external popliteal, posterior tibial, median, and ulnar, on each side, and the right musculo-spiral—thirteen in all. The great majority of these nerves presented well-marked changes, and none of them were wholly unaffected. The changes found were summed up as overgrowth of the fibrous elements of the nerve, with atrophy and degeneration of the nervous elements. The left posterior tibial nerve was looked upon as the most diseased of the nerves of the lower extremities. This nerve, as a whole, was distinctly diminished in size, and the overgrowth of the fibrous framework was well marked; the hyperplasia affected all the fibrous elements—epineurium, perineurium, and endoneurium; the perineurium formed a series of richly nucleated concentric laminae, which in many cases encroached considerably upon the nerve-bundles; the nerve-tubules were more or less atrophied and degenerated. These changes were found, though slightly less advanced, in the other nerves of this extremity examined; and the corresponding nerves of the right lower extremity were affected in an exactly similar way, though in a slightly less marked degree. Of the nerves of the upper extremities, the left median was taken to be the most affected. The epi-, peri-, and endoneurium were all hypertrophied, but the chief characteristic of this section was the great widening of the perineurial lymph-spaces, caused by shrinkage of the nerve-bundles; these spaces were more or less filled with a loose spongy sparsely nucleated connective tissue, which was seen in many bundles to be connected with thickened bands of the endoneurium. The nerve-tubules were much atrophied and degenerated. This dilatation of the perineurial lymph-space, with loose connective tissue contents, was much more marked in this nerve than in any other, but most of the other nerves presented more or less evidence of it. Of all the nerves examined, the right musculo-spiral was the least affected, the changes here being only slight. On the whole, the changes described appeared to be a little more marked on the left side than the right. The disease also appeared to be more advanced at the distal than at the central ends of the nerves; and the conclusion was, therefore, hazarded that the disease had its starting-point at or near the periphery, and travelled upwards, but a sufficient number of sections was not made to prove this absolutely.

The question was raised as to the nature of the disease. Was it to be looked upon as a chronic interstitial inflammation, which had gradually invaded the nerve-bundles, and caused them to dwindle; or had we to deal with a primary degenerative atrophy of the nerve-tubules, with sequential hyperplasia of their fibrous framework? The evidence was not deemed sufficient to draw a positive conclusion; but the appearances presented by the left median nerve seemed rather to suggest a primary atrophy, for here the nerve-bundles had obviously shrunk out of proportion to the fibrous overgrowth, and the space thus left was occupied by a loose connective tissue, which might be looked upon as representing the earliest phase in the development of the concentric laminae of the thickened perineurium. There was, however, no reason to doubt that the localised symmetrical gangrene was directly dependent upon the changes in progress in the nerves; and should the above observation be confirmed by others, it would tend to take Raynaud's disease out of the category of neuroses by giving it a tangible material lesion to rest upon.

RUPTURE OF THE UTERUS DURING PREGNANCY,

WITH NOTES OF A CASE.¹

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RUPTURE of the Uterus during Pregnancy stands in marked contrast to Rupture of the Uterus during Labour, partly because it is an accident of very much rarer occurrence, but especially because its causation is little understood.

In considering the subject, it is necessary to restrict the expression "rupture of the uterus during pregnancy" to cases where the fetus has not reached a considerable size, otherwise the causes producing rupture of the uterus during labour, causes that are well understood, come into operation. The causes of rupture during labour may briefly be described as follows: some obstruction exists opposing the advance of the child; whether the obstruction is pelvic contraction, unusual size of the child, or malpresentation does not matter: the uterus continuing to contract, thickening of the upper part of the uterus occurs, while its lower segment becomes thinned. If assistance is not given, the lower segment becomes more and more thinned, and finally ruptures. It is to be noted that rupture of the uterus during labour

almost always begins in the lower segment. No such explanation will help us to understand cases where rupture of the uterus occurs about the middle period of pregnancy, when the fetus is small, and when labour has not commenced, and where no mechanical violence has been used. Cases where the uterus ruptures during pregnancy, as the result of a severe blow, are not difficult to understand; clearly, the blow need only be hard enough, and sufficiently well-directed, to be in itself a satisfactory explanation of the accident. It is the residuum of cases where nothing of the kind has happened, where pregnancy is not far advanced, and where nothing unusual has been noticed up to the time of the rupture, that present a difficulty.

