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IMPETIGO CONTAGIOSA:

ITS

INDIVIDUALITY AND NATURE.

BY

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IMPETIGO CONTAGIOSA: Its Individuality and Nature.

Since the first papers[1] on the subject of this disease, by the late Tilbury Fox, in which its clinical features were so well portrayed and its individuality so forcibly presented, numerous observations of other writers have been added, and the accumulated facts all go to prove the correctness of the views advanced by that distinguished observer.

As with most diseases, this affection presents slight differences as observed in different countries, although in the main and essential points coinciding. English observation,[2] following that of Fox, has corroborated the truth and accuracy of his descriptions.

With the Germans as described by Kaposi,[3] Simon,[4] Geber,[5] Unna,[6] Riegel,[7] and others, the character of the eruption is the same, but the prodromic constitutional disturbance which, according to Fox, ushers in the eruption is rarely marked, and frequently absent, and the eruption is mostly confined to the face and scalp, sometimes extending to the hands and feet, but rarely to the trunk and limbs. In these cases, however, swelling of the submaxillary glands is occasionally noticed, a symptom, to which scarcely any reference is made by writers of other countries.

In the disease as seen in our country, as described by Taylor,[8] Piffard,[9] Foster,[10] Van Harlingen,[11] and others,[12] the antecedent febrile condition is in most instances so slight as to escape observation; the distribution corresponds to that given by Fox, except that the eruption is usually less abundant.

French references to the disease are scant; not infrequently reference is made to contagious pemphigus, ecthyma, and herpes, which refer, in some instances, probably, to the disease under consideration.

The claims of the disease to individuality are generally recognized, although not universally so. The Germans are the main doubters. Kaposi,[13] the present leader of the Vienna School of Dermatology, has in his late treatise almost completely ignored the disease, mentioning it only to state that the cases giving rise to this name belong most probably, either to the domain of eczema, tinea tricophytina, or pediculosis; this in spite of the fact that he had some years previously not only

1 Fox: On Impetigo Contagiosa or Porrigo; British Medical Journal, 1864, pp. 467, 495, 553, 607. On Contagious Impetigo; Journal of Cutaneous Medicine, October, 1869, p. 231.

2 Wilson: Journ. of Cutaneous Med., April, 1868, p. 50. Anderson: Diseases of the Skin. London. 1872. Tuckey: Contagious Impetigo: Practitioner, Sept. 1876.

3 Kaposi: Ueber Impetigo (Faciei) Contagiosa und einen bei derselben gefundenen Pilz. Wien. med. Presse, June 4, 1871.

4 Simon (Oscar): Fälle von Impetigo Contagiosa; Berlin. klin. Wochenschr., Feb. 23, 1873.

5 Geber: Ueber das Wesen der Impetigo Contagiosa (Fox), oder Parisitaria (Kaposi); Wien. med. Presse, 23 and 24. 1876.

6 Unna: Ueber die Impetigo Contagiosa (Fox), nebst Bemerkungen iiber pustulöse und bullöse Hautaffectionen; Vierteljahrschr. f. Dermatol., Wien., 1880, vii.

7 Riegel: Ueber Impetigo Contagiosa; Berlin. klin. Wochenschr., 1881, xiii.

8 Taylor (R. W.): Four cases of Impetigo Contagiosa: Amer. Journ. Syph. and Derm., Oct. 1871. Clinical Observation on Contagious Impetigo Boston Med. and Surg. Journal June 6, 1872.

9 Piffard: Impetigo Contagiosa; its Parasitic Nature; New York Med. Journ., June 1872. Impetigo Constagiosa; its Relation to Vaccinia; New York Med. Journ. July, 1872.

10 Foster Herpes Contagiosus Variolformis. Archiv. Derm., Jan. 1875.

11 Van Harlingen: Impetigo Contagiosa; Med. and Surg. Rep., Sept. 8, 1878.

12 Fox (G. H.); A Case of Impetigo Contagiosa; Transact. New York Derm. Assoc. Archiv. Dermatol., April, 1877. Stelwagon: Impetigo Constagiosa; Fourteen Cases; The Specialist and Intelligencer. Nov. 1880. Beach; An Epidemic of Impetigo Contagiosa: New York Med. Record 1883, xxii. p. 63.

13 Kaposi: Pathologie und Therapie der Hautkrankheiten. Second edition. Vienna and Leipzig, 1883, p. 441.

granted the disease a distinct existence, but also, on account of having discovered a fungus in some of the crusts, had designated it by the new name of "impetigo parasitaria." Geber[1] and Lang[2] are disposed to consider it an unusual form of tinea tricophytina. Unna[3] considers it a distinct disease. Riegel[4] looks upon it as a contagious eczema, and suggests that it should be so named.[5]

Pediculi are, admittedly, capable of producing pustulation, but never the characteristic vesicles, vesico-pustules, and blebs of this disease; nor is it at all probable, even if so capable, that all the lesions would be so uniform, or that in several members of a family they would present the same characters. Then, again, itching is almost a constant sign of pediculosis, and is rarely present in contagious impetigo, nor would there be any probability of the disease being at all a definite one with such a cause acting.

