deeply into the substance of the cervix, and even before surface ulceration occurs a well-marked lymphocytic barrier is thrown out in an attempt, usually vain, to control the proliferating cells. Similar changes may occur in connexion with the glandular epithelium. When extensions occur, it is very common to find them most marked in the utero-sacral ligaments or along the thickened base of one or other broad ligament, the very places that have been previously affected by chronic irritative fibrosis.

CONCLUSION.

A study of this pathology shows us that the cervix is one of the most important pelvic structures and that chronic inflammation here is a widespread condition which may have far-reaching immediate and late results.

Another important point emerges that, while severe puerperal sepsis accompanied by pyrexia occurs in about four cases per thousand, puerperal sepsis in a minor degree, often with no symptoms at the time, lasting many years, and with a risk of carcinoma formation, occurs in a large proportion of all parturient women.

The main etiological factor in this condition is injury at childbirth, and these cervical injuries represent the wounds which women in labour receive in the process of producing the next generation.

The medical and sociological considerations raised by a study of this subject are very large and important, and there is no aspect of obstetrics and gynaecology which is more worthy of our attention.

Leucorrhoea may be produced by other lesions, such as tuberculous or syphilitic cervical ulcers, or foreign bodies, but only the more common lesion can be discussed in this paper.

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TREATMENT OF CHRONIC ENDOCERVICITIS.*

BY

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WHEN I was asked if I would open a discussion on the treatment of chronic endocervicitis at this meeting, I felt much flattered at the honour done to me, but I accepted with grave misgivings when I came to consider the subject which had been assigned to me. I do not think there is any gynaecological condition which is seen so frequently by doctors in all types of practice, and which is more difficult to treat satisfactorily. It is presumably on account of this difficulty that the methods of treatment advised are so numerous and diverse; owing to this I am unable to put forward any authoritative bibliography, and this paper expresses merely my own personal preferences.

That the condition requires treatment, and effectual treatment at that, is obvious when its complications are considered. Quite apart from the personal discomfort and annoyance which chronic leucorrhoea causes to patients of cleanly habits, it bears in its train a series of sequelae of great importance. It is one of the commonest causes of sterility and—perhaps even more often—of the one-child marriage. Again, owing to the deep ramifications of the glands of the endocervix, and their close relationship to the lymphatics draining into the base of the broad ligaments, it is a very common cause of a mild thickening and inflammation of the pelvic cellular tissues in that region. This condition is very much commoner than is generally realized, and gives rise to pressure on, and nipping of, the ureter, with symptoms of chronic

backache and renal pain. This has been most clearly worked out and described in numerous papers by Guy Hunner,^{4,5} and for some years I have been in the habit of passing acorn-headed ureteric bougies up the ureters in cases of backache associated with "erosion," and it is astonishing how often there is found a well-defined stricture of the ureter about the situation where it passes across the cervix below the uterine artery. The worst complication which can ensue is carcinoma of the cervix, and I am sure it is generally agreed that there is now no question as to the close relationship between the incidence of chronic infected lacerations and cancer of the cervix; so that if there were no other reasons at all, this fact alone would justify any attempt at curing these infections. It is not my province to discuss the pathology of this condition, but when it is reviewed it will be seen that there are two factors to be treated: (1) the leucorrhoea and so called *erosion*; (2) the deep infection of the cervical tissues with its surrounding infiltration. The former is much easier to attack and conquer than is the latter when once it is well established, and I would press for the early treatment of all lacerations of the cervix, and also for all established "erosions." This particularly applies to lacerations diagnosed at the time of the confinement, which can easily be sutured immediately, or before the puerperium is concluded. De Lee² states in his textbook that he has never seen a carcinoma follow on a laceration which has been properly repaired at the time when it occurred.

Although leucorrhoea may be one of the symptoms of a variety of gynaecological conditions this paper is concerned only with chronic infection of the endocervix, and no attempt is made to discuss the diagnosis or treatment of any of the other conditions giving rise to similar symptoms.

Coming now to the actual treatment of the condition of chronic endocervicitis, when it is established, we are at once faced with the problem of the individuality of the patient. It is impossible to apply the same rules of treatment to the patient with an extensive laceration as to the one with no tear at all. It is equally useless to group together the young woman with an infection following her first childbirth and the patient of 55 who will not become pregnant again. Each case must be considered on its merits, and to some extent the cause of the lesion will direct the method of its cure.