In Trask's monograph on Rupture of the Uterus, 303 cases are recorded; of these 38 only are classified as ruptures during pregnancy, the others all being cases of rupture during labour. On a careful examination of the notes in each of these 38 cases it appears that the number must be considerably reduced, first by taking away cases where the evidence that they were really cases of rupture of the uterus and not some other condition, for instance abdominal extra-uterine pregnancy, is unsatisfactory, and second, by removing those cases which were really cases of premature labour, the pregnancy having advanced nearly to term. When this reduction has been made there remains 16 cases where the evidence of rupture is fairly conclusive, 14 of spontaneous rupture, and two of rupture due to mechanical violence. Trask's monograph was published in 1847, and he appears to have collected all the cases he could find recorded from about the year 1700 to the time of writing. I have only been able to meet with records of two cases of spontaneous rupture, in addition to the 14 in Trask's paper—one by Lustgarten, quoted in the *British and Foreign Medico-Chirurgical Review*, and the other in the *Glasgow Medical Journal* for 1861. To these I will provisionally add my own case, making 17 in all. Though no doubt others have been recorded, and might have been found by a further search, still a group of 17 cases of a very rare condition may be taken as representative, and affording material from which some general conclusions on the nature of the accident may be drawn. I propose to read notes of two of the cases, first that from the *Glasgow Medical Journal* of 1861, and then the notes of my own case.

CASE I.—B. T., aged 37, unmarried, a farm-servant. The day before the accident, the patient had walked four miles and milked a cow, but there is nothing to suggest that she had undergone any unusual exertion. She went to bed, after a good supper, in good spirits, and apparently quite well. Soon after, about 11 P.M., she complained of pain in the stomach and bowels. When asked if she had walked too far, she answered that she had not. She vomited, and continued in pain till 7 the next morning, when she died. On *post mortem* examination, the abdomen was found to contain enough blood and clots to fill a washhand-basin. Projecting from the pelvis there was a large tumour, covered with clotted blood. This, on further examination, was found to be the uterus. A fetus of about the fourth month, covered by its proper membranes, was seen partially protruding through a rent in the fundus of the uterus. The rent was right across the fundus, and measured transversely $4\frac{1}{2}$ inches, and from before back $3\frac{1}{2}$ inches. The uterus at the seat of rupture appeared normal in structure, and at no part of it was there any appearance of disease. At the os uteri and in the neck of the uterus was found a plug of clear mucus, completely closing the cervical canal. It may be mentioned that no diagnosis was made during life; and that there was, till the *post mortem* examination, some suspicion that the patient had been poisoned.

The other case is that from which the specimen shown was taken and came under my care at the London Hospital.

CASE II.—A. D., age 33, had had six children, the last about a year and ten months before admission. At the time the accident happened she believed herself to be five months pregnant. She had not menstruated for five months. Nothing had occurred during the pregnancy different from what she had experienced on other occasions. On October 12th, about 3 P.M., while going upstairs, she was suddenly seized with severe pain in the abdomen, and became rapidly blanched and collapsed. When the pain seized her she felt as if something had given way in the abdomen, and stated that she heard a crack. Vomiting occurred soon after. She was seen by someone from a neighbouring dispensary, but after a time, the friends becoming alarmed, Dr. Wheeler Brown was called in. This was about 11 P.M. He at once recognised the gravity of the case, and brought the patient up to the London Hospital. She was admitted about one o'clock in the morning, and shortly afterwards Mr. Blaxland, the resident accoucheur sent for me. When I saw the case about a quarter past two the patient was much less collapsed than I was told she had been some time before. She was able to answer questions, and in fact sup-

plied most of the history that has been already given. The pulse was small and compressible (120). She looked pale and anxious, and complained of pain over the abdomen. The abdomen was tender. The patient was very fat (subsequently it was found there were two inches of fat in the abdominal wall) and nothing definite was made out by palpation. She was then examined under chloroform, her own consent and that of her husband having been previously obtained to an operation if it should be thought desirable. Even under chloroform the examination was unsatisfactory. The abdomen, on palpation, had an indistinctly "doughy" feeling. On vaginal examination the uterus was made out to be much smaller than would correspond to a five months' pregnancy, and it had not the globular shape of the pregnant uterus. There was slight oozing of blood from the os uteri. According to the history there had not been more than a mere trace of blood lost from the vagina.

