A Lecture ON PRURITUS VULVAE: ITS ETIOLOGY AND TREATMENT.

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I HAVE chosen the subject of pruritus vulvae for our lecture this afternoon because I think that a careful study of the etiology and treatment will be of the greatest possible value to any who are attending a post-graduate course with a view of benefiting themselves by practical work hereafter.

Pruritus of the vulva is far more common than is generally supposed, because in the milder forms, on account principally of natural modesty, advice is not sought from the family physician, and when the malady has increased, the case may be seen only for the first time by a gynaecologist. It is an affection which, in its severe form, short of jeopardizing life, may be considered one of the most terrible with which any woman may be afflicted, for it gives no peace—no lengthened freedom from irritation or itching. When a paroxysm comes on or passes off there is always the mental strain and anxiety concerning the next which may occur, and in cases which have lasted some time the apparent hopelessness of cure is ever present. In some, unquestionably, death is looked forward to as a happy release, and occurs by suicide. It may truly be said that amongst those who have suffered severely, and have been cured by judicious treatment, will be found the most grateful patients. It is a disease which, once established, is exceedingly difficult to cure thoroughly and completely, whilst the milder forms readily yield to proper management.

SYMPTOMS.

It will be most simple to divide the subject into (1) symptomatic and (2) essential pruritus vulvae. The latter must be considered a neurosis.

The word "pruritus" merely means itching, and of course must be therefore symptomatic of something else. It is a subjective symptom, and may be present in a varying degree. Sometimes it feels as if there were slight smarting accompanying the itching, and sometimes a tingling, burning, or pricking sensation. Perhaps the variety termed "formication," where the sensation is that of thousands of insects crawling over the skin, is the most terrible to bear. The objective signs are usually those of some inflammatory disturbance, as a rule confined at the commencement to the neighbourhood of the clitoris and nymphæ, and gradually involve the whole region of the vulva.

In an ordinary slight case of pruritus vulvae there may be little or nothing to observe; but even in the slight cases there is usually some form of irritation about the mucous surfaces of the labia majora, or on the nymphæ or vestibule, to be detected if carefully looked for. The amount of itching may be quite trifling, and only occurring occasionally during the day, and especially at night, when the patient is in bed. In the more severe cases of symptomatic pruritus the paroxysms of itching are more pronounced but longer, and are accompanied by well-marked changes locally. The parts feel hot and burning, and, if much scratching has taken place they may be swollen, raw, and bleeding. After a paroxysm is over the surfaces are exquisitely tender in the early stages, and the patient cannot bear the least touch without pain. The attack may begin by a slight point of itching in the neighbourhood of the clitoris or in the vestibule, and very slight friction may for the moment give relief. But the itching recurs and the scratching is repeated, the area of irritation growing larger and requiring more friction to give relief, until finally the field of irritation, which started about the size of a pea, grows sufficiently large to include the whole of the vulva, and sometimes the pubes, leading to gradual wearing away of the hair and changes in the skin of the lower abdomen. As the

irritation increases in direction the amount of friction grows in proportion, until finally what has been aptly termed "hysteria of the skin" is developed, and the poor woman scratches herself until she is quite exhausted and the paroxysm is over. It is in these severe cases that so much harm is done to the delicate mucous membrane, for the scratching leads to changes in the tissues which keep up abnormal irritation.

ETIOLOGY.

The more experience one gains, the more one is impressed by the fact that true essential pruritus vulvae must be very rare indeed. In all the cases I have had to deal with I have rarely met with one which I could say was a pure neurosis. By this I mean that the causation of the suffering is located in the spinal centres, and that the changes there lead to the pruritus, which eventually gives rise to no local signs of change in the mucous membrane. According to my own experience—and I have had a fair number of these severe cases, which are, however, by no means common—I have found that in nearly every case a local cause can be discovered, even though it may take a considerable amount of time to ascertain.

The following case quite illustrates what I mean, and shows how careful one ought to be before stating dogmatically that no external cause can be discovered:

A lady aged 58 consulted me in December, 1903, on account of discomfort caused by a caruncle of the urethra. She had no special uterine history. Her period had ceased seven years previously. She had had two children, the last born over twenty years ago, and her recoveries from her confinements were satisfactory. She had what she termed "a nervous illness" some years before, and eighteen months before her visit to me she had acute cystitis, when she was laid up for three weeks. There was nothing to be discovered on examination of the abdomen or pelvis, but there was a small fleshy caruncle on the posterior wall of the urethra. I removed the caruncle, and all local discomfort ceased. About three years later she again complained of local pain and discomfort on micturition, and on examination I found a recurrence of the caruncle. I again removed the caruncle, which brought immediate relief. This lasted several months, when she began to complain of frequent attacks of pruritus vulvae, coming on at all hours, but worst during the night, breaking her rest. There was no trace of caruncle left, and the urethral orifice appeared perfectly healthy. There was nothing about the clitoris or nymphæ calling for attention. The attacks were becoming more frequent, in spite of all the treatment adopted, until opium in the form of pill was the only drug which brought relief. When micturition took place it frequently was followed by a paroxysm. She could not quite locate the origin of the attacks, but the itching seemed to start from a point between the clitoris and the orifice of the urethra. Here was a case which seemed one of essential pruritus. As she had had two caruncles removed, and an attack often followed micturition, I thought it would possibly throw some light upon the case if the bladder and urethra were carefully examined. Under ether I dilated the urethra and explored the bladder, and then discovered on the posterior wall of the urethra a small, deep, oval ulcer, $\frac{1}{2}$ mm. long by $\frac{1}{10}$ mm. broad. This I touched with the Paquelin cautery and she recovered rapidly, having no more attacks for a considerable time until another urethral ulcer developed. This might easily have passed as a case of essential pruritus had the urethra not been dilated.

