CLINICAL LECTURE ON ERYSIPELAS: ITS NATURE AND AFFINITIES.

Delivered at St. Bartholomew's Hospital.

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YOU may remember that, during the prevalence of erysipelas last winter several cases occurred in the hospital. For awhile, indeed, the disease may be said to have been epidemic here—on a very small scale, to be sure, but still large enough to yield some useful lessons. In one ward, Abernethy, between the middle of January and the beginning of March, five patients were attacked. There were of course many points of interest in this outbreak of the affection under our very eyes; an excellent opportunity was afforded for the study of it. And of these points I wish now to fix your attention especially upon two—those two which were illustrated by the cases in Abernethy, and by some of you very often discussed. The first of these is that, of the patients in the ward, those only who had wounds were affected—the subjects of diseases not accompanied by an open wound escaping; and that the first local sign of the disease—the blush of redness—almost always appeared at the margin of the wound. The second is that the disease, beyond question, spread by contagion; the fresh cases not appearing indifferently in any part of the ward, but the disease passing, in almost every instance, from the person affected to the patient nearest to him who had an open wound. Now, as you know very well, neither of these facts is new. Each of them, even when viewed singly, is full of importance; but how vastly is their significance augmented when considered together; what a light is thrown by each upon the other! How contradictory, too, at the first glance, they seem of each other! I remember that they struck several of you thus, and led to many questions. Let us consider one of them. Is erysipelas a specific fever, or is it a local disease? There are high authorities and much argument for either view. It may be said, perhaps, that the generally accepted view is, that erysipelas is a specific fever—allied, therefore, to scarlatina, measles, and small-pox. This is the doctrine set forth, for example, by the highest authorities in our standard works; but there are many eminent men who maintain the doctrine that erysipelas is simply a local disease. For examples of this view I may refer you to Mr. Higginbottom, in the BRITISH MEDICAL JOURNAL for June 7th, 1865, p. 11; also to an article in the same paper for June 18th, 1870, p. 632. Now the two facts, so marked in our cases to which I have alluded, seem, I say, at the first glance, to be diametrically opposed to each other on this great question. Did not the commencement of the disease about a wound imply a local origin? Does not the spread of such a disease by contagion imply an affection of the blood? If, indeed, the disease never infected patients without wounds, and then invariably commenced at their site, it might be argued that the passage of the disease from one person to another was still consistent with a local nature; but inasmuch as the disease may be transmitted to persons without any breach of surface, or, when transmitted to persons who have wounds, may (and in one of our cases did) first reveal itself upon a distant part, and throughout its progress never extend to the neighbourhood of the wound, then I submit that infection, under these circumstances, cannot be reconciled with the notion of a simply local disease.

Are, then, these two facts irreconcilably opposed? Let us seek for an answer by looking further into the character of erysipelas. In the first place, then, in what characters does erysipelas resemble the specific fevers? Upon what evidence is the doctrine of its affinity to these diseases founded? Erysipelas resembles the specific fevers in the following features. The local affection is accompanied by fever; the affection of the skin is usually preceded by obvious disturbance of the general health; the affection passes away after a very limited duration, and usually runs a tolerably regular and definite course; and, chief of all, it can be communicated from one person to another—it is infectious. But, on the other hand, it differs from these diseases in this great character—that, so far from one attack preventing another, it would appear rather that a proclivity is thereby induced; but whatever degree of doubt may exist about this, it seems clear that it has no power to protect the constitution from its own recurrence.

Other points of distinction between erysipelas and the specific fevers have been noted, but in value they bear no comparison with this one. Such are the following.

That in erysipelas the stage of incubation is extremely short, and not unfrequently absent.

Even assuming this statement to be literally true, it is surely worth very little in the question. When it is considered how widely, in this respect, the well established specific fevers differ from each other, and how wide an apparent difference is presented even by the same fever in different instances, this cannot be regarded as of any value or importance. Moreover, it may be fairly asked, Upon what evidence is it alleged that the stage of incubation is not unfrequently absent?

That the constitutional disturbance is mostly in exact ratio with the severity of the local inflammation, as if caused by it.

