on congestion of the uterus. In the group of patients in which congestion of this organ would be most likely, namely, those complaining of menorrhagia and in whom either the uterus was enlarged or the endometrium thickened and hyperplastic, only 2 of 19 complained of backache.

In spite of the view that retroversion rarely causes backache it remains true that occasionally it does so. These cases may be determined fairly accurately by means of the test of relief of backache following replacement and insertion of a pessary, and then noting its recurrence when the pessary is removed and the retroversion recurs.

The decrease in the number of suspension operations performed on the gynæcological service at the Toronto General Hospital is indicative of a change in opinion such as has been advocated in this paper.

The causes of backache are legion and investigation should be thorough before the patient is subjected to an abdominal operation. Faulty posture, a weak abdominal wall, fatigue spasm of the erector spinæ muscles, and sacro-iliac strain are common causes. Personal experience has been that a good pair of shoes and a well-fitting corset will cure far more female backaches than the Gilliam operation.

TABLE II.

	Abdominal operations	*Suspension operations*
1919	148	64
1920	150	55
1921	170	66
Average percentage		40
1937	182	25
1938	246	28
1939	210	9
Average percentage		10

Misinterpretation of fact is the great feature in faulty diagnosis. It is only by constantly striving to see through the signs and symptoms which are the glass by which one should focus on the underlying disease that it is possible to acquire that acumen which marks the true physician.

GONOCOCCAL PELVIC INFLAMMATION*

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DURING the past few years much has been written on the treatment of gonococcal infection with a group of drugs classed under the general heading of sulphonamides. So much so, that in some quarters one gains the impression that the Neisserian problem, for all practical purposes, finally has been solved; with prevention and other aspects of treatment assuming less and less importance. It is proposed therefore to review the steps in the development of gonococcal pelvic inflammation particularly from the standpoint of the prevention of pelvic invasion, and as a logical and more interesting approach to the clinical features and the modern therapy of this infection.

That gonorrhœal infection is widespread is well known. It occurs with varying frequency in all areas of the inhabited surface of our belligerent world, with war itself a major factor in furthering the spread of the disease which produces an appreciable drain on our war-time economic resources. There is abundant evidence that intelligent treatment, initially, in gonorrhœa provides the main defence against the complicating extensions of the disease. With modern treatment there has been ever increasing evidence of reduction in the incidence of such complications. In 110 cases of culturally proven gonorrhœa in females recently treated at the special treatment clinic of the Toronto General Hospital no patient developed pelvic inflammation during or following ambulant sulphonamide therapy. The latter comprised the use of sulfanilamide, di-sulfanilamide and sulfapyridine. The majority of these cases were either in the sub-acute or early chronic stage when first observed. Of the group of 110 cases four presented evidence suggesting beginning extension of gonococcal infection to the pelvis, with definite bilateral tenderness and slight fever. No further development of the inflammatory process

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