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CORNS.

By J. FOSTER PALMER, M.R.C.S., L.R.C.P.

I OUGHT, perhaps, to apologise for introducing to the Society so small a subject. But John Hunter did not consider it beneath his dignity to write about corns, so perhaps I need not. Besides, it may be well for the Society sometimes to descend from the serene heights of serum therapy and the evolution of nerve-centres to discuss the bearing of more commonplace matters. I have another reason. In speaking at our last annual debate I drew a parallel from this subject. I said that in treating corns the first thing to do was to persuade the patient *not* to go to a chiropodist. The printer, however, insisted on leaving out the "*not*," and thus left me committed to a system of quackery which I abhor. So I had to put myself right. "So long as all the conditions remain the same," says Paget, speaking of hypertrophy, "each part of the body retains its state: but when the conditions alter, so that a part is more than usually exercised in its office, then it manifests a power of renewing or accelerating its growth. It is as if each healthy part had a reserve power of growth and development, which it puts forth in the time of emergency".* In case of increased action of the skin, for example, the waste of tissue is increased; but the epidermis "does not grow thin: nay, it grows thicker—to protect the cutis; it puts forth, as it were, a reserve power, which is enough, not only to repair all amount of waste within certain limits, but to increase the quantity of tissue to the amount required".†

If this be so, it is clear that *clavus* is not the result of pressure alone. In other words, tight boots won't cause corns. You might lie in bed for twelve months with the tightest of boots on all the time and never get corns, whatever else you might get. Paget says that pressure causes hypertrophy,‡ but this seems inconsistent with his statement given above. He further states that *constant* pressure causes atrophy, but that occasional or intermittent pressure causes hypertrophy.§ It would seem that it is the friction, not the pressure, whether constant or intermittent, that produces corns. John Hunter takes a somewhat different view, which, however, does not seem to be much more consistent with facts than Paget's. He says that pressure from within causes atrophy, and pressure from without hypertrophy.|| It is difficult to see how one can exist without the other. How, in fact, there can be pressure without resistance. He says, "a corn is a thickened cuticle arising from external pressure, which is preternatural and excessive".¶ I submit that pressure, alone,

* *Lectures on Surgical Pathology*, Turner's edition, 1863, p. 48.

† *Ibid.*, p. 49.

‡ *Ibid.*, p. 65.

§ *Ibid.*, p. 66.

|| *Surgical Works of John Hunter*, Palmer's edition, 1835, vol. iii., p. 466.

¶ *Ibid.*, vol. i., p. 561.

patient in whom he had discovered inter-arytenoid deposit seven years ago, and although the patient had slowly lost ground his larynx was not very much worse, although he had continued to talk during these seven years and had received no special local treatment. He deprecated routine local treatment when not called for to relieve symptoms or to effect a radical cure ; and he asked, What was the rationale of painting the larynx daily with strong escharotics, such as lactic acid ? If it was for the antiseptic effect, there were less irritant drugs. If it was to produce scarring, surely it was more reasonable to wait for the eschar to fall and see how the surface below it was, instead of giving no rest to the parts. In conclusion, while every physician dealing with tubercle should be able to examine the larynx, it was highly important that every laryngologist treating the disease in the larynx should be a physician.

Mr. BARWELL, in reply, said he was glad to find that Dr. Barry Ball and Dr. St. Clair Thomson were substantially in agreement with his point of view. Although in many cases the disease in lungs and larynx improved or progressed together, yet in some patients, though the lungs get better under sanatorium régime, the laryngeal condition becomes steadily worse, and to such patients local treatment is especially applicable. The case mentioned by Dr. St. Clair Thomson was very interesting ; he himself seldom interfered with interarytenoid outgrowths which rarely cause symptoms and which appear to be the least active of all laryngeal tuberculous lesions. He was often obliged, in out-patient practice, to apply pigments only once a week, but he believed he obtained better results by making the application more frequently. He was convinced of the efficacy of the surgical treatment of dysphagia, and he hoped that it would be more generally adopted. In answer to Dr. Dennis Vinrace, of his eight cases of removal of the epiglottis the wound had healed in three or four patients only ; but where there was extensive disease of the entire larynx his object had not been to produce healing but to relieve dysphagia.

MEETING, 24TH APRIL, 1906.