Surely this, as a ground of distinction, is very largely overstated. Indeed, the observation is in direct contradiction to that of others (see, for example, *System of Medicine*, vol. 1, p. 607-8, and *System of Surgery*, vol. 1, p. 215). The very most that can be truly said is, that perhaps in erysipelas there may be usually observed a closer relation between the severity of the local and constitutional symptoms than in the specific fevers. But, even accepting this statement as it stands, it cannot be considered as a mark of distinction of any moment.

That all proved blood-diseases, attended by rashes, produce them symmetrically, while erysipelas never does so.

Again, it must be asserted that this statement is vastly overcharged. The difference, such as it is, cannot be said to be more than one of degree.

That the stages of erysipelas are by no means uniform.

This statement must be qualified thus: the stages of erysipelas are not usually so uniform as those of the other diseases in question.

That the rash of erysipelas never comes out fully at once, but extends gradually from the part first affected.

Is this never true of any of the others? And as evidence of essential distinction, what is it worth?

I repeat, therefore, that, allowing their utmost value to these points of difference as evidence in proof of distinction, the absence of any power in erysipelas to protect the system from its own recurrence is worth far more than all of them together. This, in truth, is the cardinal character of distinction between erysipelas and the zymotic diseases commonly so called; and erysipelas, thus distinguished, however closely in many of its features it may, as assuredly it does, resemble the specific fevers, must be put apart from them.

Now, then, let us turn to the doctrine of the simply local nature of erysipelas. The evidence from which this conclusion has been drawn is, I think, chiefly that which has been advanced to show that erysipelas is not a specific disease. It has—at least by many—been in some measure assumed that, if erysipelas can be shown to be not a specific disease like scarlatina, the alternative must be that it is a purely local one. But to what extent is this conclusion borne out by evidence? First, there is the fact already insisted on—that erysipelas is a contagious disease—that it passes from one person to another. Then it may affect not only any part of the surface or of the integument, but also internal parts or organs; and there is good reason for believing that mischief of this nature more frequently affects internal parts than is commonly supposed. Then, again, the local mischief is often—nay, usually—preceded by obvious constitutional disturbance; and when of any extent, it is accompanied by well marked fever.

If, therefore, this disease is to be considered a local one, in the current acceptance of the term, what characters, it may be asked, should be regarded as proof of the constitutional nature of a disease? The one fact, apparently, in favour of the local nature of erysipelas is that which has been already pointed out, and which was so marked in our cases—the inflammation very often starts from a wound or local injury. Now, with regard to this important feature it should be noted, in the first place, that two or more very different affections are commonly confounded under the term: erysipelas proper, and diffuse phlegmonous inflammation, more or less acute, which, however closely it may resemble true erysipelas in aspect, is certainly distinct in its nature. Next—and this is of more importance—it is not one of the especial characters of erysipelas, in distinction from other forms of general, even zymotic, disease, that it is prone to manifest itself by local action in parts around a wound, which are, therefore, irritated or disturbed. In answer, then, to the objection—Why, if erysipelas be a constitutional disease, should its local action be so often determined to a wound? it may be replied that, assuming the idea of local irritation or disturbance as a determining cause to be good for nothing, yet such a fact of a disease unquestionably constitutional does not stand alone. To quote cancer may be said to be begging the question, because cancer itself is held by some to be a local disease; but it has been noted on

many occasions that, when scarlatina or measles has followed a surgical operation, the characteristic rash has first appeared about the wound, although in a part remote from those which, under ordinary circumstances, are earliest affected.

But, furthermore—for the association of erysipelas with wounds is frequent, and this cannot be said of the other affections—is it a character of the poison of erysipelas that it is prone to enter the system through an open wound? That the fact of its frequently starting from a wound may better be explained by the poison entering there, than by its being subsequently determined to the part by local irritation, seems suggested by the reflection that it is especially about wounds while open that erysipelas often begins, rather than in the neighbourhood of other injuries, which, although they may be far more severe, yet do not involve any breach of surface. It is not any kind of injury, however severe, but the open wound which is especially associated with the occurrence of erysipelas.

The terms local and constitutional, in their application to disease, are not—perhaps cannot be—sharply defined; but I think that, unless these words be strained from their ordinary signification, the facts in favour of the view of erysipelas being an affection of the blood outweigh altogether those which can be urged in support of its being simply a local malady.