In discussing the etiology of this affliction, it may be remembered in the first place that most of the cases met with of true pruritus vulvae are in women who are passing through or who have passed through the climacteric period, that is to say, when the ovarian functions are diminishing or have ceased. Whether there is any connexion between the pruritus and the gradually failing glands, or whether it is merely a coincidence, we cannot positively say in the present state of our knowledge, but it is a fact. Every case must be thoroughly investigated, and in most it will not be difficult to ascertain the cause if seen reasonably early. According to Bronson,¹

Of the conditions that act as predisposing causes of pruritus, whether it occurs as an essential disease or is predominated by some other disease of which it is a symptom, by far the most important is hyperaesthesia. This may be either congenital or acquired, either local or general. It may be acquired through diseases which affect the economy at large, or that are localized in the skin. The general diseases producing it may be idiopathic neurosis, such as hysteria and hypochondriasis and other affections of the nerve centres, or general nutritive diseases affecting the nervous system secondarily, such as arthritis or diabetes mellitus. In all the cases the primary effect of the general disease is simply to heighten the susceptibility of the peripheral nerves, causing exaggerated sensations from the slightest contact. The exciting causes consist of irritations that may be either indirect and conveyed to the skin

from the interior of the body, or direct, in which case the excitation is produced by local irritants, whether arising from extraneous sources or from sources that are intracutaneous.

In some the pruritus may have started from a slight abrasion due to mechanical injury or excessive coitus, or the delicate epithelium may have been affected by an irritating secretion. In the latter case it will depend on the nature of the micro-organisms attacking the mucous membrane.² Some think that the scratching leads to superficial abrasion and later ulceration, which yields an exudate, and that this is carried to the adjacent skin by scratching, which sets up irritation similar to the original. A common cause of severe pruritus is sugar in the urine in cases of diabetes. It is a good rule to examine the urine in every case of irritation of the vulva, in order to see if there be any sugar present, or if the urine be loaded with urates or uric acid, or oxalate of lime crystals. In either case the urine has the power of irritating the mucous membrane and bringing on attacks of pruritus. The mere fact that pruritus vulvae is present should make one think of diabetes, for the two are so commonly associated. Indeed, it is often the gynaecologist who discovers that diabetes is present from the fact that he is consulted on account of pruritus, and is able to advise the patient to place herself in the hands of the family physician. Some are of the opinion that diabetes is the principal cause of pruritus. It induces irritation by allowing the mucous membrane to be constantly covered with urine loaded with sugar. Probably, also, the linen is apt to be so frequently moistened that, unless constantly changed, decomposition of the urine may take place and micro-organisms develop. Diabetic urine, decomposing under the influence of yeast fungus, is very irritating to the skin. Up to the present we know of no micro-organisms which are particularly associated with diabetes, and which may be said to cause pruritus. When certain inflammatory conditions are set up in the mucous membrane, as in gonorrhoea or thrush, the changes which occur in the mucous membrane are due to micro-organisms. It is probable that the continued saturation of the mucous membrane by highly-charged diabetic urine starts such irritation that micro-organisms come to the front. Some are of opinion that this condition of mucous membrane, leading to pruritus, is due to a condition of the blood, for otherwise sugar-loaded water would not of itself set up pruritus. The experiment of allowing a compress saturated with a solution of grape sugar to be placed over the vulva and remain all night has proved that in a healthy woman pruritus has not been established or any harm done. The irritation set up in the delicate mucous membrane of the vulva by sugar-loaded water is analogous to that brought about by highly concentrated urine, or urine loaded with urates or uric acid, or oxalate of lime crystals. The latter undoubtedly prick the mucous membrane with their sharp points, and by this means micro-organisms are allowed to penetrate the epithelium, and set up the irritation which leads to pruritus. This seems to be a reasonable explanation, and therefore one need not look to the blood itself circulating in and about the region of the vulva as a cause. It can only be considered due to the changes in the blood, inasmuch as the urine is affected thereby, and consequently produces actual irritation of the mucous membrane. Seeligman,³ in an investigation of a large number of cases, found in all a diplococcus, which resembles the gonococcus in appearance, but differs from it in the process of growth, and besides it takes the Gram stain. He considers that this accounts for the pruritus. Saenger⁴ is of the opinion that the pruritus of diabetes is haematogenous, and analogous to the pruritus of jaundice. But I think the explanation I have mentioned seems reasonable.

Veit,⁵ whose experiment with grape sugar I have quoted, thinks that the irritation is due to some other constituent of the urine besides grape sugar, and points out that men with diabetes suffer from pruritus of the scrotum, probably because the underclothing is continually moistened, leading to softening and irritation of the skin. Although pruritus is so common in diabetes, it is certain that all cases are not accompanied by pruritus, although slight and severe cases of vulvitis may be met with. The remarks with reference to the urine in diabetes apply equally to the urine in nephritis, for it seems to bring about the pruritus by irritating the sensitive mucous membrane.

According to Moraezowski, glycosuria is accompanied by an exaggerated elimination of calcium.

It would be simple to deal with all cases of external irritation at once. Pediculi pubis and ascarides may be the cause of severe pruritus. I have seen a case of great severity caused by the former. By the time I saw the patient she was in a pitiable condition, for she had been travelling for three days across the Continent without any means of obtaining relief from any kind of treatment. On discovering the cause, she recovered very rapidly under ordinary treatment for pediculi pubis. Ascarides are rarely a cause of pruritus. They may be difficult to discover, but when once found, the treatment is simple and effective.

Amongst the micro-organisms which are common as a cause of pruritus is perhaps the *Oidium albicans* of thrush and the gonococcus. The latter is certainly the cause in many cases. It leads to an inflammation of the mucous membrane of the vagina, which pours out a more or less continuous discharge, which, irritating the mucous membrane of the vulva, induces the pruritus. I have seen several cases which could be distinctly traced to the gonococcus, in which the pruritus was developed early in the attack of vaginitis, and persisted. In some of these cases the acute symptoms of inflammation may gradually subside, and leave the paroxysm of pruritus unaffected. Although the vaginitis may be due in some cases to the gonococcus, there may be an acute attack of inflammation of the vagina which cannot be traced to the gonococcus, and which leads to pruritus. Passing upwards from the vagina, the cause of attacks of pruritus vulvae may be due to inflammation in the neck of the uterus, or of the endometrium. I say "may be due," for I have nothing which I could call evidence to lead me to state that such inflammation of the mucous membrane of the cervix or uterus certainly caused pruritus. Nevertheless such causes have been mentioned by authors of repute, and I merely call attention to them here.