For some years I have had the great advantage of being on the staff of the Bristol venereal clinic as well as being gynaecologist to the Royal Infirmary, and I am firmly convinced that gonorrhoea is far more commonly at the bottom of a chronic cervical infection than is usually thought. In my gynaecological out-patient clinic smears are taken from the urethra and cervix of all cases of leucorrhoea, and quite a large proportion are returned showing gonococci present, when the case is transferred to the venereal disease clinic for treatment. The converse also holds good. I have now seen a very large number of cases of gonorrhoea which have developed erosions of the cervix while under treatment, and this condition persists when no trace of the gonococcus can be obtained with the most careful methods of taking smears and cultures. I would like to stress the importance of paying no attention to the presence or absence of a discharge in deciding as to whether a gonorrhoea is cured, because the leucorrhoea associated with the resulting chronic endocervicitis will persist for a very long time after the actual gonococcal infection is cured. It is therefore, in my opinion, necessary to examine all cases of chronic cervical infection for gonococci—by smears from urethra, cervix, and Bartholin's glands—before commencing further treatment.

If the presence of the gonococcus can be demonstrated I consider that there is no treatment so good as that of daily douching with boric acid, wiping away the mucus, and then thoroughly swabbing the cervix and vaginal vault with 1 per cent. mercurochrome.⁹ I think the stronger solutions defeat their object by delaying the normal process of healing—that is, the replacement of the columnar-celled erosion by the normal squamous-celled covering of the vaginal surface of the cervix. In all

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Manchester, 1929.

cases of recent infection with much mucó-purulent discharge—even though they are not gonorrhoeal—I find mercurochrome most excellent, while 1 in 1,000 flavine solution makes a most useful change.*

The above is the method of treatment I use in all fairly recent infections of the cervix which are not complicated by erosion or extensive laceration. In cases where the cervical canal is obviously infected fairly high up, a Playfair's probe can be used to carry the solution as high as the internal os. Probably the next most useful remedy is 10 per cent. silver nitrate used in a similar manner. I have had little or no success with the old-fashioned iodized phenol, as the infection usually recurs within a few weeks. A recent form of treatment, of which I have no personal experience, though it is used by my colleague Dr. H. L. Shepherd, is the local application of vaccines to the endocervix; but, while he is enthusiastic, he has not yet treated a sufficient number of cases to form a final opinion as to its value.

It will be seen that the best forms of treatment for purulent endocervicitis must be administered by an attendant; it is quite useless to supply patients with a douche can and materials to use in it and let them treat themselves, and it is quite obvious that they cannot possibly swab the cervix and upper vagina with the antiseptic selected. These difficulties arise in the treatment of private patients. At the Bristol Royal Infirmary the matron has very kindly arranged for a "douching clinic" to be held every morning, and patients attend for daily treatment, which is carried out by a skilled nurse. The results have exceeded our best expectations. The patients are enthusiastic over the rapid amelioration of their discomfort, while a great advantage is gained by the hospital in the falling off in the numbers of the cases of this type requiring admission to the wards.

When the cervical infection is accompanied by laceration it will be found that many patients present themselves complaining of dull pain in the groins and backache. In these cases the base of the broad ligament will be found to be thickened and tender on one or both sides, the ureters are often palpable and tender, and the patient complains of frequency of micturition and usually shows a quite considerable bacilluria. This mild-grade cellulitis, with its consequent fibrosis and contraction, may cause far more discomfort to the patient than the actual laceration and infection. I have found that really hot and prolonged douching is by far the most efficient remedy. The douche is given as hot as it can be borne, and is continued for at least fifteen minutes. This requires very large quantities of fluid (about twenty pints), and is not easy to manage in the ordinary way. In the out-patient department we have made special arrangements at the "douching clinic," but in private cases the procedure can be made comparatively simple when carried out as follows: The patient lies in a warm bath, and a large douche can is hung upon a conveniently placed nail. The douche nozzle is inserted to the top of the vagina, and the can is then replenished from the hot tap as often as is desired, while the presence of the warm water in the bath prevents too rapid an outflow. If there is much pus the patient is told to give herself a short lysol douche in the usual way before getting into the bath. The relief thus obtained is immediate, and usually becomes permanent after a short time. Should the symptoms still persist I explore the ureters for stricture by Hunner's method.⁵

Glycerin, or glycerin and ichthyol, tampons are of use only when applied by an expert nurse or by the medical attendant, otherwise they are positively harmful. The patient never manages to get them right up to the vaginal vault, and so a gap is left between the cervix and the tampon. Owing to the hygroscopic action of the glycerin a pool of muco-purulent fluid forms and bathes the cervix, which becomes sodden and sheds still more of its squamous epithelium, and the condition of the cervix becomes worse rather than better, while very little improvement, if any, is produced in the thickening of the broad ligament.

Another most excellent remedial method is the use of hot antiphlogistine tampons. These are formed of a cup-

shaped lump of antiphlogistine enclosed in a single layer of gauze, heated as hot as can be borne and pressed and moulded right up against the vaginal vault, to be removed after six hours. It requires expert insertion, but an intelligent nurse can learn how to apply it when she has tried it two or three times under supervision.