If erysipelas, then, cannot, in the face of such evidence, be regarded as simply a local disease, nor again as a specific fever, where is its place? Looking at the mode in which it may be communicated, it cannot be doubted that the mischief is excited by matter of some sort, which is transferred from one person to another, and that the poison, when it enters the system, passes into and circulates with the blood. Erysipelas, then, I submit, belongs to that class of diseases which result from what is called blood-poisoning, of which pyæmia is the type; and that this view, which is now taken by many, of its nature and affinities is the only one in harmony with all the evidence before us.

Erysipelas is a disease in which the local inflammation is usually preceded, and in all but the most trivial instances always accompanied, by constitutional disturbance. The local inflammation may first appear on any part of the integument, and spread to any other part; and there is every reason to believe that local mischief of essentially the same nature may affect internal organs. It can certainly be communicated from one person to another, and yet probably sometimes arises independently of contagion. Although it often occurs independently of any wound, yet it so very frequently supervenes upon a breach of surface that the association cannot be passed over as accidental, but the wound must be regarded as fulfilling some condition peculiarly favourable to the occurrence of erysipelas. There is not the slightest evidence to show that it has any power of protecting the system from its own recurrence.

The nature of erysipelas and its affinity to pyæmia are still further disclosed by examinations after death. In the more severe cases—those that prove fatal—it is then, if not previously, found that the affection of the integument forms but a fragment of the whole mischief. Various internal organs reveal changes which cannot be distinguished from those wrought by pyæmia. Note the following passage from Mr. De Morgan's essay on erysipelas in the *System of Surgery*. After pointing to the morbid states of the viscera, he writes: "The principal morbid characters are found in the blood"; and "where death has occurred from the disease, the blood is sometimes thin and fluid, sometimes pitchy, often depositing a blackish powder. It stains the inner surface of the heart and great vessels, while the course of the superficial veins is tracked out by exudation. The corpuscles are much altered, broken up, and irregular." Then he continues: "A very important fact has, however, been mentioned to me by Mr. Busk—viz., that in all the fatal cases which he examined the lungs were highly congested, and that on close inspection the smaller pulmonary vessels were always found to contain pus; that, in fact, a minor degree of pyæmia was always present" (vol. I, p. 224). So, again, Dr. Russell Reynolds writes in his article, Erysipelas, in the *System of Medicine*: "It is well known that in many cases of fatal erysipelas, evidences of disease may be found in the spleen, liver, kidneys, lungs, bronchi, larynx, trachea, and fauces; but there is nothing specific in the character of the changes discovered in these organs—nothing, that is, which is peculiar to the disease called erysipelas—nothing, indeed, which depends on erysipelas *per se*; but all that may be found is only the sign of such general blood-change as may be associated not only with the disease now under consideration, but also with that large group of maladies which stands in close relation with pyæmia" (vol. I, p. 687). I quote these passages literally from well known authors in preference to using my own words, that in such a description of the morbid changes in erysipelas you may not suspect me of overstating the case for any purpose of argument. Such

changes can be attributed, I think, only to the action of some poison operating in and through the blood.

