

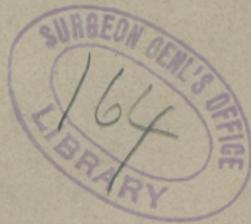
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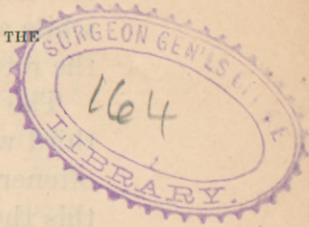


REMARKS
ON
RELAPSES IN TYPHOID FEVER.

By
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[Read June 6, 1877.]



DURING the epidemic of typhoid fever which prevailed among us last year, I met with many instances of relapse. This led me to investigate the subject anew; and in comparing the phenomena observed with those encountered previously, I have arrived at some general conclusions which I beg leave to lay before the College to-night. In so doing I shall not in detail record any large number of cases, partly because their similarity would make this wearisome, partly because some of them were seen but a few times with other physicians, and the salient features alone are impressed on me. But all have been made use of to arrive at the deductions about to be presented.

First let me say exactly what I understand by a relapse. I mean a return of the symptoms of the malady in all directions: return of diarrhœa, of eruption, of fever-phenomena, of delirium, of pulmonary congestions. I do not simply mean those slight and mostly transitory accessions of trouble which we some-

times see in consequence of bad nursing, as of the patient being needlessly disturbed, or allowed to take improper food. I mean, therefore, a fresh outbreak which runs a definite course, and is often protracted, and may be dangerous.

It is only of comparatively late years that the occurrence of true relapses in typhoid fever has been admitted, and even now the fact is denied by some; while accurate observations on the mode and cause of the return of the affection are still greatly needed.

The relapse generally comes on in the second or third week of assured convalescence, and in the second oftener than in the third. It is not I find—and in this the dissimilarity to the first attack is marked—preceded by the prodromic symptoms so common in typhoid fever. But abruptly, and almost without warning, the patient passes from comparative health into a decided, febrile malady; pains, furred tongue, diarrhœa, enlargement of the spleen, soon appear, and on the fourth or fifth day the characteristic rose-colored rash is seen. Now delirium manifests itself; the temperature, which has risen rapidly, remains more stationary; and the case progresses with every symptom of the first attack to a more rapid issue, convalescence being the rule. Yet even the renewed convalescence may not end the trouble. Thus I saw a case in consultation, in which the second attack terminated in rather less than two weeks, but, after an interval of about the same period, another relapse took place, and this third attack became much protracted by intense pulmonary congestion, and several violent intestinal hemorrhages happened after the sixty-sixth day of the original seizure. Fortunately,

however, the lad in whom these untoward events occurred recovered.

In these long cases there is great risk of the patient dying from sheer exhaustion; and even in less protracted cases a fatal termination may happen from the high temperature or the intestinal complication. But on the whole I am correct, I know, in stating that the chances of recovery are always far better than in the first seizure.

As regards the cause of these relapses I am unable to offer a satisfactory explanation. They are attributed to errors in diet, and in several of the cases I have seen, these seemed to have started the mishap. But errors in diet, which are not uncommon, usually occasion fresh outbreaks of diarrhœa, but not a typical fever attack, which is not a frequent occurrence. It has been ably maintained that relapses depend on a reabsorption of the morbid or typhous material thrown off from the intestinal ulcers; previously healthy glands are inoculated by the adjacent hurtful process, and the system becomes poisoned. Moreover Maclagan, who is a strong advocate of this view, contends that relapses are not met with except where there has been constipation during convalescence, and only slight diarrhœa during the first attack. As regards this point, it is contrary to my experience, and I must adopt the views expressed by Murchison in his classical treatise in opposition to it. Indeed if it be necessary to maintain that the fresh infection can only be produced if the old and unhealthy products are not swept away, clinical experience will not sustain this conclusion. In truth it will not sustain any conclusion positively or exclusively. Most likely is it that a fresh

poisoning takes place, either from redevelopment of the poison in the body, whether by the intestinal glands or elsewhere; or because part of the poison has remained latent since the first exposure, and owing to some exciting cause is called later into maturity—just as we see fresh outbreaks of malarial fever after worry or fatigue, and when there has been no chance for a new infection. To the latter view of the case I am strongly inclined. Before dismissing this part of my subject, let me say that the claims of conflicting plans of treatment have been brought forward to be adjudicated in the light of the relative frequency of the occurrence of relapses, and especially is this the case with the cold bath, the plan so vaunted by its German admirers, so eagerly credited by its opponents as being a prolific source of relapse. But as yet the data are insufficient for the settlement of this, or indeed of any question in which the comparative merits of therapeutic procedures are concerned.