The practice, once so frequent, of putting in ring pessaries to relieve the backache cannot be too strongly condemned; it tends to keep up the cervical infection and presses upon the tender fornices and ureters. It is far better to remove any pessary during treatment, even though there should be a considerable degree of prolapse.

Very excellent results are also obtained with diathermy, using a current which the patient can just endure with comfort, and it is especially useful in the treatment of gonorrhoeal cases when used with the technique advised by Cumberbatch.¹

So far the treatment discussed has been that of cases of fairly recent origin; it now remains to consider the more chronic type of endocervicitis, which resists the above methods of treatment. I do not think there is any question that the treatment of these resistant cases must be operative, and I include the use of the cautery under this heading. For some time past I have been using the electro-cautery in the treatment of chronic cervicitis with the greatest success. It has been enthusiastically advocated by Hunner and by Kelly,⁶ while Matthews⁸ has compared the value of treatment by the cautery with surgical treatment, to the advantage of the former.

In cases with ectropion of the cervix accompanied by erosion the electro-cautery is used to draw a series of radiating lines from the os to the edge of the affected area, the patient being warned that the discharge will be worse for a few days. The results are most striking; the swollen and everted mucosa shrinks rapidly, and the whole cervix improves astonishingly quickly. The treatment is repeated weekly until cure is effected. It has the great merit of being practically painless, and requires no anaesthetic at all; none of my patients has complained of more than a slight pricking, and they return without the least anxiety for their weekly treatment. The same procedure is utilized in those cases where the cervical canal is infected without much erosion being present. Here a cautery point is inserted up the canal and drawn up and down once or twice. If there is very much eversion and rolling out of the mucosa a short anaesthetic—for example, nitrous oxide—can be given and a much heavier cautery point may be used to cauterize the tissues more deeply. In these cases the treatment should be repeated at intervals of a month, and not of a week. I personally prefer light cautery and more frequent treatment, as there is then no danger of contraction of scar tissue. In either case I order a daily saline douche for a few days after the treatment to deal with the temporary increase in the discharge.

When the endocervicitis is complicated by laceration it becomes urgently necessary to treat the condition by operation, owing to the relatively great predisposition to carcinoma. The operations possible fall into three groups: (a) repair operations; (b) amputations of the cervix; and (c) panhysterectomy. Whichever operation is eventually decided upon, the condition of the perineum and pelvic floor should always be taken into consideration, and a perineorrhaphy should be performed when required. The main deciding factor as to the type of operation chosen is the question of the probability of further pregnancies. In young patients I do not think that amputation of the cervix is usually advisable. In some cases it is followed by abortion, and in one of my own cases there was severe cicatrization, which caused much trouble in a subsequent labour. If amputation is performed for hypertrophy of the cervix it should be of the "low" variety in young women. I prefer to repair the cervix by a plastic operation, denuding the lateral scarred areas and suturing them together, the classic operation of Emmett requiring too long a preparation and not always curing the erosions. This gives a very good result, and I have inspected a large number of these cases two years after operation and found it difficult to believe that they had ever shown the large tears and erosions described in their notes. In patients who are unlikely to become pregnant again an amputation of the cervix is the best procedure. I prefer the operation

* If mercurochrome is used, it must be a reliable brand. Many failures are due to the fact that there are substances on the market which are not mercurochrome at all, although they resemble it in appearance.

of Victor Bonney (sometimes associated with the name of Sturmdorf), the only precaution necessary being firm ligation of the lateral vessels, as this operation can cause really dangerous post-operative bleeding. An excellent modification is described by Te Linde¹⁰ for amputation at a lower level, and is very useful in patients who might possibly become pregnant again. In most of my cases the perineum also has required repair, which is done at the same time.

In elderly patients, especially if there is reason to suspect any uterine complications, such as the so-called "fibrosis uteri," the operation of election is a panhysterectomy. It is most disappointing to perform an amputation of the cervix and have the patient returned in six or eight months with intractable uterine haemorrhage. In many patients of this class the perineum is torn and the pelvic floor has yielded, so that there is a very considerable degree of prolapse. For these there is no operation so good as that of vaginal hysterectomy, with repair of the pelvic floor and perineum. At the Bristol Royal Infirmary we use the technique of G. V. Ward,¹¹ which is a modification of the Mayo operation. We have had no trouble with shock or bleeding, and the results have been surprisingly good, the perineum and vagina becoming anatomically reconstructed. I think that the operation of vaginal hysterectomy has been much neglected of recent years, and my own experience is in complete accord with that of Professor Green-Armytage described in his recent paper.³ I would, however, urge the complete repair of the pelvic outlet at the same time. The combined operation

causes little or no shock, and is easily performed, while in fat patients it is enormously superior in every way to an abdominal hysterectomy with a separate repair operation.