Dr. Woolliscroft showed a case of necrosis of the sternum, with complete recovery after removal of the whole of the third portion.

Mr. Noble Smith showed a case of paraplegia from lateral curvature of the spine. Recovery gradually took place after treatment of the curvature by a suitable apparatus.

tends to produce absorption and atrophy; friction to produce hypertrophy. This hypertrophy, when excessive, becomes a morbid growth. When it is only physiological and protective, it is called a callosity; when pathological, a corn. For a callosity is not a corn, though they are often spoken of as if synonymous. Clavus is one thing and tylosis is another. Tylosis is protective, clavus is destructive. In the former there is no atrophy, no destruction of the cutis, while the latter often pierces completely through it.* The growths on the finger-tips of the left hand of the violinist are callosities, and enable him to play better. There is plenty of pressure here, and intermittent pressure at that; but the friction is only occasional, and not continuous, so that there is no morbid growth. If the friction were continuous he could not practise for ten or even six hours at a stretch. On the other hand, in playing the harp, there is both pressure and friction, and harpists, I believe, do get corns. If not, they ought to. But I doubt if a harpist could possibly practise six hours a day, and there can be no occasion.

Rindfleisch, again, says that external pressure is the efficient cause in both cases.† But if so, why is the cuticle hypertrophied and the cutis atrophied? Both are subject to pressure. On the other hand, it is *friction* which the cuticle is subject to and the subjacent cutis is protected from. The constant attrition, rendered more severe and irritating by the projecting points of bone beneath, as at the joints, causes increased action in the cuticle. The "more than usual exercise in its office"‡ that Paget postulates takes place, and the expected result follows: "It grows thicker. It puts forth a reserve power which is

* Tylosis is, of course, derived from the Greek *τύλος*, a callosity produced by labour, or an enlargement or protuberance generally. Some of the old Greek comic poets used to apply the name *τύλος* to the penis, as a kind of euphemism. The idea of the penis as a protuberance produced by hard work is rather startling from various points of view.

Clavus is the Latin *clavus*, a nail. A corn at its worst fairly represents a foreign body, such as a nail driven through the skin.

† *Manual of Pathological Histology*, Baxter's translation, New Sydenham Society, 1872, p. 357. "The difference in the results depends on a variation in its mode of action; if the point at which the two opposing forces come into collision coincides accurately with the point of contact between the compressed part and the compressing agent, a callosity is produced; if, on the other hand, the two points do not coincide, if the seat of conflict is withdrawn into the interior of the compressed part, in other words, if the compressed part is capable of yielding to the pressure, a corn results," so that there are at least three different views among pathologists as to the etiology of even so simple a matter as corns.

‡ Paget's *Lectures on Surgical Pathology*, p. 148.

enough not only to repair all amount of waste within certain limits, but to increase the quantity of tissue to the amount required." * Only in this case, unfortunately, it goes beyond that. It does not know when to stop. *Hinc illæ lachrymæ.* It outsteps the limits of physiology and enters the region of pathology. Its success in growth makes it aggressive. It grows big and becomes a bully. Instead of being the friend and protecting shield of the underlying derma, it becomes its deadly enemy. The derma, on the other hand, is not subject to friction. It feels not the wobbling of the loose, uneven boots. It only feels the pressure, generally intermittent, of the overlying cuticle. And consequently it atrophies. The sensitive and now unprotected papillæ are pressed upon by the enlarged and hardened epidermis, causing acute pain, and the cutis lying directly under the tumour may completely disappear from pressure without friction, leaving the enlarged cuticle in immediate contact with the subcutaneous cellular tissue, or lying on a joint or sheath of a tendon, in which case a bursa usually results. Why a bursa should form I cannot pretend to explain. It is easy to say it is a provision of Nature to protect the underlying parts, bone or tendon. But this is the *result*, not the *cause*, and in no way helps to explain its formation. We assume a sort of beneficent object in an unknown imaginary force, and are content to leave it at that; but this is a cover for our ignorance as to the means by which it is brought about. It appears to be just a further development of the enlarged cuticle round some of the spaces in the areolar subcutaneous connective tissue. But why does it take this form? And why Nature, having allowed the corn to torture and destroy the cutis, should be so careful to protect the joint or the sheath of the tendon underneath it is not easy to explain.†

* Paget's *Lectures on Surgical Pathology*, p. 49.