Let us recur to some of the symptoms of the relapse, and inquire whether they differ from those of the primary seizure. First of the *eruption*: this, as already stated, comes on earlier; it is generally found on the fourth day, and is, as a rule, somewhat coarser and redder. It disappears on pressure, though not quite so quickly. It comes out in crops, not however with the same readiness; in other words, the early spots are more likely to last until the whole rash fades.

The appearance of the *tongue* is apt to be the same as in the first attack. Yet there are a few phenomena worthy of notice. I have often observed, indeed have learned to regard it as almost characteristic, that the tongue in typhoid fever shows at the tip a wedge

of reddish or brownish surface free from coat. This rudely triangular space becomes covered with a coat as the disorder begins to decline, or else assimilates in appearance to the general aspect of the organ. Now in the relapse this look of the tongue will also be perceived, but not generally with either equal distinctness or frequency. The same may be said of the deep transverse fissures found in severe instances of the malady.

Of the other symptoms of typhoid fever, not one exists that may not be equally present in the relapse; diarrhœa, meteorism, pulmonary engorgement, delirium, present nothing unusual or different. Nor are the complications of intestinal hemorrhage or milk leg unknown. In a case that came under my notice phlegmasia dolens proved a troublesome and tedious complication. Enlargement of the spleen happens as in the original attack, and I learn from the article on typhoid fever in Ziemssen's Cyclopædia that Gerhardt makes the statement that, in many cases in which a relapse takes place, the enlarged organ is not diminished during the non-febrile period which intervenes between the original attack and the relapse.

The question of the *temperature* during the relapse has interested me much. Nor, with the exception of some allusions to it by Wunderlich, can I ascertain that it has been specially studied. It has I find these peculiarities. Unlike the graduated ascending course until the evening of the fourth or fifth day, which is the rule in ordinary instances of typhoid fever, the temperature bounds within twenty-four hours to a decided fever temperature, remits 1 to $1\frac{1}{2}^{\circ}$ the next morning, and by the evening of the second

day is a degree or more higher than on the first day, the thermometer very commonly marking 104° . Then for from five to seven days, according to the severity of the attack, the evening figures read about the same; and a morning remission of about 1° , or somewhat more, happens, very similar to what we observe in the first attack after the initial period has passed. Subsequently occur the same more marked morning remissions and less severe evening exacerbations, until the temperature in a zigzag manner approaches to the normal, that we observe during typical cases of the typhoid attack. Yet, as here, until convalescence is established, local complications arrest or reverse the daily descent. Neither do we always find during the height of the relapse, that the temperature is as regular as described. It may sink almost continuously for the first three days after it has reached the height occasioned by the returning fever, and then for three or four days more gradually ascend without any morning remission, yet subsequently, as defervescence sets in, show the characteristic zigzag decline alluded to. All this was markedly shown in a case under my care at the Pennsylvania Hospital; as, moreover, this case will tend to illustrate some other matters to which I wish to call attention, I shall report it in some detail.

A German porter, twenty-five years of age, was admitted into the hospital on October 17, with well-marked typhoid fever, and occupied Bed 16, Men's Medical Ward. He had been ill for several weeks, and presented a temperature of $103\frac{1}{2}^{\circ}$, a flushed face, marked tremor, severe diarrhœa, tympanitic abdomen, and a copious eruption of lenticular spots. He made a slow convalescence, the tremor remaining after

