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INDICATIONS FOR GYNÆCOLOGICAL SURGERY*

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THIS DISCUSSION of the indications for gynæcological surgery represents one individual's opinions on perhaps the most important aspect of gynæcological surgery, rather than a presentation of different views on very controversial questions. If some of the opinions herein expressed seem dogmatic, they will at least provoke thought and possibly healthy discussion.

In general, it should be stated that there is no indication for gynæcological surgery in the case of minimal benign anatomical abnormality or derangement, when the patient has no signs or symptoms which are disturbing to her. This applies also to the patient with slight disturbances which might be corrected by conservative means.

In certain instances, the indications for a gynæcological operation may not be followed by the appropriate surgical procedure because the surgeon is influenced by his training and experience rather than his judgment.

It may be that the title of this paper should have been "Contraindications to Gynæcological Surgery", for in discussion of some of the topics involved, contraindications play a large role. Perhaps they are more important anyway.

SURGERY IN INFERTILITY

The results of operations undertaken for relief of the various causes of infertility are disappointing. No rosy promises should be held out to the patient, and indeed unless she demands that something more be done, major operations should not be encouraged. While there are happy exceptions to this dismal outlook, Bayard Carter[1] and associates showed that, in comparison with a control group presenting the same abnormalities, certain operations for relief of infertility actually reduced fertility. These included cervical operations, suspensions, excision of ovarian cysts, and tubal operations. They found that these operations are usually done casually and without adequate study of the couple involved.

In the first place, no operation should be attempted until the patient has been carefully examined for disease which might contraindicate pregnancy, and the sperm, postcoital, and Rubin tubal patency tests have shown normal results. The only exception to this is the patient who has had a previous pelvic infection, or peritonitis from a ruptured appendix or other viscus, and who shows repeatedly negative Rubin's tests and salpingograms. Even then, the husband's sperm should be shown to be normal before operation is attempted.

There have recently been a number of optimistic reports on operations for tubal implantation and salpingostomy using polyethylene bougies to maintain patency, but it is also known that there are numerous errors in evaluation of the patency of tubes by air insufflation or oil injection. Many patients have been told that their tubes were closed, yet later they have been found patent by repetition of the tests or by the advent of pregnancy.

Suspension operations on the uterus are not indicated for the correction of infertility unless the fundus is fixed in retroversion by old inflammation or endometriosis, and even then it is likely that correction of the basic cause of the retroversion will be the deciding factor if pregnancy ensues. Mobile retroversions can almost always be corrected adequately if necessary, by the use of a reposition pessary. There is a rare exception to this rule, where a pessary cannot be maintained in position or where it does not rectify the displacement and *all* the above infertility tests are negative.

We have all had cases where multiple myomectomy has been followed by pregnancy. Fibroids may have some direct bearing on infertility, or it may be that the adventure of an operation has in some way shaken loose the patient's inhibitions or her endocrines so as to make pregnancy possible. It is well known that endometrial polyps very often accompany the fibroid uterus, and in many instances removal of these by curettage without myomectomy will be followed by pregnancy.

Apart from sterility, operation for fibroids is only indicated when there is a growing tumour in a uterus the size of a three-months' pregnancy or larger or when symptoms of marked pressure develop, or pain due to degeneration. Excessive bleeding is also an indication, but as this may be due to co-existing endometrial

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polyps and/or malignant tumour, curettage should always be done first and may obviate laparotomy in the smaller fibroid uterus, or indicate more radical treatment.

In younger patients, the uterus should of course be preserved, with removal of fibroids through as few incisions as possible and with meticulous elimination of raw surfaces. In older women whose families are complete, total hysterectomy is preferable. At the menopause or later, any uterus increasing in size, particularly if it is doing so rapidly, should be removed at once because of the possibility of sarcomatous change.

CANCER OF THE CORPUS UTERI

In early cases as estimated by duration of signs or symptoms, pelvic findings, and curettage, total hysterectomy with bilateral salpingo-oophorectomy will probably give as good a cure rate as any other method of management, particularly if done immediately upon finding cancer tissue at the first curettage. If this treatment is decided upon, the cervix should be closed and the tubes ligated to prevent spill during operation, and radium applied to the vaginal vault after operation.

It seems to be generally agreed, however, that if radium is available for insertion at the first curettage, it should be used and followed up by surgical removal of the uterus, tubes and ovaries in six to eight weeks. This is the best treatment in cases which are not apparently early ones. In the literature today there appear to be an increasing number of advocates of radical hysterectomy and pelvic lymphadenectomy in the more advanced cases of cancer of the corpus uteri. One might be inclined to agree with this procedure if a reasonably early malignant tumour encroaches upon the endocervix, indicating a lymphatic spread to the obturator, hypogastric and iliac lymph nodes, as is usual in primary cancer of the cervix.