If true ulceration is found upon the cervix it is essential to remove a portion of its growing edge for sectioning. Whilst carcinoma is much the most likely complication, the possibility of tubercle or gumma must not be overlooked, and in all gonorrhoeal cases it should be part of the routine treatment to take a Wassermann test. It is very surprising how many patients with chronic gonorrhoea are also syphilitic. In these cases I defer operation till the patient has had twelve months' routine antisyphilitic treatment.

Finally, as prevention is better than cure, I would again urge the importance of inspecting the cervix after delivery and suturing all considerable tears. It is surprisingly easy to press down the fundus till the cervix appears at the outlet, and then it can be quite easily inspected with the labia separated by two fingers. I feel sure that if this procedure were taught and practised more there would be a great decrease in the incidence of chronic endocervicitis, and therefore of carcinoma of the cervix.

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THE TREATMENT OF INFLUENZA WITH S.U.P. 36.

BY

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THE drug S.U.P. 36 is a symmetrical urea, and its full chemical name is para-benzoyl-para-amino-benzoyl-aminonaphthol 3:6 sodium sulphonate.

During the influenza epidemic in the spring of the present year I endeavoured to make a systematic test of the advantages of treating influenza by intramuscular injections of this drug. Every case of influenza seen, in which the disease had not existed for more than forty-eight hours, was used for my records, alternate cases being treated by injection of S.U.P. 36 and the remaining cases orally by drugs such as salicylates, aspirin, and influenza mixtures. Cases not first seen until more than forty-eight hours after the onset of the disease were not taken into account, as it was not expected that the injection of S.U.P. 36 could be of much use after the acute phase had passed.

The method employed in the injected cases was to inject as early as possible an initial dose of 0.5 c.cm. (representing 0.005 gram). This was followed by an injection of 0.75 c.cm. on the fourth day following the initial dose if the case had not cleared up in the meantime. In some cases the initial dose given was 0.75 c.cm. The injections were usually made into the gluteus medius muscle, and only very trivial complaints of pain were ever received. Occasionally the injections were made into the deltoid muscles, where in one or two cases rather more pain was suffered. The only drugs given orally to any of the patients treated with S.U.P. 36 were calomel, 2 to 5 grains, where indicated—that is, in roughly half the injected patients—and the use of a simple expectorant mixture where necessary (in only about 10 per cent. of the injected patients). In no other injected patients, excepting the two noted with cardiac trouble, were any other drugs given.

At the end of a fortnight it became quite evident to me that the injected patients had the advantage over the non-injected ones, and thereafter I treated by injection all patients who would submit to the treatment.

The epidemic of influenza prevailing was of the somewhat mild type. The onset was very acute, with a sudden rise of temperature to 101° to 103°, with pain in the limbs and back, fairly severe headache, and in many cases a particularly troublesome cough with little expectoration.

Pulmonary complications were rare and the mortality was low, no death being recorded among the series of cases investigated.

It was found to be difficult in practice to collect data which would be of value for tabulation in a comparative manner between injected and non-injected cases, but, taking five headings as the main symptoms in the disease, comparison may be drawn in the following manner:

	Control Cases.	Injected Cases.
Average duration of pyrexia in days ...	2.8	1.4
Average duration of headache in days ...	2.1	1.0
Average duration of muscular pain in days ...	3.4	1.3
Average number of days in bed ...	5.7	2.8
Average number of days off work ...	16.0	6.9

At first sight it may appear that these comparisons are subject to many fallacies and therefore not of much value, but, taking into consideration the following points, I think, though the numbers are small, that the five comparisons drawn give a fairly accurate idea of the progress of the attack.

The average age in each group was: Controls 33.9 years; injected cases 34.8 years.

The sexes of the two groups were: Controls 40 per cent. males; injected 57 per cent. males.

The class of patient treated in each group was similar.

No attempt was made to hurry the injected patients out of bed or back to work, and in many cases they were purposely kept in bed some time after their temperature was normal.

From a comparison of these figures it will be seen that in the injected group the duration of pyrexia and headache is halved, while the duration of muscular pain is even more than halved. The time in bed is also halved, but this is perhaps the least reliable of the figures for comparison. The figure for the average time off work may, I think, be taken as reliable, and is again seen to be slightly more than halved in the injected cases.

A careful study of the injected cases reveals the fact that the earlier the injection is given the greater is the benefit derived, and this was even more obvious from the clinical study of the cases themselves. As a matter of interest, several patients seen too late to be included in the comparative records were given their initial dose on the third, fourth, and in one instance on the fifth day of the disease, and in none of these cases was any benefit noticed