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Pitting About the Hair-Cups.

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PITTING ABOUT THE HAIR-CUPS, A TROPHIC CHANGE OF THE SKIN IN CERTAIN NERVOUS DISORDERS OF CENTRAL ORIGIN.[1]

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FOR several years my attention has occasionally been drawn to a peculiar appearance of the skin of the extremities in a certain limited class of cases. By longer study of the matter I had hoped to more fully elucidate the subject. Though not entirely successful in this, it may be proper to put on record the facts so far gathered.

The peculiarity itself is so slight, and shads off so easily into normal conditions, that it may well prove at best a rather elusive symptom.

So far as accessible descriptions go, or as several dermatological and neurological friends have been able to recall, nothing of just this kind has ever been recorded.

DESCRIPTION OF THE PITTING ITSELF.

(a) Its local character.—The change is so limited a matter, that it is but too easily overlooked. Doubtless this is the main reason why it has failed to receive attention. At the same time when once seen, it is easily enough recognized in fully developed cases.

It is, when present, invariably found about an existing hair or hair-bulb. There may be a slight tendency for the hairs to fall out, but not to the extent that any pronounced alopecia results. The respective hairs often do not appear to have fallen out at all. But they do not look healthy under the microscope, and snatches of epidermis may come away when they are pulled out: though this is not unusual in normal conditions.

The general skin over these parts may be somewhat crinkled, perhaps only from the muscular shrinking.

The term "pitting" but partially describes the change. There is an areola like faint depression, frequently oval

[1] Read at the meeting of the American Neurological Association, June, 1896.

in the direction of the lines in the skin, though it may be irregular or circular in form, about the exit of each hair. In a typical region, no hair-exit escapes. Moreover the depression is a trifle paler in tint than the surrounding skin, almost like a minute cicatrix. It is, however, perfectly soft to the feel, and gives no further evidence of being a true scar. Sometimes, however, a case shows no change in tint from its surroundings except the shadow-effect. The markings can hardly be called pock like, though on oblique illumination the skin has a perforate appearance. Normally there is a little sloping of the skin-surface towards a hair-shaft, but here this flattens out to a shallow areola. A magnifying glass may bring it out better, yet it interferes some by limiting the field. It is not of a nature to be satisfactorily photographed, and even an artist finds difficulty in properly sketching it.

The actual size of individual pits may reach a diameter of perhaps one-half mm.

(b) Its distribution over the body.—Usually it is more marked on the lower extremities, when present on both upper and lower, but may occur predominantly or exclusively on either. Those on the lower extremities are on an average larger and apparently deeper. Hence the question of its presence or absence is more difficult to decide in the case of the arms. Here it is the outside of the fore-arms that shows the pits best. Rarely they have been discernible on the front of the upper arms as well. In the lower extremity they are principally noticeable on the front and outer side of the leg a little below the knee; and again on the front of the thigh up from the knee. While they may be more generally present over the lower extremities, it is usually in the specified territories that the largest pits in any part of the body can be found.

From these regions where the appearance is most characteristic it shades off into smaller and questionable pits, and then to the normal hair dents.

In regions of more pronounced hair-growth, as the scalp or chin, nothing of this sort has ever been apparent; though my list of cases does not include any of bulbar paralysis. It is always over muscular areas.

(c) Course.—As the primary disease advances and the skin acquires somewhat more the appearance of crackled glass, the pitting over the more prominent parts may disappear or become scarcely distinguishable. Around the borders of such advanced regions it may still be evident.

A fuller knowledge of the stage of the primary disease at which this manifestation appears, is desirable. So far as I have been able to observe, it is apparent as soon as the other diagnosis can be made.

All these patients had passed the period of youth. They were from 40 to 50 years of age or thereabouts.

DISEASES IN WHICH IT OCCURS.

These are best typified by progressive muscular atrophy. In this trouble when on the basis of chronic anterior poliomyelitis, the pitting has never been absent. (See Appendix).