In addition to want of cleanliness, which ought to be borne in mind as a possible cause of pruritus, any condition which produces discharge may lead to it by its irritating properties on the vaginal mucous membrane. It is in this manner that cancer probably acts. By the extremely irritating effect of the secretion of the malignant uterus, body or cervix, an inflammatory condition is set up which leads to frequent scratching. In like manner, just before, during, and after the ordinary period, a most severe attack of pruritus may be set up in an otherwise perfectly healthy woman. This is doubtless due to some irritating properties of the secretion. Some women have periodical attacks of more or less severe pruritus at the time of the period, and are not bothered with it at other times. Some cases of pregnancy accompanied by pruritus vulvae are most instructive, for they only occur at certain times and at no others. In the latter cases extensive areas of the skin may be affected, and an attack commencing in the region of one of the nymphae may lead to intense scratching over all the lower part of the abdomen. At the very beginning of the attack of pruritus in pregnancy the irritation may be trifling and the scratching may be confined to a small limited area in the vestibule, but if the attack does not quickly pass off the wave of irritation increases to such an extent that finally the patient scratches the whole of the lower part of the abdomen. I have seen large areas of the skin of the abdomen covered with bleeding marks from scratching.

An ordinary attack of eczema, which is quite common in the region of the vulva, may bring on pruritus. It does not always do so, for I have seen many cases of eczema of the vulva with no real pruritus. On the other hand, very slight cases of ordinary eczema of the labia may be the means of producing most severe attacks of pruritus. I have seen most distressing cases of ordinary eczema, which has rendered life almost intolerable in gouty women, and I have observed that the eczema has always started first and the pruritus followed. In some of these cases of ordinary eczema, if one is fortunate enough to cure the patient quickly by treatment, no pruritus develops. If, on the other hand, it is obstinate in yielding to treatment, pruritus may come on.

There is one source of origin of pruritus which ought to be mentioned, and that is the presence of a pessary. Some women are very careless about themselves and are apt to

forget about wearing any support at all. I remember well one old woman who came to the hospital on account of severe pruritus vulvae. The cause was the presence of a pessary which she had worn for many years, and which she had forgotten entirely. On removing the pessary, which was thickly coated, there was ulceration of the vaginal walls from pressure. After the removal of the pessary and proper treatment she lost the pruritus.

Another cause of pruritus vulvae is undoubtedly masturbation. The onset is doubtless due to the irritation caused by the removal of the superficial epithelium in consequence of friction with insufficient lubrication. It leads to the attacks of pruritus in the same manner as a minute crack or fissure of the mucous membrane.

There is one local trouble which you will find mentioned as a common cause of this affection, and that is small varicose veins. I have never been able to satisfy myself that varices produced pruritus, for in association with them I have always found some chronic discharge, which I have put down as the cause of the pruritus. I cannot recollect any case where I have seen small veins alone bring on the attacks.

There is one source of origin of the affection which may be easily overlooked, and which will show the importance of having a thoroughly good light for examination, for apparently it is very slight. It consists of one or more ulcerations, which in appearance may be healthy. These are usually situated round the orifice of the vagina beyond the hymen, sometimes on the hymen itself, called by Matthews Duncan⁶ lupus minimus. These little ulcerations heal up with or without treatment, and break out in other parts. They are usually associated with little hypertrophies, such as hypertrophies of bits of the hymen or of the orifice of the urethra. These spots of ulcerations are exquisitely sensitive, and I have elsewhere called attention to them as being a cause of dyspareunia, and also of vaginismus. I consider them of great importance in the etiology of pruritus, especially as they may easily escape detection, and my belief is that in certain cases of so-called essential pruritus they are really the origin of the disease. In some cases I have discovered a small ulcerated surface at the posterior fourchette, much larger than the minute ulcers I have mentioned. The size seems to depend on the amount of time the ulcer has been in existence, for the edges are apt to be slowly extended, but the growth in circumference is extremely slow. I feel sure that many cases of pruritus have these small ulcerations as their starting point, leading to exposure of the terminal filaments of the sensory nerves distributed to the vulva and vagina. If a careful search be not made for them they will certainly be overlooked, and the patient suffers from want of success in the varied treatment. In *Surgery of the Rectum* Sir F. Wallis⁷ remarks that the chronicity and great frequency of cases of pruritus ani in the out-patient department of St. Mark's Hospital made him investigate for some possible cause, and that some years ago he made a point of examining every case of pruritus ani both digitally and by means of a speculum. In over 90 per cent. he found a small shallow ulcer situated usually between the two sphincters, more often in the posterior half than in the anterior, and generally near the dorsal mid-line. In some cases there were more than one ulcer, which was usually a shallow, oval livid abrasion, differing markedly and mainly in colour from the normal mucous membrane. I consider this extremely instructive, that in so large a percentage the cause was discovered.

Essential Pruritus.

We now have the other division of the etiology—namely, the essential pruritus. I cannot assert that there is no such condition, but I maintain that it is exceedingly rare. In very nearly all the cases with which I have had to do I have almost invariably been able to trace the cause of the disease. There are, however, two well-marked exceptions which have impressed themselves upon my mind.

One was that of a lady sent to me from the country by her family physician, who told me that he had tried everything he could think of in the way of treatment without any good whatever. The patient, aged 42, had suffered from continuously severe attacks of pruritus, generally commencing soon after getting into bed at night, and sometimes waking her up in the middle of the night. I examined her most carefully, but could find absolutely nothing which seemed abnormal, either in the

vulva, vagina, or cervix, uterus or adnexa. There was this peculiarity, that the intense itching seemed high up in the vagina, and that the patient did not scratch, for she found that any pressure or scratching of the vulva did not give the slightest relief. She knew that the intense itching was too high up to be reached, and she therefore bore the irritation as long as she could before using some vaginal douche.