In the more advanced cases of cancer high in the fundus however, metastatic spread is much more likely to be to the lumbar and aortic nodes and the usual type of pelvic lymphadenectomy would be useless. Furthermore, as cancer of the corpus occurs frequently in older women and is often associated with obesity, diabetes or high blood pressure, many cases might have to be ruled out as poor risks for radical operation.

PRE-INVASIVE CANCER OF THE CERVIX

If the lesion has been completely removed by cone biopsy and dilatation and curettage from a young woman desirous of pregnancy, it is probably justifiable to continue observation with frequent cytological studies. This plan, however, must presuppose that the most careful multiple serial sections have been taken and studied to rule out any evidence of invasion. Use of Schiller's iodine test will mark the extent of the lesion on the portio or on to the vaginal fornices, so that removal at biopsy may be complete. In the older patient, where pregnancy is not a consideration, we feel safer in removing the uterus with a good vaginal cuff even though the pre-invasive lesion has been completely removed by biopsy. The ovaries and tubes may be left. That conservative treatment is correct remains to be proven.

INVASIVE CANCER OF THE CERVIX

At the present time, the treatment of choice in all stages, I to IV, is primarily radium application to the uterus and upper vagina, with x-ray or the cobalt bomb to the pelvic lymph node regions. In stages I and II and the occasional case in stage III, if the cancer is resistant to radium attack as evidenced by continuing positive cytology or biopsy, unusual sloughing, parametrial extension or inexplicable loss of weight, radical abdominal hysterectomy with pelvic lymphadenectomy in surgically suitable cases may offer the patient a chance of cure of an otherwise hopeless condition. However, in these radium-resistant cancers surgical results are poor also, possibly because the disease is more virulent or host resistance is poor, with increased involvement of lymph nodes.

Work being done now by Ruth Graham on cytological studies to determine cell sensitivity and radiation response may offer an opportunity to use operation alone and earlier with the hope of some slight improvement in salvage. Radical operation, like radium, is not the answer to treatment of cancer here or elsewhere. Even with the most meticulous and careful dissection, clean block removal of *all* involved tissue is not possible in *any* case. Lymph channels are disrupted and dissemination of the disease is always a possibility. In the hands of the most experienced operating teams in the world mortality rates to date can be improved only slightly by operation. In the meantime much harm may

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be done and many lives lost by an overenthusiastic surgical attack by men of lesser ability and experience. If there is to be any advantage to the patient from operation in these cases, it should be performed only by operating teams with the best training possible, prepared to do the most extensive procedures meticulously, and able to handle any emergency. In 20-25% of all cases of metastases to pelvic lymph nodes pararectal nodes are involved, and if one is unprepared to remove all possibly involved tissues, one probably should not treat these cases surgically at all. This applies also to the superradical operations of exenteration, total or partial, in cases of recurrent cancer of the cervix. Central recurrence with extension to bladder or rectum of limited degree is probably the only instance where this operation is indicated.

George Crile, Jr.[2] has stated that: "In some of our specialized hospitals along with the practice of ultra-radical surgery, there has developed a philosophy that the presence of cancer justifies anything that the surgeon elects to do. Useless operations on the uterus or appendix would not be tolerated at these hospitals, but useless operations on cancer are accepted without question. Surgeons deeply imbued with the doctrine of ultra-radical surgery refuse to recognize that certain cancers cannot be helped by operation even when these cancers have been documented as inoperable. These surgeons do not admit that their attempts to cure usually do harm. The consistent failure of ultra-radical operations to arrest advanced cancers of high malignancy, the devastating side effects of these operations, and their high cost are shaking the faith of patients and physicians in the surgery of cancer. The radical attack should be pressed only in those fields where it gives promise of success." While this criticism sounds a bit harsh, it probably does apply in some instances.

CANCER OF THE CERVIX COMPLICATING PREGNANCY

Ideally, vaginal and cervical cytology should be studied on every woman but particularly on all pregnant women when first seen; if indicated, adequate biopsy specimens should be taken from any presenting lesion. If there is no visible lesion, or if a small biopsy specimen is negative but cytology suggests malignancy, cone biopsy should be done. Pre-invasive cancer may then be followed up by study of smears throughout pregnancy, and it is probably safe to do this even if all the lesion has not been removed from the upper cervical canal. We have not seen invasive cancer above the cone biopsy when the remainder of the lesion is intraepithelial. There is room for individualization of cases here of course.