the fever had left; but by November 2, he had scarcely any trembling; his voice, which he had lost from weakness, returned; he had no longer looseness of the bowels, and the temperature was normal. On the 7th, the temperature having for several days marked 98° in the evening, the record was discontinued. On the 11th, the patient walked about the wards, talked a good deal with visitors, wrote a long letter, was evidently much fatigued, and by evening had a temperature of 104° , and a pulse of 120. The next morning it was most evident that a relapse had taken place; the tongue became coated at the sides, and subsequently dry, brown, and fissured; the characteristic red spots appeared on the chest and abdomen, on or rather just before the fourth day of the relapse; delirium and restlessness became marked features; indeed most of the symptoms of the first attack were reproduced. Yet not as regards the abdominal symptoms; for the bowels remained regular, or were only occasionally loose. By the 26th, the dryness of tongue had disappeared, only traces of spots could be seen; the face was still flushed, but pulse, respiration, and temperature denoted convalescence. What the changes in this symptom were need not be specified; the accompanying table (page 108) shows them at a glance. But there is a further symptom which exhibited itself plainly during the weeks in December in which the patient remained in the hospital gaining flesh and strength, namely, distinct lines across the nails; the first line the outgrowth of the original attack, the second slowly following the relapse, and both together giving the distinctive markings reproduced in the plate.

Let me in conclusion say a few words more about the appearance of the nails, and the lessons it may teach. My attention was called to the changes the nails undergo in fevers long ago by Dr. Longstreth, and as he will present a paper to-night examining these changes in detail, I shall not attempt to describe them minutely. But I will point out here that with the relapse of typhoid fever the second ridge of the altered nail-growth comes to tell us how completely in every respect the fever has been reproduced; and the first ridge may in obscure cases give us the true meaning of doubtful symptoms, and prove conclusive of the diagnosis. A case in point happened during last winter at the Pennsylvania Hospital.

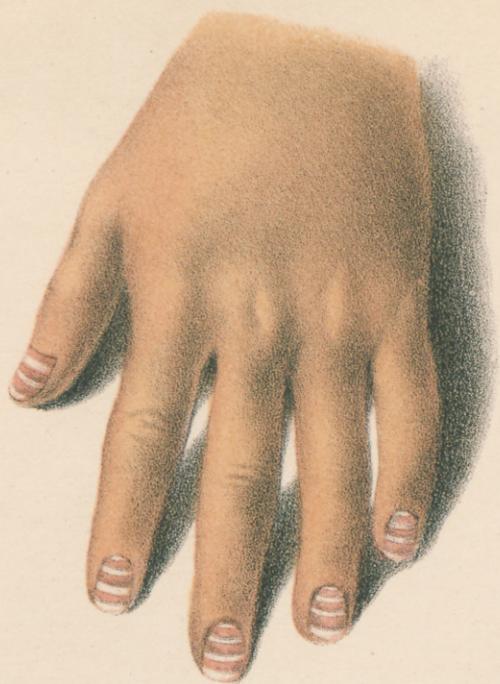
A boy, thirteen years of age, was sent to Bed 12 of my ward, December 6th, of last year, and during my temporary absence Dr. Hutchinson for a few days kindly took charge of him. The history was most unsatisfactory. He had received a blow on the back of the head about a month before admission, and had had a cough for several months prior to this accident. He had been confined latterly to bed for three weeks; had bled from the nose once; and during the first week had had a diarrhœa, which was readily checked by medicine. The boy, though he was stated to have been delirious for a week, and showed some hebetude, answered questions intelligently. He complained of great weakness, pain in the bowels, and tenderness in the muscles of the lower extremities. He had sordes on the teeth; shallow, frequent respiration; râles in the chest, some fine; a pulse of 120, readily compressible; and an evening temperature of 105°. He soon became extremely delirious; he was very weak; his feet were cold; indeed his condition was so grave that recovery was regarded as very doubtful, and, notwithstanding the obscurity of the symptoms, wine, chloric ether, and other stimulants were freely resorted to. Some of the symptoms,

and the history, pointed to a brain trouble, but the case was regarded as one of typhoid fever; and its progress, the tympany, the occasional diarrhœa, the tenderness at the lower part of the abdomen, the look of the tongue, the course the chest symptoms took, and the markedly typhoid aspect of the face, rendered this opinion more and more certain, although no eruption except sudamina could be found. But what gave us the most information, and told us that we were really dealing with a second attack, thus explaining the extraordinary length of the malady—a length with difficulty reconcilable to the view of ordinary typhoid fever—was that on the 17th it was noted that the nails about half way up showed a white line of impaired nutrition, evidently the result of the first attack of illness, and that near the root another white line was developing, due to the relapse.¹ The

¹ I showed the case to Dr. Longstreth, and he was kind enough to hand me a minute record of the condition of the nails taken (Jan. 29, 1877) shortly before the patient left the hospital.