Another case was that of a widow, aged 46, whom I saw in consultation with her own doctor. Her case was similar to the last, inasmuch as the irritation came in severe paroxysms, high up in the vagina. I examined her most thoroughly, and could detect nothing wrong, either in the vagina, uterus, or adnexa. This lady told me that she had the most maddening attacks of itching in the night. She could obtain no relief from scratching, and therefore there was no temptation to scratch, so that the vulva was perfectly normal, and showed none of the usual signs with which we are familiar in the ordinary cases of pruritus.

In both these cases, although I could detect nothing, it is open to anyone to say that possibly had I dilated the uterus or urethra or cystoscoped the bladder, I might have found some cause for the severe attacks of itching. These cases certainly appear as those which might be classified under the term "neurosis." There are certain neurotic patients who experience sexual excitation in the form of itching, which often leads to masturbation, and in them no apparent external cause can be discovered. Such cases are found in asylums and amongst those suffering from nervous affections. In them the centre for the pudendal nerves may be affected so that irritation may be perceived at various parts of the vulva, sometimes at different points of the vestibule, and sometimes in one or other labium. In any case, scratching produces temporary relief, and with it those changes in the tissues which themselves lead to scratching, so that a vicious circle is established. The scratching eases the itching for a time, but the very relief which is brought about is at the cost of minute changes in the tissues which cause further scratching.

PATHOLOGY.

The most important point to determine with reference to this is whether it is to be looked on as a purely local disease, or as a neurosis. Some⁸ regard it as a sensory neurosis, and that it is a nerve disturbance "without associated appreciable structural change, and the provocative irritation may be either of reflex origin or direct, and may have its seat in any part of the nervous system, from centre to periphery. The tissues remain unaltered throughout the entire course of the malady, except so far as secondary conditions are in some instances brought about by persistent scratching and rubbing."

The sensory nerve supply of the vulva is contributed by the inferior pudendal, the ilio-inguinal, and the genital branch of the genito-crural nerve, as well as by the two perineal branches of the pudic, and the nerve of the dorsum of the clitoris. In any part of the course of these nerves, from the origin onwards, it may be contended that some pathological change takes place which starts the irritation at certain points. The local changes are those with which, in the vast majority of cases which come before us, we have to deal. It will depend much on how long the pruritus has lasted what changes we find. In those which have lasted a long time we shall see those evidences of chronic change in the vulva and its neighbourhood with which those who see these cases frequently are familiar. The skin has lost its freshness, and appears duller in colour than natural. There may be a distinct hypertrophy of the nymphae and labia majora, which feel hard and leathery to the touch, or there may be merely slight oedematous infiltration. If the disease has lasted a considerable time, the appearance of the tissues reminds one sometimes of those soaked in spirit as to colour and consistence—all the elasticity has gone. There are invariably also signs of severe scratching in the fissures, and blood-covered marks all over the affected region, and in some cases regular ulcerated patches. Veit⁹ says that "microscopically, in the thicker parts of the skin which show these changes due to pruritus, there is an inflammatory parakeratosis, a picture of subepithelial small-celled infiltration. The formation of keratin is arrested, and in this way desquamation of the horny layers takes place irregularly. The process is distinct from vaginitis, in that the epidermis as a whole, and in its external layers especially, undergoes an even thickening, in contradistinction to the thinning process that takes place in vaginitis." In one case of pruritus vulvae

K. Czerwenka¹⁰ found "hypertrophy of the papillary connective tissue, atrophy of the epithelium, multiplication and distension of vessels, diminution of the glandular cutaneous elements, as well as subepithelial round cells."

These local changes are well described by Webster¹¹ and by Saenger,¹² and they are taken from the examination of portions of skin removed by operation in intractable cases of pruritus. The clitoris is the most sensitive part of the vulva, and next to that is the preputium clitoridis, the nymphae, and finally the labia majora. Two groups of the genital bodies known as the genital corpuscles of Krause—tactile corpuscles of simple structure, believed by him to be peculiar to the genital organs—are contained in the clitoris. One lies on either side of the central line of the glans, and these are more abundant on the upper surface. At the posterior part of the glans clitoridis, near its junction with the prepuce, there are a few Pacinian and a few Meissner's corpuscles. These nerve terminations are the sensory organs of the vulva.

What we have to refer to is whether these local changes, which for practical purposes may be described as leading to fibrosis of the nerves and nerve endings, and a kind of fibrous degeneration of the skin and subcutaneous tissues, give rise to the pruritus, and are therefore primary, or whether they are due to the irritation caused by the continued friction. Those who have studied this disease will most likely come to the general conclusion that all these changes in the tissues are due to irritation. It must, however, be borne in mind that there are certain cases of intense irritation coming on in paroxysms, with no changes to be observed. My own experience leads me to say that such attacks are merely temporary and do not last. Whenever I have seen a case which has lasted any time, and where scratching has taken place from the irritation, certain changes can always be made out.

It is thought by some to be conceivable¹³ that a diminution of the calcium content in the cutaneous tissue in the neighbourhood of the nerve fibres may be recognized as a direct cause of the pruritus vulvae. The relations of urticaria to pruritus establish the importance of the disturbance of calcium metabolism in the pathogeny of pruritus, for urticaria itself, according to Nesser, is comparable to a rupture in the normal equilibrium of metallic ions. The appearance of pruritus under the influence of ingestion of citric or oxalic acid in predisposed persons lends support to the theory of a relation between the diminution of calcium in the tissues and the aforesaid disturbances, for the acids take up this element. The same explanation attaches to the pruritus of icterus, in which the bile acids circulate in the blood.

In the case of so-called essential pruritus one ought to carefully ascertain the state of the organs regulating calcium metabolism. Our knowledge in this direction is, of course, limited, but Parhon thinks it feasible to affirm that among these organs the thyroid gland and the ovary play an important part. The thyroid gland acts as a fixative agent of the calcium, whilst the ovary—the antagonistic gland—acts as a decalcifying agent. According to this hypothesis of a disturbance in calcium metabolism, Parhon inclines to a thyroid deficiency, or excess of function on the part of the ovary.