But while by the characters presented during life and the changes disclosed after death erysipelas declares its relationship to pyæmia, yet it differs from it as one member of a family differs from another in certain individual features. It may be communicated from one person to another; and in its especial liability to affect the subjects of open wounds it strikingly resembles pyæmia. But, then, it often appears in persons without wounds or any local injury whatever, and this is not the case with pyæmia. Is the poison, then, of erysipelas, whatever it may be, of a more subtle nature, and so able to penetrate more freely through unbroken surfaces? Indeed, the not unfrequent occurrence of erysipelas without previous local injury of any kind in persons who up to the time of the attack believed themselves to be in good health, and apparently as the result of mere exposure to cold and damp, will, no doubt, seem to many altogether opposed to the notion that a poison of any kind can be at work in the mischief. But here, again, assuming these cases to be, in their nature, one with those which arise from contagion, the positive evidence of a *materies morbi* in the latter class must be allowed to outweigh the negative evidence of the former. Moreover, it would appear that certain persons, and those only at certain times, are susceptible of an attack of erysipelas under conditions which, in those predisposed, suffice to induce it. It may be said that in such cases external influences of this kind act as the exciting or determining cause, but only upon those predisposed to the affection. In pyæmia, there is evidence that the poison may be either generated by the person himself or come from another, so in erysipelas it seems probable that the poison may sometimes arise from within as well as enter from without. The affinity of erysipelas to pyæmia—that they are but different forms or modes of expression of the same mischief—is shown by their very frequent association in the same case. In a case of general blood-poisoning, such as is called pyæmia, erysipelas very often supervenes, and is developed during the progress of the affection in very different degrees. Indeed, in such varying proportions are these two forms of blood-poisoning often blended, so gradually or alternately do the more striking symptoms of one or the other rise into the ascendant, that the same case will be called by one pyæmia, by another erysipelas. But, furthermore, when in the progress of a case, either with or without any apparent change in the wound, the patient becomes ill; when the temperature and pulse rise and at length come rigors, and the surgeon is for some time doubtful in what particular form the threatened mischief will appear, in such cases I hail with a sense of some relief the first appearance of a blush of erysipelas as, under such ominous conditions, the lesser of two evils. Far more hopeful is an encounter with erysipelas, even in a severe degree, than with that form of mischief in which the rigors, followed by profuse sweating, are at length succeeded by signs of mischief in the lungs or about the joints. It seems to me that erysipelas is distinguished from pyæmia in the proportion which the local bears to the general mischief. In erysipelas the local mischief is more intense; in pyæmia the general mischief is more profound. And although in the worst instances of both forms of disease both local and general mischief in the worst degree are wrought, in the lighter cases of these affections I think I often observe an inverse proportion between the two. When the action of the poison is more intense upon a part, there is, perhaps, a better chance for the system generally to escape.* So when a poison enters by a wound and expends itself directly by violent local action, the system generally is affected in a far less degree than if it passed directly into the blood. If poison have infected a wound, far, far better is violent inflammation, either in the form of erysipelas or otherwise, ending in suppuration about it or near it, or anywhere between it and the system at large, than rigors and rise of temperature and pulse, without any or with trivial signs of local disturbance. A resulting abscess under such circumstances may fairly be styled critical. Signs of irritation in the lymphatics, leading up to inflamed glands, are, for the same reason, full of promise of escape from the worst consequences: and, therefore, in view of the arrest or expenditure of the poison in local action as a favourable alternative to its circulation throughout the system, the ad-

* This, indeed, appears to me to be the cardinal point of distinction between septicæmia and pyæmia. They are not different kinds of disease, but rather different forms of the same affection, characterised by the relative degree in which changes in the blood itself and the local mischief consequent thereon are revealed. In the worst form of septicæmia, the blood is so poisoned and spoiled, that it kills outright before the local effects of this have time to develop and to pass through their several stages, or even to become fully manifest; whereas, in the milder forms of pyæmia, the mischief in the blood itself, being far less intense, escapes notice, does not, at least, so rapidly or directly destroy life, and is disclosed after death only by abscesses or other changes in various parts.

"As in experiment so in practice, the worst cases, those in which death is most rapid, reveal afterwards the least signs of local disease. Because in the very worst cases there has been no time for the local effects to supervene."

vent of erysipelas may be welcomed as an encouragement to the hope of escape from mischief which is far worse.

There can be no doubt, from clinical observation and actual experiment, that the blood may thus be poisoned by matter of various kinds. And although these various substances belong to the same class—being organic, are formed probably in the same way, are alike in their larger characters, and are capable, when they gain entrance into the blood, of exciting disease of the same nature, called blood-poisoning; yet these several substances possess, within their larger characters, certain individual peculiarities which are revealed in the extent and kind of changes they provoke; in the degree to which the blood itself is obviously affected; in the form of local mischief which ensues, even in some measure to the particular organs which are thus more prominently involved; and, lastly, though not least, in the proportion of the local mischief to the constitutional infection.

ON SICK-HEADACHE.

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IN an article on Migraine, in the November number of the *Practitioner*, Dr. Anstie "desires to make at once the claim of independent observation," as "more than one authority has lately put forward, as if it were a novelty, the doctrine, that sick-headache is essentially a neurosis." He adds that, for several years back, he has recognised "the nervous origin of sick-headache," and that it "is certainly a neuralgia, in the majority of cases affecting the first division of the fifth."

I wish to make one or two remarks on these quotations, having lately put forward in this JOURNAL (March 23 and 30, 1872) certain views respecting the pathology and treatment of this disorder, based upon the supposition that it was a nervous disorder, but, in my opinion, certainly not what is usually termed a neuralgia.