This being the state of the case, it will be seen that the diagnosis presented very great difficulty. First, as regards the existence of pregnancy at all, there was nothing to rely on but the patient's own statement. It is true there was a little milk in the breasts; but in a woman who had had a child only twenty months previously, and had suckled it, this, of course, was worth very little. The fœtus could not be felt on palpation of the abdomen; and by vaginal examination it was certainly ascertained that the uterus did not, at the time of examination, contain an ovum of anything like five months' development. Again, considering the question of tubal foetation, according to the patient's account, she was five months' pregnant, and had not menstruated during that time, nor suffered from any pain in the abdomen; whereas, had it been a case of tubal foetation, we should expect rupture to have taken place at least two months earlier, and also that there would have been a history of irregular hæmorrhage and more or less pain. On the whole, the question seemed to lie between so-called spontaneous rupture of the uterus during pregnancy and an extra-uterine foetation, not, at all events, of the ordinary tubal variety, which had burst.

I came to the conclusion that the best plan would be to make an exploratory incision, as, even if the diagnosis should turn out to be wrong, the patient's risk would not thereby be much increased. On opening the peritoneum, it was found to contain a large quantity of blood and recent clot, and the hand came upon a fœtus and placenta lying loose among the intestines. The fœtus lay much nearer the liver than the uterus, the placenta being midway between the fœtus and the uterus. The membranes, which were twisted into the form of a band, passed downwards and to the left, and were found to lead to a tear in the left side of the fundus uteri. The rent was still bleeding a little. The fœtus, placenta, and blood-clots were removed; and the tear in the uterus stitched with deep sutures of silver wire and superficial catgut sutures. A glass drainage-tube was inserted at the lower angle of the abdominal wound, and this was closed in the usual way. The patient was very cold when removed to bed. Hot bottles were applied to the feet, and enemata of brandy given. She recovered consciousness about 9.30 A.M., and complained of pain, but gradually sank, and died about 12 (noon), seven hours after the operation.

A careful examination of the uterus was made after death. The sutures used for the tear at the operation were removed. On opening the uterus it became at once evident that the fœtus had never been *in utero* at all. The cavity of the body of the uterus was lined by a decidua from one quarter to three-eighths of an inch thick, in places partly detached. A glass rod passed from the cavity of the uterus through an aperture corresponding in position to the inner end of the left Fallopian tube, and appeared at the inner end of the tear in the fundus. Evidently then the ovum had developed in that part of the left Fallopian tube which passes through the wall of the uterus, that is to say, it was a case of interstitial gestation. The tear extended from the point where the left Fallopian tube entered the uterus inwards, and a little backwards across the fundus. The tear was two and a quarter inches long and two inches deep. At the inner end of the cavity formed by the tear, looked at from above, was a round hole, about three-sixteenths of an inch in diameter, which led into the cavity of the uterus. The whole uterus measured six and a quarter inches in length. The width between the Fallopian tubes is about five inches. The fœtus removed was exactly eight inches long.