It is right to mention that there are certain cases when the woman only complains of pruritus vulvae at the time of the period, or occasionally before the menstrual period has commenced. In one case I have seen several times, the patient complained that the sense of irritation which led her to scratch was referred to the vestibule at one time, at another to the labia majora, and yet another, to the clitoris and mons veneris. This condition of temporary pruritus may be referred to probably local congestion of all the parts, brought about by the onset of menstruation. I have known cases where there has not only been pruritus of the vulva, but intense irritation of the mammae, especially the nipples, accompanied by swelling of those glands. Or the pruritus at this time may be due to the fact that just before the onset of menstruation a vaginal discharge occurs. It is, then, of importance to endeavour to find in what way this discharge differs from the ordinary vaginal secretion. This may be done by an exploratory tampon before and after menstruation.

Kraurosis.

I must mention the pruritus associated with kraurosis. This disease has been described by Breisky of Prague and

by Lawson Tait. Attention has been devoted to it by Petit and Pichevin, as well as others¹⁴ in France. It must not be confounded with leucoplakia, from which it is distinct, but the two diseases may be met with together. According to Breisky, "Kraurosis vulvae is an atrophic retraction attacking the vaginal orifice, the labia minora, the fraenum and prepuce of the clitoris, and the interior surface of the labia majora. This retraction is accompanied by necrosis of the epidermis and by hypoplasia of the conjunctive tissue, causing retraction and shrinking of the genital organs." In these cases the patient usually complains of persistent and severe pruritus. In cases which have lasted a long time the vulva region shrinks and becomes indurated.

The finger feels as if it were penetrating an inextensive and rigid organ. Often milky-white opalescent spots are seen, having the appearance of leucoplakia. It is then known as white or leucoplakic kraurosis.

Other forms of kraurosis have been described besides the white kraurosis of Breisky. One of these is the red kraurosis (Lawson Tait's kraurosis, inflammatory, vascular, and follicular). Others are: Syphilitic, leucoplakic kraurosis, "senile kraurosis," and "post-operative kraurosis." This last form comes on after removal of the ovaries, and is of importance. With reference to the others, they are laid by some to ovarian insufficiency in the genesis of kraurosis. Some think it is owing to the abolition of the internal glandular secretion or to reflex nervous disorders, and others believe that secretory and nervous troubles may act simultaneously.

Before leaving the subject of the pathology, I should like to state that my own opinion is that the disease arises in many cases owing to the Pacinian bodies, genital corpuscles, or Meissner's corpuscles being denuded of their epithelium; from very slight but irritating ulcers, which could not be made out by the naked eye; or from friction, and therefore may be put down to "essential pruritus." We know how sensitive these bodies are, and when exposed it is conceivable that they may account for the attacks of pruritus.

PROGNOSIS.

This is often a matter of great difficulty. If the patient is seen in the early stages, there will often be no hesitation in giving a favourable opinion as to the future. If, however, the patient has suffered for a considerable time and there are already changes commencing in the skin and mucous membrane, much caution should be exercised, and it is only prudent to see the influence of treatment before saying anything definite as to prognosis. It is perfectly certain that if a case has lasted for a considerable time a cure is not likely to be rapidly effected, especially if the woman is unable or unwilling to follow exactly the treatment recommended.

TREATMENT.

And now, gentlemen, we come to the practical part of this subject. The etiology and pathology may be very interesting, but what we have to ascertain is the most rapid method of getting the patient well. The number of remedies used in the treatment of pruritus vulvae is legion, and when this is the case, we may be quite sure that we have to deal with a disease requiring much time to be spent upon its treatment, and possibly many alterations in applications and drugs. A careful investigation of each case, and an endeavour to study the etiology may greatly help towards treatment, and this is why causation should be regarded as of great importance. A thorough examination in a good light may enable the cause to be discovered at once, and such an examination should never be neglected. The proof of the great importance of this examination is furnished by the fact that after weeks of treatment by ordinary means, the discovery of a minute ulcer in the vestibule or elsewhere, leading to the application of the Paquelin or electric cautery, may be followed by a rapid and complete cure. I think that the simplest plan of discussing the various means of treatment is to divide the subject into treatment by (a) internal remedies, (b) by external remedies, and (c) operation.

I. Treatment by Internal Remedies.

In very slight cases of pruritus vulvae no internal remedies may be necessary, for the remedies which are usually applied externally will be sufficient. But in the more severe cases the nervous system is certain to be more

or less disturbed. In the so-called "Essential Pruritus," where no cause can be discovered, internal remedies are of the utmost importance. But before giving any of them in detail, it is right to say a few words about diet.

It is unquestionable that in a certain number of cases dieting seems to be of value, but in most severe cases I have never found that it is of the smallest use. In some cases the patient will at once tell you that certain articles are injurious and apt to bring on an attack, or aggravate the existing condition. Individual experience in such cases is of great value, and ought to be taken into consideration in prescribing. Generally speaking such articles as mustard, curry, pepper, chutney, ginger, or any high-seasoned dishes ought to be avoided. Alcohol should be forbidden, for it certainly tends as a rule to aggravate the condition. In old women, however, it seems to be of benefit sometimes, where they have been accustomed to it all their lives, and where there is much exhaustion.

I remember an old lady who used to have most terrible and exhausting attacks, coming on usually before dinner, when she seemed to be tired and in want of food. She hardly ever took any form of stimulant, but when the attacks became frequent and led to exhaustion, she was of opinion that a small quantity of alcohol was of benefit. At any rate, she did not suffer quite so severely after taking it regularly. I am seeing another old lady now who assures me that on the days she goes without stimulant she feels worse and suffers more from pruritus vulvae. I feel sure, however, that as a rule it is harmful in these cases.

In addition to the foregoing articles I have mentioned, I have known oysters, lobsters, crabs, and, in certain cases, any kind of fish, intensify the attacks. It is a good rule, therefore, in examining the patient for the first time, to ascertain if there is any special article of food or drink which is apt to make the attacks more frequent or more severe. Occasionally tea and coffee seem to bring on attacks, and to render the patient worse, which should be sufficient ground for their exclusion as daily beverages. At the same time I think it highly desirable with reference to any article of food or drink which may be mentioned as a possible cause of increasing the irritation, to make quite sure that it is really the cause, for on investigation in certain cases I have satisfied myself that diet has had nothing to do with the attacks.