In early pregnancy, invasive cancer of the cervix is at present treated by radium and x-rays with or without emptying of the uterus. In later pregnancy the uterus should be emptied by Cæsarean section when the fetus is viable, and x-ray treatments begun and radium inserted later when involution is complete. There may be some advantage in this instance, however, in performing radical hysterectomy and pelvic lymphadenectomy at the time of Cæsarean section, thus avoiding delay in definitive treatment. Ultimate clarification of classification of cancers as radium resistant or sensitive will no doubt have an effect on the proper choice of treatment in these cases.

CANCER OF THE VULVA

Simple vulvectomy is indicated in pre-invasive cancers as in leukoplakia.

Invasive cancer here is probably best treated by wide excision of the vulva to the periosteum with removal of all inguinal, femoral, femoral canal, obturator, hypogastric and iliac lymph nodes bilaterally. In favourable locations and with an early lesion, or a poor-risk patient, one might remove the nodes on one side only and do no more if they are found to be uninvolved. Admittedly this is taking a slight chance, and should not be the procedure of choice in lesions of the anterior vulva or clitoral region. In other cases a two-stage or three-stage operation may be advisable or node dissection may be done on both sides simultaneously. Cancers of the lower anterior or posterior vagina are poor choices for surgical treatment because of technical difficulties and lymphatic spread, and unless extremely early, are better treated with radium.

OOPHORECTOMY

In general, simple cysts, endometriosis, and benign dermoids or proliferative cysts of the ovaries should in young women be treated conservatively by excision of abnormal tissue and saving of all normal tissue possible. The presence at operation of a pathologist who can collaborate in diagnosis of gross specimens or frozen sections will sometimes save an ovary if not

both ovaries and a uterus. In tumours such as the granulosa cell, dysgerminoma, and arrhenoblastoma, it may also be possible to preserve the child-bearing function.

One tends to be less conservative when the patient is a woman approaching 40 who has satisfied her maternal instincts. Solid tumours and proliferative cystic tumours, benign or malignant, are usually treated by removal of both ovaries, tubes, and the whole uterus, because of the occasional difficulty in deciding even histologically between the benign and the malignant. If cancer is found in one ovary, the risk of metastases to the other ovary or to the uterus is too great to leave them behind. The abdomen should also always be explored carefully for metastases, for a primary mother tumour with the ovarian cancer secondary, or for a separate primary tumour.

The finding of advanced cancer of the ovary with metastases indicates the removal of as much of the original tumour and metastases as is possible. In deep pelvic involvement it may be wise in certain cases to leave the uterus in, so that subsequent radiation treatment may be enhanced by intra-uterine radium.

Cystic enlargements of the ovary up to the size of a lemon and solid enlargements of half that size should be observed at monthly intervals for evidence of growth; if they increase in size or become fixed, they should be investigated by laparotomy. In postmenopausal women even earlier interference is justifiable.

A word about so-called prophylactic oophorectomy. The average age for the menopause in this country is 47. Ovarian function is altered but does not cease with the menopause. Severe menopausal symptoms occasionally occur when the ovaries are removed years after menstruation has stopped. According to Metropolitan Life Insurance Company figures, the incidence of ovarian carcinoma for women over 50 years of age is 37.3 per 100,000. This means that the best we can do by removing normal ovaries during laparotomy for other benign conditions is to prevent cancer in three out of 10,000 patients. If we remove ovaries routinely at the age of 45 or younger, as some writers suggest, we will plunge thousands of women into a surgical menopause. For many of these women this would be bad. We feel that in this problem, individual assessment should play a strong part. A bad family history or fear of cancer might indicate earlier removal of ovaries, while in the patient who is emotionally unstable or fears loss of sex, the indication might well be to leave them alone. As a general rule, we would probably be right in removing ovaries prophylactically at age 50 and no less.

PELVIC INFLAMMATORY DISEASE

In younger patients with chronic pelvic infection of any nature, conservative therapy should be given an exhaustive trial and should consist of bed rest, antibiotics, and heat over a period of months. If recurrences are attended by repeated failure to cure, and illness and pain are interfering with a happy existence or the ability to earn a living, then only should surgical relief be attempted. With antibiotics and chemotherapy, these cases are fortunately rare; where the disease process is progressive, genital tuberculosis should always be suspected. When the case merits surgical intervention nowadays, anything less than excision of all diseased tissues together with removal of the uterus is likely to mean further operation in the future.