Now as regards the causation of rupture of the uterus during pregnancy, if we exclude cases where there is a history of a violent blow on the abdomen and cases where rupture has occurred from attempts at criminal abortion, I would suggest that the accident is due to the presence of an interstitial gestation, that is, to a fertilised ovum having lodged and developed in that part of the Fallopian tube which passes through the wall of the uterus. In support

of this view, we have, first, the fact that in all the cases where the seat of the rupture is accurately described the rupture has been at the fundus or involved the fundus. Thus, out of the seventeen cases of spontaneous rupture to which reference has been made, the rupture was at the fundus or involved the fundus in ten; of the others, in six cases the position of the rupture is not definitely stated, and in the remaining case the uterus was two-horned. Now the fundus is just the part at which tearing of the uterus must occur when an interstitial gestation ruptures. A fertilised ovum lodging in the part of the Fallopian tube that passes through the wall of the uterus may be compared to an interstitial fibroid tumour that is growing. Such a fibroid may grow towards the peritoneum and become a sub-peritoneal fibroid, or it may grow towards the mucous surface of the uterus and form a submucous fibroid, or it may remain interstitial, and as it increases in size form a projection both towards the mucous membrane of the uterus and towards the peritoneum. So it is with an ovum developing in the interstitial part of the Fallopian tube. If, from its original position, it forms a projection chiefly towards the peritoneal aspect of the uterus, then, at the time of rupture, the rupture will be most extensive on the peritoneal aspect; that is, the tear in the peritoneal coat will be longest, that of the muscular coat of the uterus not quite so wide, and the mucous coat will only be torn a little or hardly at all. My own specimen belongs to this variety.

If, on the other hand, as the ovum grows, it forms a projection chiefly towards the cavity of the uterus, then at the time of rupture the tear will be most extensive on the mucous surface of the uterus, less extensive as regards the muscular coat, and the peritoneal coat will be torn least. A case in Trask's series illustrates this point.

Patient, aged 28, good health, first pregnancy. At sixth month, while reaching over a flour barrel, felt something give way, and had pain in the abdomen where she rested against the barrel, which continued. Ten hours after this she had labour pains; the os partly dilated, and in four hours delivery took place. Placenta separated by the hand with difficulty, child alive. Patient died ninety-six hours after delivery.

Post mortem. Fœtid gas escaped from the abdomen. Uterus torn at the left extremity of the fundus above, and very near the Fallopian tube; the rent of the peritoneum not over three-fourths of an inch; that of the uterine substance greater. The lining of the uterus elsewhere looked well.

If, however, as the ovum grows it forms a projection both towards the peritoneal aspect of the uterus and towards the mucous membrane (and this will be very likely to happen if rupture is delayed to a somewhat later period, such as the end of the fifth month), then at the time of rupture all the coats of the uterus will be torn to about an equal extent. When we consider that the interstitial part of the Fallopian tube is normally only about one-half inch long, and that the ovum may develop sufficiently, as in my own case, to contain a fœtus eight inches long, it will, I think, be evident that this explanation of so-called spontaneous rupture of the uterus during pregnancy is a reasonable and probable one. In the specimen shown, had the decidua, as might easily have happened, been detached and expelled (it is partly detached here and there), and had the laceration towards the mucous surface of the uterus been more extensive, there would have been nothing to show that the fœtus had not been *in utero*, and the case would have been set down as one of spontaneous rupture of the uterus during pregnancy.

Again, to take up another point, spontaneous rupture of the uterus in pregnancy has been considered to be due to some pathological softening at the seat of rupture. Now, such pathological softening would no doubt furnish us with a satisfactory explanation of the accident; but in the group of cases I have collected there is no satisfactory evidence that any disease of the uterine tissue existed at all. The evidence, in fact, is all the other way. Thus, in four cases, including my own, the uterine tissue is specially said to have seemed quite healthy; in seven cases, nothing at all is said about the condition of the uterine tissue; in the remaining six, one was a case of two-horned uterus; in the five others, there is mention of pathological change in the uterine tissue, but the expressions used are exceedingly vague: for instance, in one it is stated, "structure of the womb rather softened;" in another, "body of uterus rather thinner and softer than natural;" in another, "uterine tissue healthy, except about the rent, where it was evidently softened," and so on. It will, I think, be admitted that such vague expressions rather suggest that the observer has perhaps persuaded himself that some softening, or other change, must have existed, in order to find an explanation of an accident that would otherwise have been inexplicable.