Before prescribing for patients suffering from pruritus vulvae it is well to bear in mind that sometimes they may be sensitive to certain drugs, and it is prudent to ask if anything already prescribed has disagreed. I have known belladonna bring on pruritus, and one patient under my care could never take any form of opium without suffering from pruritus. Some consider these cases as toxic forms. The important point to keep in view in prescribing internal remedies is to endeavour to stop the paroxysm of intense itching, and at the same time to order such drugs as we know will act on the blood and nervous system, and prevent the patient becoming thoroughly run down, for the disease in the long run is a most exhausting one.

In ordinary cases demanding internal treatment I should certainly place bromides first. They have a soothing effect on the nervous system, can be given in fairly large doses and can do no harm. Ten grains of ammonium bromide, increasing the dose as may be deemed advisable, in combination with bark, and sometimes arsenic, may be given three times a day. I have sometimes given large doses of ammonium bromide with good effect in cases where the paroxysms of itching have been frequent and exhausting. Sodium bromide or potassium bromide, or the mixed bromides, may be equally of service, but I have formed the impression that when patients are taking ammonium bromide they are not so apt to become depressed as when taking the other bromides. It is said by some that strontium bromide may be taken for a considerable time without causing a bromide rash; and this bears out my own experience, but it is by no means to be relied on, for I have seen a bromide rash appear soon after giving strontium bromide. If the continued attacks of pruritus seem to be exhausting the patient I have given some bromide twice daily, in the morning and at bedtime, in addition to a pill containing phosphorus, arsenic, and nuxvomica, after meals. In certain cases zinc valerianate seems to be of much benefit. The salts of thorium are said to be of service on account of their radio-activity, but I do not know enough of their action to

say much about them. If anaemia is marked, iron in any easily digestible form may be given, alone or in combination with manganese and haemoglobin. The main consideration must be to stop the paroxysms of itching by any drugs which we know act on the nervous system, and if one is tried and gives no relief another must be substituted. I have found benefit from the administration of cannabin tannate in doses of from 3 to 5 grains three or four times in the twenty-four hours. Sometimes chloretone, in doses of from 5 to 10 grains three times a day after meals, has given great relief in a certain number of cases, but the effect does not seem to last long, and after a comparatively short time improvement is not maintained. Occasionally sumbul seems to afford relief in milder cases, but in severe forms it may not be of any service. In more than one case I have given aspirin and novaspirin with marked benefit. Either may be ordered three times a day, with direction to take 10 grains if a severe paroxysm comes on. In one very severe case the only drug which seemed to have any effect internally was opium, which I gave in the form of pill containing 1 grain three times a day. This was tried with benefit in a case which was one of the most severe I have ever seen. As a rule opium and its preparations are not well borne, for, although they seem to give temporary relief, the irritation appears to be made worse in the long run; they must, therefore, be used with caution.

Among the many drugs I have used internally I have mentioned the above because they have appeared to do more good than many others, but any nerve sedative may be tried, and sometimes many will have to be tried before one which gives any relief at all is found. Occasionally any of the coal-tar analgesic remedies give relief and may safely be tried for a time. Parhon and Panesco have found calcium chloride of use in pruritus. They consider that a diminution of the calcium content in the cutaneous tissues in the neighbourhood of the nerve fibre may be recognized as a direct cause of the pruritus. If there be a suspicion that the attacks are due to toxic absorption, salol and mercury in small doses may certainly be used with benefit. I believe they act both in the same manner, namely, as an antiseptic to the contents of the intestine. I may mention here that I have not had any benefit from the administration of thyroid gland or of ovarian substance. I have thought that the administration of ichthyol has given benefit. It may be given in 2½ grain tabloids, and of these two may be taken after each meal.

Before passing on to external treatment I must mention the necessity of procuring sleep. A fairly large dose of ammonium bromide, with ½ drachm of the tincture of hyoscyamus may produce refreshing sleep, and in a patient worn out with constantly disturbed nights owing to paroxysms of pruritus vulvae, a soothing draught given three or four nights running is often of the greatest service. As sleep is of the highest importance in treating these cases, whatever drug will give the most refreshing night may be used. Without a fair amount of sleep, women suffering from pruritus vulvae soon show signs of the nervous system being affected by the development of neurasthenia, intense irritability, etc. Morphine should not be given, for as a rule it does not suit these patients. Paraldehyde I have found of great service, commencing with ½ drachm, and increasing if necessary to 2 drachms, in almond mixture. In cases where the patient awakes to find herself scratching, it is a good plan to have the nails cut very short and to wear soft gloves.

Before commencing treatment by external application, it is a good rule to have the vagina thoroughly doused with an antiseptic lotion, which can be omitted in the case of unmarried women, the hair shaved away, the parts thoroughly washed with soap and water, and then to use some ether soap. This ensures thorough cleanliness of the skin and mucous membrane before any application is attempted.

II. Treatment by External Remedies.

It is natural to find in the treatment of this troublesome affection that all kinds of applications and lotions have been used, and that when one remedy has been of signal service in the treatment of many cases it should be specially lauded. My belief is that success with certain applications much depends on the time the pruritus has lasted and on the general state of the patient. In the

early stages, when the condition is not very troublesome, and it is not considered necessary to order medicine internally, a lotion of carbolic acid made up with spirit and rose water, or with plain water, to be applied immediately the itching begins, is valuable. The strength may begin at 2 per cent., and gradually increase until the percentage of carbolic acid is sufficient to stop the itching without itself causing irritation. It must be impressed on the patient that if she is to get well quickly she must resist the temptation to scratch. There is only one way in which this can be done, and that is by having some lotion at hand which can be used quickly to stop the irritation. If once the patient has given way to the temptation of scratching, nothing will stop her until the paroxysm is over and relief obtained. By the rapid application of whatever lotion is found efficacious the intense irritation is arrested, and the patient will soon learn that the self-restraint, however hard to practise, is of service to her, for the gratification of scratching is only bought at the expense of torn and bleeding skin and mucous membrane. If these cases are seen reasonably early, the secondary changes previously considered are not allowed to take place, for the patient is cured before they commence. In nearly all cases which are seen early much relief is afforded by bathing the parts affected with warm starch and water. It is best to have this about the consistency of ordinary cream. This can be employed every night before going to bed. Some prefer to have this as a sitz bath, and to remain in it for five or ten minutes. Sometimes a bran bath answers the same purpose. Three or four pounds of bran are mixed with boiling water as an infusion. The bran is strained off, and the water added to the warm sitz bath. In some cases a gelatine bath is preferred, or it can be mixed with bran water. In a certain number of cases these baths are excellent, or alkaline ones, containing sodium carbonate, borax, or potassium carbonate. But they are not always well borne, and this is especially the case if there is a tendency to eczema of the vulva, where they must be used with caution. In some cases ordinary soap should not be used in washing, but milk or the yolk of an egg, which forms a lather and does not irritate.