Hand.—The nails of all the fingers show the peculiar changes; the middle and ring finger nails of the left hand most distinctly. This is a description of the left middle finger nail: Behind the free extremity of the nail there is a narrow, pinkish area extending across the nail from side to side, convex anteriorly. This part is normal, and has not been affected by the nutritive changes incident to the fever. It formed, at the commencement of the illness, the part of the nail situated near the posterior part. Behind this area is a whitish streak; its anterior border fades off into the normally colored nail in front; its posterior border is pretty sharply defined. Posterior to this whitish streak comes a very narrow area of pinkish-colored, normal nail, fibre-like in width, and which can be seen only by very close inspection. This second area of normal nail is about midway from the cut border to the root. These changes represent the alterations which occurred previous to the patient's admission into the hospital. The nail at this part shows no furrow or ridge. The portion of the nail behind this second normal area exhibits the alterations the progress of which I have watched during his residence in the ward. The effects are much more distinctly marked than the changes just described; there is to be seen not only the anæmic streak but also a change of level extending from side to side of the nails.

The second series of changes commences with a broader whitish or anæmic streak than the anterior whitish streak; the color is of a deeper white, and this part, viewed with oblique illumination, lacks the lustre and polish of a normal nail. A profile view shows a depression of the level of the nail,



patient made a very slow recovery, and was not free from fever until the 26th. When quite himself, we learned from

which, commencing within the limits of the white streak, slopes downwards and backwards towards the root of the nail. At the back of the slope the tissue of the nail rises abruptly to the normal level. Its direction is nearly straight across. The posterior border of the depression is just protruded from beneath the fold of skin covering the root, and lies within the area of the lunula. The depth of the depression is greater in the middle of the nail than at the borders. In the depressed area the longitudinal striæ of the nail are more prominent than normal. In this second series there are two parts to be distinguished, viz., the depression, and the piece of nail anterior to it, which is anæmic and without lustre, but the level of which corresponds to that of normal nail. During the fever-process the area of depression corresponded to the root of the nail; the whitish nail in front of the depression was then covered by the anterior margin of the fold of skin at the root.

On each thumb-nail the first series of changes are to be seen distinctly, and they resemble the appearances already described. Of the second series of changes, only the anæmic streak can be seen; the depression is still covered by the fold of skin at the root. The slower growth of the thumb-nail accounts for the difference between it and the other nails. (A month later the depression was distinctly to be seen on the thumb-nails, convex anteriorly. On the other fingers the first series of changes had grown forward and had been cut off, whilst the second series of changes had advanced close to the free extremities of the nails.)

Feet.—Similarly on the toe-nails are seen the nutritive changes. The matrix is very short; the greater part of the nail is unattached. At the commencement of the examination, the skin at the root is stretched forward and is adherent to the dorsum of the nails. In front of the adherent skin is a black line; the surface of the nail is rough along this line, and dirt has colored it black. After washing the foot in hot water, the adherent skin is easily removed, and the black line nearly disappears. There is now seen at the place where the black line was, a very narrow whitish or anæmic streak, fibre-like in width, and without lustre. This anæmic line represents the first series of changes, and corresponds to the anterior markings on the finger-nails. The second series of alterations commence behind the anterior anæmic streak, and are separated from it by a very narrow area. After the removal of the epidermis is seen a whitish area (it is within the lunula, but it is whiter than the normal lunula) which is depressed markedly beneath the level of the normal part of the nail. The depression continues under the skin, but by tearing off the skin and exposing part of the root, the ridge terminating the depression or furrow is found. This area is of a dead white color, without lustre, and uneven. The other toe-nails, the growth of which is more rapid than that of the great toe, show the ridge and depression without tearing

him that he had had unmistakable signs of typhoid fever for several weeks before his admission; that he had been treated for typhoid fever by a physician; and that he was rapidly getting well when the untoward symptoms arose which sent him to the hospital.

It is needless to say of how much value in this case the study of the nail-growth proved; how it alone gave the full clue to the case; and how we may hope by this and similar investigations to add much needed information to our knowledge of the relapses of continued fevers.

away the skin covering the root. The area occupied by the alterations in the toe-nails is much less than in those of the fingers, owing to the slower growth of the former. By passing one's finger-nail over the dorsum of the patient's nail, the alterations of level can in some cases be more distinctly felt than they can be seen.