One of the earlier cases was that of a patient who had been referred to me by Dr. Seguin for some special treatment. On calling his attention to the appearance, he wrote regarding it as follows (under date of July 5, 1889):

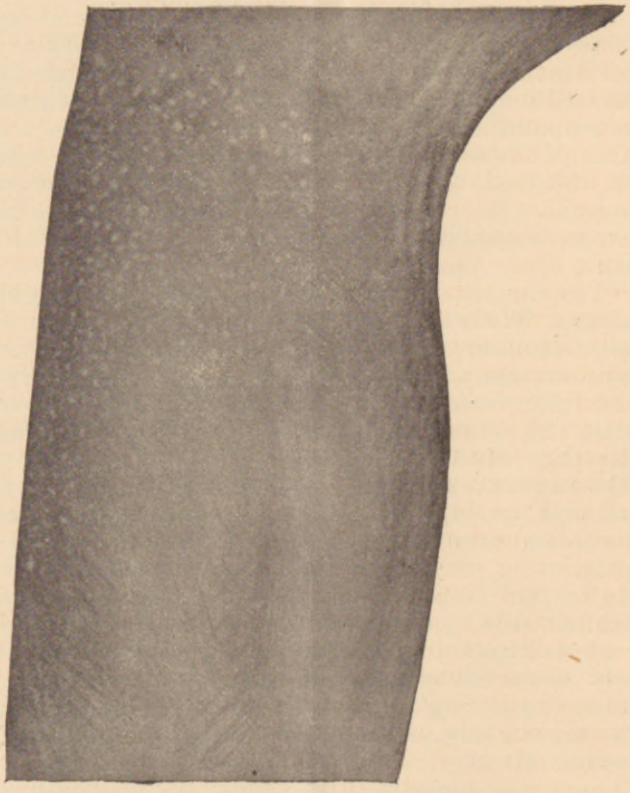
"The matter of observation you submit is highly interesting. With the naked eye, and better with a strong loupe, I verified your observation of a cup-shaped depression about many hairs on thighs. This is certainly worthy of fuller observation and of publication. Have you studied the skins of any healthy persons with reference to this state of the follicular area?"

Dr. Seguin's kindness in thus corroborating my supposed find, could, I felt, be best recompensed by scrupulous care in establishing the fact and its relations thoroughly.

In certain other nondescript cases, some of which are appended, this appearance was more or less marked. On the whole these irregular cases are rare and have evidently some chronic atrophic complication that may explain the pitting in so far as bringing it into relation to the more common cases, those of ordinary progressive muscular atrophy.

There was one particularly obstinate lead case (paralysis of forearms with atrophy and contractures) in which slight pitting could be made out over the arms and forearms; legs were free of it. Although I was able to follow this man for several years, he never fully recovered. In view of this latter, and the further fact that central changes have occasionally been found in such lead troubles, this one case does not suffice to upset the conclusion based on all the others, both positive and negative, that the real cause must be elsewhere than in the peripheral nerves.

There was another man (old syphilitic, seen by courtesy of Dr. Duryea at the Kings County Hospital, in July, 1889) with advanced so-called spastic tabes Great general shrinkage of musculature (my note says "evidently amyotrophic lateral sclerosis "). The cups were de-



Pitting about the Hair-fallicles, from outer side of left Leg, just above the Knee. Drawn by T. H. B. O. Stucke, and photographed by E. B. Dudley.

monstrable on arms and legs, very distinct over the calves, especially on the left. These were quite different from the atrophic scars often seen in syphilitics.

In cases of grave hysteria that have run a considerable period and induced much wasting, there are sometimes scattered pits. These are rather larger than the

usual form, and so isolated that it is doubtful if they have any relation to the kind here described.

My illustrative drawing is from the following case which, as it also happens to be somewhat irregular in type, may be given more in detail.

The patient was an Irishman; carpenter, 50 or more years of age, seen in the service of Dr. Delatour at the Norwegian Hospital, November 26, 1895.

He had been brought in partially unconscious two weeks before. Had vomited some at that time. It was said that he had fallen through a floor (15 ft.) He had a scalp wound at the vertex, but examination showed no fracture, and the cut is now healed. On the third day it was first noticed that the right pupil was the wider, that the tongue came out to the left, and that the reflexes were increased on the right. He was stuporous or wandering, but has gradually come to talk connectedly. Most of this time has passed urine and feces in bed.

Is evidently weak all over. Arms thin but not especially atrophied, do not show any of the hair-cup pitting. Approximate grip, r. 39, l. 26 (much too low for a carpenter)

Can now stand and walk, though somewhat weak and tottering. Can turn around (eyes open, as he is too stupid a chap for any more exact testing) quite as well as he walks. Knee-jerks increased in force and area elicitable. Plantars present. There is a very flabby and atrophied condition of each calf, and only slightly less so of each thigh. The left knee shown in the sketch) was considerably swollen and distorted—essentially an enlargement of the synovial pouch above joint anteriorly. On front of each leg a little below knee on the outer side, and over the segment most atrophied, are exquisite pilary pits slightly oval in outline.