Cocaine, beginning with a 5 per cent. solution and increasing the strength if necessary, is often of great service. It may be commenced at any time, but it must be used with caution where there is any abrasion from scratching on account of the risk of absorption. I have formed the opinion, from frequent use in pruritus vulvae, that it cannot be continued long, for it seems to set up an irritation of its own. A severe sufferer for whom I prescribed it, told me that it was excellent at first, and gave great relief, but that she felt sure it produced great irritation, and she preferred after a time not to use it.

Kromayer¹⁵ speaks highly of the application to the affected parts of liquor potassae, which he says acts causally by destruction of the subepidermoidal pruritus vesicles which are the source of the irritation. Solutions of corrosive sublimate sometimes rapidly stop the paroxysms of itching. They may be used sufficiently strong as external applications, beginning with a weak solution, and increasing the strength if necessary, to deaden the sensitive condition of the affected parts, and at the same time weaker solutions may be employed for vaginal injections, as 1 in 2,000 or 4,000. Solutions of lead subacetate are often of use. Any remedy which quickly deadens the sensitiveness of the affected parts will be the most efficacious, because on this rapid action of the remedy in cutting short the paroxysm will its success depend. It is for this reason that certain sprays are useful, such as that of ethyl chloride, ozonic ether and chloroform. They are, however, although useful, not always at hand by day, if the patient is able to go about, and therefore a solution is as a rule more convenient. Sometimes the ordinary eau de Cologne, which is often at hand, may be used if the patient is not within reach of the solutions prescribed. Any soothing evaporating lotion may give more relief than anything else. Equal parts of water and eau de Cologne will make an agreeable lotion, which can be applied on lint which is frequently saturated with the lotion. It is prudent to be sure that there are no ulcerations or excoriations from scratching, for otherwise all spirit applications may cause considerable irritation, which lasts for some time. Occasionally solutions of citric

acid or oxalic acid afford relief, and the compound tincture of benzoin, painted over the affected parts, is of great service. In certain cases the action of the preparations of tar is most beneficial. But it is well not to apply them in the very early stages, as they are apt to be not so beneficial as in those cases which have lasted for some time.

In a certain number of cases I have found an application of boracic acid, with white of egg, give great relief. I believe it acts by covering the sensitive parts with a fine layer of albumen. Enough boracic acid to preserve the albumen must be used. One of the most useful applications is menthol dissolved in paroline. It may be used at the strength most suitable to the patient. It is best to commence with a weak solution, 5 or 10 grains to the ounce, and gradually to increase. If the attacks be at all severe, nothing under 20 grains to the ounce will be strong enough. I cannot speak too highly of this preparation, for it rarely fails to afford relief.

Another preparation which I have had the greatest satisfaction in using where the pruritus vulvae has lasted for some time is silver nitrate. This may be used in any strength up to 40 grains per ounce, and thoroughly applied all over the part affected.

In severe chronic cases I have painted the whole of the affected parts with the liquor epispasticus, with excellent results. This, of course, entails rest in bed for a time.

Turning now to ointments, we find that there are a very large number employed. In mild cases I usually commence with some bismuth ointment, and if the attacks are frequent, the addition of mercury subchloride, 1 drachm to the ounce, is certainly of use. It is sometimes more soothing if made up with elderflower ointment. This may be applied freely at bedtime, or at any time by day or night. Some patients find that ointments afford more relief than any other kind of application, and therefore it is best to change from one to another as soon as it is evident that improvement is not maintained, or that the ointment prescribed is unsuitable. Cocaine vaseline, 5 to 20 per cent., is often of immediate service, or it can be made up with any other ointment, but the same remarks apply to it as to the solution. Speaking generally, it is most satisfactory to apply soothing ointments in recent cases, and to reserve more stimulating ones for those which have lasted for some time. If the parts are red, irritable, and evidently inflamed, any bland unirritating ointment may be tried. It is unnecessary to mention anything like all the ointments which have been extolled in this formidable affection, but the ones I have derived most benefit from, in addition to those already mentioned, are carbolic, of whatever strength seemed to suit the patient, boracic, conium, chloretone and menthol. Occasionally a plain alkaline ointment, containing sodium bicarbonate, or creta preparata, is most useful, and in certain cases ichthyol, salicylic, naphthalene, and iodine (stainless) ointments are of service.

I must here mention that in those cases of so-called essential pruritus vulvae where the irritation seems to start high up in the vagina, the most soothing remedies are douches and vaginal tampons. Perhaps the most satisfactory of the whole is a douche of carbolic acid, from 1 part in 60 to any strength which affords relief. Sometimes 1 drachm of liquor plumbi subacetatis to 1 pint of water, plain boracic, or a mixture of sodium bicarbonate and elderflower water, with a little hydrocyanic acid, form excellent douches. Chloretone affords relief in some cases, given in a douche 0.5 per cent. in warm water. The temperature of the water must be regulated according to the patient's inclination. Although hot douches as a rule are agreeable, some prefer the temperature comparatively cool. In some cases where vaginal douching is agreeable, if it takes too long to get the douche ready, then vaginal tampons are often of great service. The patient knows that the more quickly the remedy is used the more speedily the pruritus will disappear. It is easy to saturate a tampon to which a string is attached with any solution, and insert it. I have found sometimes a weak solution of iodine speedily allay the irritation, but any of the above-mentioned remedies may be used.