As regards diagnosis, this must always be a matter of the greatest difficulty. Out of the series of seventeen cases referred to, a diagnosis

seems to have been made only in three; and in only two of these, one in Trask's series and the other my own case, was the diagnosis thought sufficiently probable to justify opening the abdomen. In the histories we read that many of the cases were thought to be due to, for example, acute peritonitis, rupture of the liver, colic or lead poisoning, and so on.

In regard to treatment, I think it is a point of much significance that the only case that recovered in all the seventeen cases, was one that was treated by gastrotomy two hours after the accident. In my own case, the operation was done eleven hours after the accident, and the patient had already lost a very large quantity of blood. The rupture was still bleeding a little at the time of the operation: had the operation been done several hours earlier, the prospect would have been very much better. On the whole, when the history, and particularly the sudden onset of symptoms, render a diagnosis of rupture of the uterus, or of rupture of an extra-uterine gestation, probable, I think an exploratory incision would be the best treatment to pursue.

To recapitulate.—(1) The expression "rupture of the uterus during pregnancy" should be limited to cases where the fetus has not reached a large size. Cases of premature labour should not be included, as then the causes producing rupture of the uterus during labour come in, which are of an entirely different nature. (2) Ruptures of the uterus from direct violence or from attempts at criminal abortion should be excluded, the cause of the accident here being evident. (3) The evidence that pathological softening of the uterine tissue is the cause of so-called spontaneous rupture of the uterus in pregnancy is altogether unsatisfactory. Though it is not intended to deny that morbid softening of the uterine tissue, when there is proof that it exists, would be a sufficient explanation of the rupture. (4) It is here suggested that limiting the expression rupture of the uterus during pregnancy in the manner described, this accident is always due to the presence of an interstitial gestation. (5) That cases where the diagnosis is fairly probable should be treated by exploratory incision.

ON LICHEN ANNULATUS SERPIGINOSUS (WILSON).

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AMONGST the late Sir Erasmus Wilson's *Portraits of Skin-Diseases*, published in 1847, is a representation of what is described as a peculiar form of lichen. It is illustrated, also, in the collection at the Royal College of Surgeons, and in that at Guy's Hospital, and is a form of eruption well known to those specially interested in the subject. To sum up the eruption shortly, it is characterised by a considerable number of rings, generally situated on the upper part of the back and the breast, and liable to be mistaken by the unwary for tinea versicolor. It commences by tiny papules, which become flat, erythematous discs, half an inch in diameter, bounded by a sharp and defined margin. As they spread circumferentially, they project all round, or at some portion of, their borders bright red papules, and rapidly increasing in diameter to one, two, or more inches, they are converted into rings or segments of circles with a tawny centre covered with a corrugated cuticle, or even slight mealy exfoliation. By confluence, the rings may form an extensive patch, upon and around which traces of circles are visible. The papules may be entirely absent from some patches, and the margin be simply raised and frayed. The affection is chronic and itchy, and its distribution over the sternum and in the hollow of the back between the shoulders very characteristic. Wilson says that, whilst this is the usual distribution in young men, in elderly people it chiefly occupies the loins, and in women the limbs as well as the trunk.

Now, although this eruption is well known, its exact nature has been a subject of much discussion, and, amongst other things, a parasite has been strongly suspected, but not proved, to be the cause. An attentive examination of the cases coming under my notice has led me to the conclusion that the name lichen is a misnomer for it, and that it is in reality a peculiar phase of seborrhœa.

A point to be noticed before proceeding further is the fact that this affection is not recognised out of England, as far as I know, under the name here given to it. Turning our attention now to seborrhœa, it appears, on reference to the literature of the subject, that seborrhœa of the face has been universally recognised since Biett, and later on Rayer, first described it. I do not find any mention, however, of seborrhœa of the body or limbs by French writers, such as Bazin and Hardy, or by English writers. Hebra, it is true, described a widely diffused form of oily skin (*S. oleosa*) and a generalised *S. sicca*, but the latter is only what we understand by the pityriasis of various

wasting diseases, especially tuberculosis. In the United States different views exist. Van Harlingen, writing in 1878, says, "there is one variety of seborrhœa sicca, which is essentially the same disease as those just mentioned. This is found in its most characteristic form on the chest and back, in the shape of nummular or annular patches, made up of a reddish base, surmounted by yellowish, brown, fatty, pellicle-like scales, occasionally massed together to form a greasy coating." He found extensive fatty degeneration of these scales, and noticed that they left a greasy stain on a piece of paper. Bulkley wrote to much the same effect; and Dühring, in his well known work, gives an excellent account of seborrhœa corporis; and the point I wish to bring out is that I do not think anyone can doubt that he is describing Wilson's lichen annulatus.