Cases in which the eruption is in places confluent, and confined to the face and scalp, do resemble eczema somewhat, but the character of the primary lesions, their maturation, and indisposition to rupture, furnish sufficient grounds against this disease, without taking into consideration the contagious properties of the affection.

Those cases in which the vesico-pustules grow rapidly larger by extension of the peripheral wall give rise to the view that the disease may be an unusual form of tinea circinata. In these cases, Kaposi agrees with the views of Geber and Lang, who, as stated, consider the disease, in all its phases, of the nature of ringworm. Geber, in substantiation of his view, has reported one case in which characteristic patches of ringworm were present, the other lesions being typical of contagious impetigo; the fungus of ringworm was found, and the apparent identity of the two diseases announced. Lang[6] followed with a report of a similar case.

Any impartial observer reading the reports of these cases would have no doubt that instead of one process, there were two distinct diseases present. In a case in which the lesions were all typical of impetigo contagiosa, Geber found a fungus in one of the crusts resembling that found previously by Kaposi, but considered its presence accidental, to which view Kaposi subsequently yielded. It would be extraordinary to have so copious an eruption as is common in this disease from the fungus of tinea tricophytina, in which all the lesions would present characters so uniformly unusual, so extraordinary, I think as to be impossible. Moreover, with so much eruption, if the disease were ringworm, there should be no difficulty in detecting the fungus; on the contrary, attempts to do this are always negative, except in cases in which, as in those of Geber and Lang, ringworm clearly co-exists, and naturally such patches may furnish

1 Loc. cit.
2 Lang (E): Ueber Impetigo Contagiosa und ihre Stellung zur Dermato-mycosis tonsurans; Wien. med. Presse, 51, 1877.
3 Loc. cit 4 Loc. cit. 6 Loc. cit.
5 Lewkowitsch: Ein Beitrag zur Streitfrage der Existenz der Impetigo Contagiosa oder Parasitaria; Jahrb. für Kindh., p. 303, 1877.

the characteristic fungus. Admitting the difficulty at times of discovering the fungus in cases of ringworm of the body, and that the same would be true in unusual forms of it, there never is any difficulty in detecting fungous elements in the hairs when the scalp is affected, and this should be true, as Simon suggested, of patches of contagious impetigo in the scalp, were it a form of ringworm; microscopical examinations are, however, without result. Again, patients with impetigo contagiosa, if inoculated with the fungus of ringworm, should, I think, show resulting patches at least somewhat similar to the impetiginous eruption present, as a tendency to an unusual form of an eruption must be dependent upon the state of the skin or condition of the patient or surroundings, rather than upon any conditions of the fungus itself. On the contrary, in cases of this disease in which I made the experiment, and in a few of which, as a result, ringworm was produced, the patches were typical, and showed no tendency whatever to the production of a lesion or patch similar to the coexisting eruption of contagious impetigo. In fact, there is neither clinical nor microscopical proof that the disease is in any way related to ringworm.

American observers recognize the individuality of the disease with, to my knowledge, but one exception. Dr. Hyde,[1] in his treatise recently published, regards the disease as a variety or modification of simple impetigo—an impetigo following in the wake of a contagious disease. After describing the clinical history of the disease, and mentioning the fact that it frequently follows a contagious disease, Dr. Hyde says:

> "The natural conclusion seem to me irresistible. Impetigo contagiosa is merely an impetigo which must first, at least, occur in the skin of a patient who has lately suffered from a contagious disease (varicella, variola, vaccinia). The living matter of the pus shares, to a feeble extent, in the activity with which the protoplasmic elements of such a skin were recently endowed. Thus originated, and in this feeble degree inoculable, such a living pus could readily excite the protoplasm of another part of the body or of another individual not convalescent from a contagious disease to a similar activity. Especially should this be demonstrable in the tender and susceptible skin of a child. As regards any differences which have been named above between the features of impetigo in its non-contagious and contagious forms, these are all non-essential, and due to the difference in the activity of the process."

Is the fact, as Dr. Hyde states, that the disease follows a contagious disease correct and sustained by clinical experience? I think not. Among all the reports of cases, in a few instances only did the disease follow varicella, and I can recall no case in which it followed variola, and in only a small proportion of cases did it seem te have any relationship to vaccination. In the eighty-eight cases under my care during the past three years and a half, in one only did it follow varicella, in no instance had variola preceded, and in but six did it follow vaccination, and in these a period varying from one month to a year had intervened.