Powders dusted on are in some cases more appreciated than any other kind of application. As a rule, however, they are not so effective as lotions or ointments. Occasionally I find that patients prefer ointment by night and the application of powders by day, as being more convenient.

Powders should all be triturated to render them as fine as possible, otherwise they are apt to increase irritation. Of these applications, finely powdered boracic acid by itself, or mixed with other powders, is very useful. Starch or French chalk, with zinc oxide and boracic acid, with or without calamine, makes an excellent application. To this may be added chlorotone, or finely powdered opium, if some more soothing application is required. In some cases finely powdered calomel will afford relief and rapidly bring about a cure.

I must here mention the injection of Schleich's fluid, composed of eucaine, into the sacral canal. Schubert¹⁶ has written an interesting paper on the subject, citing cases which were successful, but I have not tried this method, and cannot do more than refer to it.

In addition to the foregoing, I may mention the treatment by ultra-violet rays, high frequency current, electricity, the Roentgen rays, radium, and cataphoresis. Time will not permit of my doing more than mention these. I have tried them all, with the exception of the ultra-violet rays. Eltze¹⁷ speaks highly of the treatment of pruritus vulvae by the Roentgen rays, and quotes cases. I confess that I have been disappointed in its use in some cases, but it certainly seems to do good where there are thickened patches of tissue giving rise to constant irritation. Some years ago I tried electricity in hospital patients, and considered that the continuous current was certainly of some benefit in some cases. Cholmogoroff¹⁸ had great success with the galvanic current. Siebourgé (quoted by Veit) recommends the subcutaneous injection of physiological saline solution over the area at which the itching is worst. I have tried this treatment, but do not consider that I have used it sufficiently long to say much about it, although it certainly stops the irritation for a time.

I have formed a good opinion of the treatment by cataphoresis, especially in cases where there is minute ulceration present. Occasionally there is a good deal of reaction after this application, so that it cannot be again used for several days, and sometimes it is best to allow a week or ten days to elapse before repeating it. If a patient presents herself for the first time with severe pruritus vulvae, and with a history of all kinds of treatment, by far the best course to pursue is to let her go to bed and be properly nursed. The parts may be thoroughly covered, so as to prevent friction and exposure to the air, by some suitable application, such as a paste composed of calamine and zinc oxide.

I have derived much satisfaction from the use of pellanthum, which contains zinc oxide and zinc oleate. It can be applied freely, and forms by itself a soothing and adherent film, which can be easily removed. It can be mixed with carbolic acid, menthol, or whatever may be desired, and protects the affected parts from the atmosphere and from the risk of friction and irritation, and this is greatly assisted by complete rest in bed. It is sometimes quite extraordinary how well patients who have been suffering for considerable periods progress if these conditions be carried out.

Supposing that none of the above remedies are of service, some persons who are tired of treatment and long for a change of surroundings, and who can afford it, may wish to try foreign waters. In such cases, Franzensbad, with its moor baths, may prove of benefit; the muriated alkaline waters of Ems, Royat, etc., or the thermal alkaline waters of Vichy. In all these places excellent arrangements will be found for carrying out local treatment, and attention to the general health will be taken into account.

III. Operation.

And now we come to the final means at our disposal for treating what, in some instances, proves to be such a formidable malady—namely, operative interference. This method of treatment may be divided into:

- (a) The application of some form of cautery.
- (b) The excision of the affected parts.
- (c) Division of nerves.

(a) The application of Paquelin's, or the electric thermo-cautery is of the greatest value in treating those cases where minute ulceration is discovered. Sometimes one application of either cautery may be the means of curing a case which has lasted for many weeks. If there

be extensive or large patches of ulceration the cautery may be lightly applied over the whole surface; where there are chronic changes in the skin and mucous membrane of long standing, and no ulceration, I do not consider the cautery as good as the-knife.

(b) If the cautery has been used and has failed, and the patient shows indications of failing health on account of the constant wear and tear of body and mind, the affected parts should be excised. Should there be one patch in the vestibule or elsewhere which the patient is certain is the starting point of the pruritus vulvae, it can be dissected off, and the edges brought together with catgut. But if there be extensive changes, it will be best to freely remove the whole of the diseased parts, as suggested by Schroeder,¹⁹ including the clitoris, nymphae, and the adjacent parts of the labia majora. During this operation every diseased part must be removed. The remaining tissues are then drawn inwards, and attached to the mucous membrane of the vagina.

The most serious operation of all is the division of nerves, for although theoretically it ought to be excellent treatment, yet practically the operation requires much consideration on account of the possibilities involved. Sir James Y. Simpson is said to have been the first to suggest the division of nerves, but he credits Dr. Burns of Glasgow as being the first to recognize "neuralgia and hyperaesthesia of the vulva, and to cut the pudic nerve for it." According to Hirst²⁰ the incisions of Burns could not have touched the pudic nerve, and the modification by Simpson of the operation by Burns he considers was still less likely to injure the nerve. Since Simpson's time the pudic nerve has really been resected in some of the later operations, but the disadvantages of this resection are that there is danger of depriving the sphincter ani of its innervation, and so producing incontinence, and of not depriving the vulva of its sensory nerve supply, which has been referred to before. This nerve supply can be cut off by four incisions, two in the groin as for Alexander's operation and two in the buttocks parallel with the ascending ramus of the ischium, beginning just above the tuberosity and extending upwards for 2 in. If the clitoris is involved the dorsal nerve must be resected just above the bifurcation of the pudic nerve into its two branches.

In advising this operation for the patient we must bear in mind that the last state of the woman may be worse than the first, and that, in our anxiety to cure the pruritus vulvae, we must not fail to take into consideration the likelihood of atrophy of all the parts with development of kraurosis vulvae and possibly the occurrence of epithelioma, which is occasionally seen with kraurosis. In the rare cases in which I have been asked for my opinion with reference to this operation for division of the nerves I have decided against it, for I have felt that we have not yet had sufficient experience to speak with certainty of its results and the consequence of the anaesthesia of the vulva following on the operation.

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