In older patients who have had their family, prolonged conservative therapy does not merit the same consideration.

The medical treatment of genital tuberculosis has improved with the advent of streptomycin, isoniazid, etc., but so far complete cures are unlikely. If the tubes are closed, they will not reopen and pregnancy, even if it could occur, would be considered inadvisable in the presence of tuberculosis of the uterus, tube or ovary. The surgical indication still is removal of both tubes and the uterus, and ovaries if they appear grossly involved.

PELVIC ENDOMETRIOSIS

The diagnosis of endometriosis is not in itself an indication for surgical treatment. If, however, an obvious endometriosis is causing increasing pelvic intermenstrual pain and/or dysmenorrhœa which conservative therapy fails to alleviate, surgical intervention may be called for. If the patient is young and married, pregnancy should be encouraged as it may relieve her complaints. If pregnancy does not occur within a reasonable length of time, the usual sterility tests should be done — sperm test, Hühner's postcoital test, and a Rubin test or a salpingogram. If these are normal, a conserva-

tive operation may be undertaken where ovaries are freed from adhesions and abnormal tissue removed from them. Tubes may also be freed from adhesions and straightened and endometriomatous implants removed, and possibly a uterus fixed in retroversion may be freed and suspended.

Operation should never be attempted if an asymptomatic endometriosis is found during investigation of infertility until sterility tests have been done.

In the patient 40 years of age or over, who has had her family and who is suffering increasing pain as a result of endometriosis, more radical surgery may be indicated. Unless one can be sure that removal of endometriomatous cysts and implants will relieve her symptoms, it is better to take out all the abnormal tissue possible and the ovaries or, better still, the uterus, tubes and ovaries. Results of radium or x-ray treatment of this condition are not as good as those of surgery, and high prolonged œstrogen dosage usually affords only temporary relief — and may be dangerous.

VAGINAL REPAIR AND VAGINAL HYSTERECTOMY

In young women up to 35 years of age who want children and who have a degree of vaginal relaxation which with accompanying symptoms demands repair, really conservative surgery is indicated. Cystocele and rectocele should be repaired, but the cervix should be left alone unless it is grossly infected or markedly hypertrophied or elongated. Even then, cauterization or light conization or superficial amputation should be the maximum of interference.

Between the ages of 35 and 40 there may be a place for the Fothergill or Manchester type of operation, but even then high cervical amputation should be avoided in the interest of possible childbearing. Prolapse can be cured without high amputation of the cervix, or even without amputation at all, but of course a greatly elongated cervix will have to be shortened.

In the woman of 40 years and over, we feel that any indicated repair of the vagina should be accompanied by vaginal removal of the uterus, provided of course that she does not wish to utilize it further for childbearing, and also provided that it can be removed without increased risk. Vaginal hysterectomy with proper vaginal repair does require more effort from the surgeon, but if it is advantageous to the patient we should be willing to expend this effort. The advantages to the patient are:

1. It removes the fear of pregnancy at an age when this is usually most undesirable, and when such fear may cause serious rifts in marital relations.

2. It removes the possibility of pregnancy, which might break down the vaginal repair or necessitate Cæsarean section as an alternative.

3. It prevents the sometimes serious bleeding during the menopausal years, and the worry of missed periods or intermenstrual bleeding. It therefore also prevents the possible necessity of later hysterectomy, or diagnostic operation.

4. The miserable and now quite fashionable syndrome of premenstrual tension is usually completely relieved, and dysmenorrhœa becomes a nightmare of the past.

5. It affords an opportunity to inspect the ovaries and tubes and in many instances to remove them if indicated.

6. Last but not least, it precludes the possibility of cancer in any part of the uterus.

The above advantages apply to the prophylactic removal of the uterus during vaginal repair. When abnormal bleeding or other disease in the uterus indicates its removal, there are other distinct advantages to vaginal hysterectomy as opposed to vaginal repair plus abdominal hysterectomy: (1) less pain; (2) less disfigurement; (3) less chance of damage to ureters; (4) less risk for the patient; (5) a more rapid convalescence.

Falk and associates[10] reporting on incidental lesions in vaginal hysterectomy for uterine prolapse found that, out of 174 patients who had no other complaint than prolapse and on examination no evident uterine or adnexal abnormality, 114 (65.5%) showed definite uterine or adnexal lesion. They feel that some of these patients might have required further operation if the uterus and abnormal adnexa had not been removed.