† In fact very few things are easy to explain. The above theories of causation (including my own) seem very simple, but the facts sometimes decline to accommodate themselves to them. I have now a patient who, after being in bed for six weeks, developed a corn. This ought not to occur on any theory of causation whatever. The nurse drew my attention to it. She had not seen it before, nor had I. Perhaps it existed before and escaped our observation. I hope it did. But then six weeks in bed ought to have cured it. I can only suppose that, as the patient was eighty years old, the processes of repair went on very slowly.

There is another factor in the causation of corns, and that is climate. I am told that in the warm, moist atmosphere of Ceylon corns are practically non-existent. Whether this is due to the climate or to the fact that people don't wear boots, I cannot say; but I understand that all hardnesses of the skin, including, I believe, keloid, disappear under its influence. I have no information on this point with regard to other tropical countries.

The treatment of corns is comparatively simple, and practically certain in its results. The principal difficulty is to prevent the patient from cutting his corns, or going to a chiropodist to have them cut. The people who really suffer most from corns are those who have them cut periodically. They get, perhaps, a little temporary relief, and then continue to live in greater torment than before till the process is repeated. To such persons life is a misery. Can anything be more unscientific, more opposed to common-sense even, than to attempt to cure a corn penetrating the cutis by slicing off the outside, which is the least abnormal part of it? For in its external layers a corn is identical with a callosity. The pressure and friction are only removed from the centre to the circumference, and this only for a short time. The hardened cuticle, deprived of its outer layers, is more sensitive than before, its area is increased, and the last state of the patient is worse than the first. That is, if the causes of friction are allowed to continue; if they are removed the corn will disappear of itself, and then cutting is superfluous.

When the corn is more deeply cut, certain further structural changes ensue. Instead of the flattened layers of the thickened epidermis we get perpendicular layers, with extremely sensitive papillæ. Hæmorrhage, too, often takes place, and may be the cause of further trouble. If the corn penetrates the cutis, the knife must cut into the subcutaneous tissue in order to reach its apex, and in this case hæmorrhage is almost certain to occur.* It is not extensive, but for obvious reasons is better avoided. In any case, if a knife is used, it should be with the antiseptic skill of the surgeon, not by the empirical methods of the chiropodist. On the other hand, strong caustics are liable to produce inflammation and ulceration. Even nitrate of silver is sometimes extremely painful and often injurious.

Corns are, of course, strictly a luxury. No one need indulge in them unless he likes, and they are certainly not a necessity of life. If boots fitted accurately and only moved in harmony with the feet there would be no corns. It is the opposing forces which cause the mischief, the boots moving one way and the feet the other. And then they only occur when there are internal projections in the boots. These inequalities may be greatly reduced, if not altogether removed, by using lasts when the boots are off, and padding with wool when on. Indeed, I believe that if all people wore good thick woollen socks instead of cotton abominations there would be no corns extant.

This, however, is not strictly the matter before us, which is the *treatment* of corns. Our patients do not ask us how to *prevent* corns.

* I doubt whether hæmorrhage ever occurs without cutting.

They never consult us until they have actually got corns, and not often then. They will do anything first. They will cut them, sometimes with fatal results. They will go to a chiropodist. In fact, they will undergo any amount of torture, any amount of risk, either at their own hands or at the hands of others, and will continue to suffer for any length of time rather than follow what would seem to be the most simple and obvious course, *viz.*, consult a surgeon and undergo a short and painless cure. Probably the worst corn that ever existed could be cured in a fortnight. But patients (and patients they are truly) prefer to suffer a considerable amount of pain and expense to make them permanent.