He tells of at least two previous attacks, occurring respectively, six and three years ago, which he thinks were like the present one. At the one six years ago, he was sent one evening from a factory for some hardware. On the way back something happened to him. He was taken to a police station where his case was entered on the blotter and attended to. The occurrence three years ago was, he thinks, similar, though of neither is he able to give any more exact description.

CONDITIONS IN WHICH THIS PITTING IS NOT OBSERVED.

1. In health it is never found. I have been on the look out for it long enough now to be reasonably positive on this point.

2. In general it may be said that it does not occur in any strictly peripheral nervous affection.

3. Though many cases of old infantile spinal paralysis have been inspected, it has never been present.

4. Multiple neuritis. Many cases due to alcoholism, syphilis, malaria, sepsis, etc., have failed in every instance to show any trace of pitting. Lead cases have also been negative, with the one exception given above.

5. Glossy skin. In the several cases of this that have been under observation, not only on the hand, but the similar condition of the lower extremities, there has been no suggestion of the pitting. Other forms of local neuritis have likewise been negative.

6. Spastic spinal paralysis. No real pitting. In the so-called amyotrophic form it presumably occurs.

7. Atrophies due to disuse, old hemiplegia, fever or other systemic cause, etc., are also unattended by any hair-cup markings.

8. In tabes there is none. And so far as observed the same holds in disseminated sclerosis (unless one of the above cases be of that type). Still, each of these forms might possibly be complicated with such an atrophy as to favor pitting.

9. Absent in one case of pseudo-hypertrophic paralysis with atrophy.

These specific classes I have taken pains to exclude in order more exactly to define the occurrence of the symptom and correspondingly enhance its value. In other and less relative forms of trouble it has also never been noted, though further enumeration is scarcely necessary.

Certain points regarding this matter are as yet somewhat speculative.

1. Its local pathological anatomy.—To what changes in the cutaneous tissues is this manifestation due? As yet I have been unable to secure a piece of the affected skin for histological examination.

The erector pili in such a field are probably unaffected. A chilling of the area will often bring all the bulbs and hairs to prominence. Besides, it does not involve specially hairy regions.

That it is of purely mechanical origin, as *e. g.*, from loss of underlying structures, is also improbable, since in other cases of equally advanced atrophy nothing of the kind is observable. And various cases have shown that it is not a result of massage.

So far as determined, there has never been any inflammatory troubles about the hairs and no process leaving this as a true scar.

2. Interpretation.—What are the relations to the primary disorder? The tissue changes when worked out may give a clue to the significance of the phenomenon and to the nature of the central trouble. There is nothing to show that it is a manifestation of the sympathetic or peripheral nerves.

A comparison with known changes and affections of the skin fails to throw any light. In even so well recognized a matter as leucoderma, about all that seems to be known is that it is due to 'nervous iufluence.'

Here it might be explained that the unusual term "hair cups" was used in the title, that the exact nature of the pitting might not be prejudged. The latter is a fact whether it be about the hair follicle or involve it.

3. Its clinical value.—Apparently the pitting suffices to show trouble in the spinal cord (in particular of the anterior horns) and hence is of value in differentiating central from peripheral disease. It is well recognized that our present methods of distinguishing these when associated with wasting, do not always suffice. Its special applicability is in determining whether a given atrophy is due to a gradual affection of the precornua, or to some quite different cause. Prognostically the pitting, of course, indicates a grave disorder.

APPENDIX.

Though the common descriptions of chronic anterior poliomyelitis give little recognition to material changes other than those in the muscle-nerve-apparatus, there are observations showing that other tissues may suffer in this disease.

Alterations in the nails and abnormalities in the perspiration especially differences in the two sides are mentioned by Hamilton (Nerv. Dis., 1879).

"The skin is not infrequently implicated; and in these cases both the epidermis cutis and subcutaneous tissues are affected" (Ross, 1881).

In old poliomyelitics I have occasionally noted slight changes in the skin, though they are quite inconstant.

1. Striæ atrophicæ over abdomen and thighs in a man of about 40 years. He was very positive that these antedated, at least in their beginning, his muscular atrophy.

2. Very protracted healing of contusions and resulting slight ulcer-

ations on legs, where, as was claimed, such wounds had formerly healed with the greatest rapidity.

3. In one man, previously affected with a varicose vein of one leg, the smaller cutaneous veins over both lower extremities became marked as the disease progressed. Hammond (1891) says, "The cutaneous capillaries are usually relaxed, and hence the skin over the affected parts is discolored by the passive engorgement.

4. Other evidence of a special vulnerability of the tissues might be added, such as alveolar fistula. And Remak has described painful swellings (arthritis nodosa) of the smaller joints in the early stages of the disease. But this is getting far afield.

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