There are a few indications which should be kept in mind when doing vaginal hysterectomy with vaginal repair:

1. Vaginal, cervical, and intrauterine cytology should be studied a week or more preoperatively.

2. Curettage should be done as a preliminary step to operation or the uterus should be opened on its removal to expose a possibly malignant tumour of the corpus.

3. Although large fibroid uteri can be removed by morcellation, a previous history of severe infection or pelvic findings of advanced endometriosis, large ovarian cysts, or operations such as ventrofixation of the uterus, should influence one against vaginal hysterectomy.

4. Careful reconstruction of the vaginal vault is essential to avoid vault prolapse.

5. In almost 100% of women who have borne children and in whom repair is necessary, the posterior vaginal repair should be carried to the vault to avoid later enterocele or high rectocele. This is true of ordinary vaginal repair work too, as is the routine plication of the bladder neck whether urinary incontinence was a preoperative symptom or not.

We do not feel that there is any indication today for vaginal repair plus abdominal uterine suspension or fixation in the cure of prolapse. There certainly are indications for vaginal repair with abdominal hysterectomy or other intra-abdominal procedures which cannot properly be carried out per vaginam.

We do not feel that there should be any indication for Watkin's interposition operation, the Spalding-Richardson operation, or the Le Fort operation. The first and last leave the uterus in an invidious position, and the other accomplishes less than does vaginal hysterectomy and yet is a more involved procedure.

Obviously, as we mentioned at the beginning of this paper, the training and experience of the gynæcologist will influence his choice of operation regardless of indications.

We do not wish to condemn the Manchester type of operation but as most instances of vaginal or uterine prolapse requiring operation occur in women beyond the childbearing age, or with all the children they want, we feel that in the hands of well-trained gynæcologists vaginal hysterectomy with complete vaginal repair is a definitely superior operative procedure. It provides equal anatomical and better clinical results.

One final general indication should be mentioned. If laparotomy is decided upon for benign pelvic disease, relaxation of the vagina should never be overlooked. If this principle is followed, many patients will be saved the additional risk and expense of later reparative surgery. If it is not feasible to carry out the necessary surgery vaginally, it is better to do the vaginal repair first and follow with laparotomy.

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RÉSUMÉ

Le gynécologue et sa patiente doivent s'entendre pour adopter une attitude aussi conservatrice que possible à l'égard des interventions majeures pour la correction de l'infertilité, de même que pour toute autre opération pendant la période productive de la vie génitale. On doit chercher à prévenir le cancer des voies génitales de la femme avant qu'il n'atteigne un stage où le traitement radical s'impose, par le dépistage précoce des néoplasmes au moyen des épreuves de laboratoire que nous avons maintenant à notre disposition, et dont la précision augmente constamment. Il importe que toutes les femmes se soumettent à ces épreuves à des intervalles annuels ou bi-annuels. Pour en arriver à ces fins, il est nécessaire d'éveiller l'attention du grand public pour en obtenir la collaboration. Lorsque ces facilités de laboratoire dont nous disposons permettront l'examen cytologique vaginal de toute la population féminine une fois par année, et lorsque nous pourrons persuader ces femmes de se présenter à ces examens, il est probable que les formes les plus fréquentes de cancer des voies génitales de la femme pourront être complètement éliminées. Lorsqu'on doit pratiquer une forme quelconque de chirurgie pelvienne, vers la fin de la période sexuelle productive pour fixation ou autre intervention, il faut toujours songer à enlever les organes qui n'ont plus de fonction utile et qui par contre peuvent devenir le point de départ de cancers futurs.

A NEW APPROACH TO THE PHYSIOLOGY OF SO-CALLED "CARDIOSPASM"

Achalasia must not be isolated as a special disease of the cardia. Local stenosis and proximal dilatation may appear in other segments of the digestive tract, the result of a similar anomaly of Auerbach's plexus. Hirschsprung's disease, achalasia of the pylorus, mega-jejunum and mega-ileum are examples. The contraction of the circular musculature may occur in other than sphincter regions.

Experimental production of cardiospasm in cats by the destruction of Auerbach's plexus by local injection of phenic acid into the œsophageal wall was undertaken at Brussels. Phenic acid destroys nervous cells without necrosis of other structures. It was shown that megaœsophagus develops after cardiac stenosis clinically, anatomically and radiologically. The stenosis at the lower end of the œsophagus persisted at post-mortem in the removed specimens. Microscopic examination showed lesions typical of the human disease: destruction of the ganglion cells of Auerbach's plexus.—L. Deloyers, R. Cordier and A. Duprez: *Ann. Surg.*, 146: 167, 1957.