Postponing a further discussion of its possible relationship to vaccination till the subject of the nature of the disease is taken

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1 Hyde: Diseases of the Skin, p. 186.

up, and passing to a consideration of other questions raised by Dr. Hyde's theory, the next point suggested is: Can a pustular disease be so modified by a pre-existing contagious disease, which had some time previously occurred, as to present an entirely different clinical picture? I know of no example or proof in substantiation of this. Admitting, however, that such can take place, can such a modification be possessed of such characters as to propagate itself in its own modified form? If so, then there is a new disease, entirely differing from the original disease, and totally distinct and independent. I do not believe, however, that such can take place; clinical observation is against it, and it lacks both positive and negative demonstration. The clinical features of the two diseases are markedly different, and cannot be easily confounded.

If the disease is not a variety or modification of another disease, and its clinical characteristics are so distinct and different from other diseases, the conclusion must be reached that the process is an independent one, and the individuality of the disease must be admitted. This granted, the nature of the disease demands consideration.

In regard to this point but few observers are in accord; some viewing it as a parasitic disease, others opposed to this, and others again holding aloof and advancing no opinion. The eruption has distinct contagious properties; is inoculable, as well as auto-inoculable; to these facts most observers agree. This being the case, this contagion must be derived from a constitutional or local source. The question of the local source of the contagion, or the parasitic view, will be first considered.

Some points regarding the parasitic theory have been unavoidably touched upon in discussing the individuality of the disease, and a certain amount of repetition may be necessary.

Several observers, most notably Kaposi[1] and Piffard,[2] have attributed the disease to the presence of a fungus which they have discovered in some of the crusts. This view is, however, materially weakened at the start by the fact that in almost all instances the discovered fungus has been different from that discovered by others. Almost every observer has, in fact, been able to demonstrate the presence of a fungus in a few crusts, but many look upon it as accidental, a view which Kaposi, one of the first supporters of the fungus theory, subsequently adopted. Others, again, most conspicuously Unna, consider the disease, in all probability, due to a fungus, but admit that as yet the fungus has not been found. No one has been able to demonstrate a fungus in the contents of the lesions.

It is not at all surprising that fungi have been detected in some of the crusts, for it is well known that fungi may float about in the air, and may lodge upon anything exposed. Take the crusts of any disease, the non-parasitic nature of which is unquestioned, and the same result will be obtained. This I have done with the crusts of eczema and dermatitis, and in them I

1 Loc. cit. 2 Loc. cit.

have occasionally found not only the fungus described by Kaposi and Geber, and that found by Piffard, but also fungous elements of other characters. In all, five hundred examinations were made. The same was done with the crusts of impetigo contagiosa, and with about the same results, In numerous examinations of the contents of the lesions, I was never able to detect the slightest trace of a fungus, agreeing in this with the experience of all other observers. The fungi so far discovered in the crusts are, therefore, in all probability, adventitious, and in no way related to the disease. I may here say that not infrequently I have found micrococci in the contents of the *maturing* lesions, suggested by Crocker[1] as a possible cause of the disease, but these are not peculiar to this disease, and may be frequently found in pustules of other diseases.

In a disease with so copious an eruption as commonly observed in this affection, if it were in any way dependent upon a parasitic cause, there should be no difficulty in detecting the same fungus in several of the crusts, even if not in the contents of the lesion. A failure to do this is in itself against the supposition of a parasitic disease.

The aggregate results, therefore, of microscopic investigations of the disease, have been so far negative, and must be accepted as proving more or less conclusively its non-parasitic nature.

This conclusion is supported by the clinical features of the disease: the prodromic febrile disturbance, the character and progress of the eruption, the definite course, are all in opposition to the parasitic view.

The disease occurs mainly among the poorer classes: this has been looked upon as favoring its parasitic nature. It should have, however, but little weight, as all contagious diseases, it matters not what the contagium may be, are always more common among the poor and neglected.

Another view of the eruption, which is nowhere clearly advanced, although its suggestion is occasionally implied, is that which would consider the disease a general systemic one, and the cutaneous phenomena as its manifestations, resembling in this respect the other eruptive diseases—varicella, variola, and the like, and that the eruption is prolonged by auto-inoculation. This view is one, I think, which the writings of Fox in a measure suggest, although it is not distinctly so stated. This observer, in discussing the prodromic constitutional symptoms of the disease. says:[2]

"There is clearly an affection of the system at large before the occurrence of any eruption;" and then again: "There was in many instances smart pyrexia accompanying the development of the disease;" and further: "I noticed in the quasi-epidemic of 1870 how completely the definite course of the eruption was masked by the successive cropping-up of fresh places, in part induced by the inoculation from scratching, and also by the

1 Crocker: On the Contagium of Impetigo Contagiosa: Lancet, 1881, 1, p. 82.
2 Fox (Tilbury) : Skin Diseases. Second American Edition, 1879, p. 244.

fact that the patient scratched open the pustules before the scabbing had taken place, and so prevented their drying and healing up;" and further says: The natural course of the disease is a short and definite one."