I believe all corns, as such, to be perfectly amenable to treatment. The only difficulty is that patients will not allow us to treat them. Removal of the causes of friction will, in a large number of cases, result in complete recovery without any further application, but usually saturation for a longer or shorter time with water or glycerine may be necessary in addition. The length of time it is required will depend on the severity of the disease. But the treatment may, be it remembered, in some few cases, especially of corns on the sole of the foot, involve staying in bed, or, at any rate, lying on the sofa. This is, perhaps, the chief difficulty. People will not go to bed to cure corns. If they did they could get rid of them with certainty, however bad. But they prefer to wait till they are ill. An attack of typhoid fever, or even small-pox or scarlet fever, will cure any corn in the world. But until they get the attack they decline the treatment. And they may never get it. Such cases, however, are extreme and rare, so that it is seldom necessary. There are, in fact, very few that will not succumb to a nightly bread poultice or water dressing, with a soft perforated plaster of spongopiline by day, to avoid friction. If the perforation is filled with glycerine it will hasten the cure by keeping the skin saturated by day as well as by night. Still, the all-night poultice or water dressing will usually suffice, and very often much less than this. Soaking the feet night and morning in warm water, with or without the addition of sodium carbonate, will frequently put an end to corns. Indeed, Dr. Evershed says that he has constantly cured them by fifteen minutes' soaking twice a day. This was in sea-water, but the principle is the same, although the addition of alkaline salts, as in sea-water, or of boric acid, would certainly hasten the result. The action of the alkaline carbonates on the skin is well known, and is exemplified in the case of bottle-washers, who use sodium carbonate, and whose nails are thinned and softened, and sometimes almost destroyed by it. The hardened cuticle of the corn may be thinned and softened in the same way. Still, *ἄριστον μὲν ὕδωρ*. Water is, after all, the best and safest cure.

The difference in the treatment of different cases consists, not in the nature of the remedy, but in the length of time during which it requires to be applied. The old method, suggested, I believe, by Fergusson some sixty or seventy years ago, is still available. We have not got far beyond it in our present treatment. "Poultice till they drop off" may not be strictly adapted to every individual case; but by the principle, intelligently applied, you may cure them all. It is, in all, only a question of time. The particular method is unimportant. The general principle underlying it is essential.

I need not add that in thus dogmatising I am speaking of corns, and corns only. When, from cutting or other causes, hæmorrhage, inflammation, ulceration or suppuration has set in, we are no longer dealing with corns, but with dermatitis, ulcer and abscess respectively, and these are all subject to special treatment.

DISCUSSION ON DR. FOSTER PALMER'S PAPER.

Dr. Woolliscroft inquired if Dr. Palmer considered that corns and warts were identical in their origin. Was it not possible that a wart was first formed, and that the corn was the result of the thickened epidermis above and around it?

Mr. Leonard Bidwell thought the subject of corns was quite a suitable one for discussion. Certain corns develop an excessive growth of elongated papillæ, and in this form suppuration sometimes occurs. They are certainly not curable by poulticing, but only by excision. In ordinary corns there was, of course, atrophy under the hardened layers, and these were more easy of cure. He had not tried poulticing, as he had always found the salicylic acid and collodion treatment the most successful. This should be applied directly the corn begins to form. The strength he used was 40 grains of salicylic acid to the ounce of collodion, with 10 minims of creosote added. There were some cases, however, in which, owing to certain deformities or malformations, it was impossible to relieve pressure altogether without operation.

Mr. Noble Smith thought that corns were not all alike. The ordinary corn was, of course, easily curable; but he thought it might be possible to divide corns in certain varieties, some of which would be much more difficult of cure than others.

Dr. Foster Palmer, in reply, said he considered that warts and corns were two absolutely distinct things in their nature and origin. The causes of corns are pretty well defined. There is always pressure and friction in varying degrees. Of the causes of warts we are absolutely ignorant. They come and go, and we cannot tell why. They form on the hands from no cause at all. They form on the head, per-

haps from a slight scratch with a comb. They come on the penis, where there is no possible counter pressure, and apparently form some purulent or gonococcal infection. Warts, too, were curable by excision, which corns, he submitted, were not. Still it was possible that warts might grow on the site of corns, and then might be included as corns, so that the difference between himself and those who had just spoken was chiefly one of nomenclature. Corns, as such, he considered to be simply indurated hypertrophies of the cuticle with more or less atrophy of the derma underneath, and, when uncomplicated, to be amenable to the treatment suggested. It is true that in many cases there is a prolongation of the papillæ and a development of the perpendicular growth of the epithelium covering them. This condition is, no doubt, identical in structure to that of warts on any other part of the body, or at any rate is indistinguishable from it; this, however, is not an essential part of the growth of a true corn, but is the result in almost all, if not all, cases of cutting operations attempted for its removal. Such growths, by whatever name they may be called, are probably not amenable in all cases to treatment by maceration, but may have to be removed by the knife or glacial acetic acid.