The question will, no doubt, be put, "Allowing this, are they right in the United States, in including this so-called lichen with seborrhœa?" I think so, and on the following grounds. Seborrhœa certainly takes on a different aspect in various portions of the surface. We all know that, in extensive seborrhœa of the scalp, the skin beneath the fatty crusts is usually of a characteristic ashy-grey colour; but when, as is frequently the case, the disorder extends beyond the hairy scalp on to the forehead, the skin assumes a bright congested aspect, like an eczema, and the surface is but scantily covered with greasy scales. Then, again, on the face, the different phases of seborrhœa, with varying degrees of congestion and scaling or crusting, are well known. Further, the so-called lichen annulatus is often associated with seborrhœa of the face and scalp, and the remarkably greasy coating of the eruption on the body is very striking under the microscope. I ought to mention that I have never detected the presence of a fungus. Lastly, I would add that many cases coming under the category of *L. annulatus* are less marked than in the typical case portrayed by Wilson; and, in such cases, the papulated rings are the exception, and the bulk of the eruption is made up of patches indistinguishable from seborrhœa of the forehead. I will give, very shortly, one or two such cases.

CASE I.—A gentleman, aged 25, consulted me lately for a chronic disease of the scalp, axillæ, and chest. The scalp was the seat of marked seborrhœa, extending on to the forehead. The hollow of each axilla was mostly occupied by a somewhat infiltrated, uniformly dull red patch, never weeping, and covered with slight greasy scales. On the chest were several oval or rounded patches, one as big as the palm of the hand, faintly red, with a brighter border and a few erected follicles. There was no clue to any eczematous lesions past or present.

CASE II.—A gentleman, aged 23, was sent me for moderately severe seborrhœa of the scalp. On each side of the nose and on the cheek was a broad irregular band, half an inch wide, faintly reddened, not actively inflamed, covered with little adherent scales, greasy, but never weeping. This face-eruption was very chronic, and reminded one of some slight cases of lupus erythematosus, but there was no trace of scarring, and no clue to the formation by the confluence of discs. The point of the nose was the site of a similar, though fainter, patch with plugged follicles. On the chest were several similar, more or less rounded areas, but the lowest one was very significant. It was the size of half the palm, irregularly oblong, pinkish in colour, with very little scaling or infiltration, and simulated a ringworm by the appearance of projection and freshness of the border, which was studded with a number of small, congested, and erected follicles. A few papules existed, also, over the surface, and it was evident that, as the patch spread, the follicles were specially involved, and, later on, the congestion mostly subsided. The scales were crowded with oil-globules and granules.

CASE III.—A Scotch gentleman was sent me, with typical seborrhœa of the scalp, extending to the forehead and temples, also across the bridge of the nose and adjoining portion of the cheeks. The chest looked, at the first glance, as if it were the seat of tinea versicolor, but the fused irregular patches with scattered congested follicles were redder. One patch was ringed with a few papules on the border. The original characters had been much altered by the use of strong soaps.

It would be easy to multiply instances of this kind, which show, I think, the occurrence of seborrhœa on the trunk, and connect it with the lichen annulatus portrayed by Wilson. I have already mentioned that the latter is frequently associated with seborrhœa of the scalp.

In conclusion, I will add that, besides papulated ringed patches and non-ringed patches without special congestion of the follicles, I have met with another variety in which a triangular area of character-

¹ I have made a prolonged search lately by various methods of staining in several typical cases, but have failed to find any organisms but micrococci.