There are several reasons in support of this view. The fact that there is a slight fever before the appearance of an eruption is a good basis for this supposition. That this is frequently absent, or at least so slight as to escape notice, may appear at first thought to antagonize such a view, This, however, occurs frequently in varicella, and occasionally in varioloid, as well as in other such diseases, the constitutional nature of which is unquestioned. Certain it is that the aggregate experience of observers points to the frequent occurrence of prodromic symptoms, or a period of invasion, especially when the disease occurs in young children. Like varicella and others of the eruptive diseases, it is a disease of childhood, and is frequently epidemic, and at times apparently infectious. The disease does not often recur. There is occasional swelling of the submaxillary glands. The disease is markedly contagious, and, moreover, frequently several children are simultaneously attacked, indicating a specific poison.

All these facts are in favor of the view under consideration.

Ordinarily the disease runs a short and definite course, and the clinical picture of it when this is the case is very characteristic of an acute contagious eruptive disease of a systemic nature, due to a specific poison.

It is only in those cases in which the eruption continues to appear for several weeks or even months that a doubt is thrown upon this view of the disease, and a suspicion aroused that the lesions are due to some external agent. The eruption is, however, auto-inoculable, and this may explain the occasional chronic character of the disease, although, to say the least, the explanation is unsatisfactory.

So far as my observations have gone, I incline to this view of the disease, strengthened as it has been by a careful study of the literature of the subject. This theory will explain the typical cases, and I am willing to accept for the present that, in some instances, the cutaneous manifestations are prolonged by the persistence of the auto-inoculable properties of the lesions after the active and essential disease has run its course: in this manner, new patches may be produced for several weeks, this inherent element of the vesico-pustules becoming gradually weaker, and finally its power to reproduce disappearing.

That this is, however, a correct explanation of the disease I am far from convinced; but if we dismiss the possibility of a parasitic cause (and the collective investigations of the disease certainly demand this), then I can think of no other alternative which will explain the disease as well as this, and which has so many grounds in its support.

As already remarked, the greater number of writers hold aloof, and advance no opinion as to the natnre of the disease,

Several have suggested that in some way it was related to vaccination, as has already been intimated. Fox himself stated that some cases followed this operation. Piffard[1] and Duhring[2] have seen such instances; Hyde also saw such relationship in some cases. Others have failed to recognize any connection whatever, and in many writings on the disease the question is not discussed, and the inference is that in these cases such relationship was not noticed. As before remarked, in my cases a dependence opon vaccination could not be demonstrated.

In addition to clinical observation, Piffard based this view upon the discovery of a fungus in the vaccine crust resembling that found in the crust of contagious impetigo. The fungus was found in a number of vaccine crusts, but only in several impetigo crusts, a fact suspicious in itself. No fungus could be seen in fresh vaccine lymph. It is probable that if impetigo crusts were exposed to the air as long as vaccine crusts usually are, an examination would disclose the fungus in a greater proportion. Dr. Piffard himself did not, however, consider this proof of a relationship conclusive.

There are several grounds against the supposition that the disease follows vaccination. The disease is commonly observed among the poor, and rarely among the well-to-do. Vaccination, on the other hand, is almost universally practised among the better classes, whereas among the poor it is frequently neglected. This being the case, contagious impetigo should not be so rare among the well-to-do, and so common among the poor; in other words, where vaccination is freely practised, scarcely any cases are observed. Again, the disease should be more prevalent during smallpox epidemics, as then vaccination is more common. A study of the literature of the disease fails to show that this was the case; on the contrary, the reports really prove the reverse.

Another point against it is that not infrequently the disease breaks out simultaneously in several children of a family, only one or two of whom had ever been vaccinated.

With these grounds, and the additional fact that in the mass of cases reported no connection with vaccination was observed, the conclusion is inevitable that no such relationship exists.

In summing up my investigations of the disease, as above detailed, the following resuls are adduced:

1. It is a separate and distinct disease
2. It is not parasitic.
3. It is not related in any way to vaccination.
4. It is an acute, contagious, systemic disease (exanthema) with cutaneous manifestations, having a definite course, and, in all probability, due to a specific poison.

The first three deductions are, I think, well founded; the fourth is merely suggestive.

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1 Loc. cit.

2 Duhring: Diseases of the Skin. Third edition. 1882, p. 298.