Every one, I am sure, will concede to Dr. Anstie his "claim to independent observation;" but, in so doing, it must be allowed that he has been somewhat remiss in his historical research. The idea that migraine is a neuralgia originated, not within the last ten years, but nearly a century ago, when Tissot, in his *Traité des Nerfs et de leurs Maladies* (Paris, 1783, t. iii, part. ii, p. 121) localised the malady in the same part as Dr. Anstie now does—in the first division of the fifth nerve. Romberg (*Lehrbuch der Nervenkrankheiten des Menschen*) calls it Neuralgia Cerebralis; and says "We are not likely to confound this affection now-a-days with facial neuralgia as older authors, Wepfer and Tissot, have done." (Romberg on *Diseases of the Nervous System*, translated by Dr. Sieveking, for the Sydenham Society. London: 1853. Vol. i, p. 177.) In referring to this, Hasse remarks "It might, with equal propriety, be regarded as having its seat in the ramifications of the trigeminus (Virchow's *Handbuch der Speciellen Pathol. u. Therap.* 1855. B. 4, ab. i, p. 70), and adds that a satisfactory explanation is still wanting. Dr. Anstie's meaning may perhaps be, that he is the first to *prove* that the disorder is certainly a neuralgia; this, I am inclined to think, has still to be accomplished. Lebert (*Handbuch der Praktischen Medicin. Vierte Aufl.* Tübingen. B. ii, s. 672); although he defines migraine as "a painful neuralgia probably in the ramus ophthalmicus," yet, when discussing the diagnosis of neuralgia of the trigeminus says, "Migraine has a great resemblance to neuralgia of the ramus ophthalmicus, and may really be so; but the former causes much greater disturbance of the sensorium, it spreads much more generally over the head, and is not infrequently accompanied with nausea and vomiting; after the attack there may be an intermission for weeks or months, and the attack itself runs a more uniform or continuous course" (*loc. cit.*, s. 699). These symptoms are not incompatible, however, with the disorder being, as I described it, an affection of the sympathetic ganglia. The theory which I advanced in my lecture (*loc. cit.*, p. 306) was this: if by fatigue, anxiety, or other depressing cause, the general tone of the body be lowered, and with it the regulating power of the cerebro-spinal over the sympathetic system impaired, then excitement of one or more portions of the latter takes place, causing contraction of the blood-vessels under the influence of the affected portions; this excitement is followed by exhaustion or paralysis of the sympathetic, and is associated (just as it would be after section of the nerve) with dilatation of the vessels, and—if the cervical portion of the sympathetic were affected—with headache. When this lecture was written, I was unaware that any author had previously given such a marked prominence to the sympathetic in the production of the series of symptoms. I have since seen two very important papers, though containing views diametrically opposed to each other, one published in

1860, by Du Bois Reymond (*Archiv. für Anatom. Physiol. u. Wissenschaftl. Medicin.* 1860. S. 461), the other, in 1867, by Dr. Möllendorff (Virchow's *Archiv.* B. xli, s. 385). I can, therefore, lay no claim to novelty in regarding migraine as an affection of the sympathetic. Dr. Edward Liveing, whose paper in the BRITISH MEDICAL JOURNAL (April 6, 1872) leads one to look with impatient hope for the early publication of his forthcoming work, though not denying "that disorders of local circulation occur in the course of megrim, and that the implication of the sympathetic may play an important part in their production, yet regards them among the least constant and regular of the phenomena, and certainly not as essential and as the cause of the rest." Dr. Liveing regards the phenomena as those of "a nerve-storm traversing more or less of the sensory tract from the optic thalami to the ganglia of the vagus, or else radiating in the same tract from a focus in the neighbourhood of the quadrigeminal bodies." These views, I trust, we shall soon be able to discuss, when Dr. Liveing's treatise is published. He refers, however, in his paper, to Du Bois Reymond's views, but only to dissent from them; and herein I agree with Dr. Liveing. Du Bois Reymond assumes that migraine is a "tetanic condition of the muscular fibres of the arteries in the affected side of the head, or a tetanus of the cervical portion of the sympathetic nerve of that side" (*loc. cit.* p. 464); that, during the headache, the arteries are in this tetanised condition, the pupil of the affected side dilated, and the temporal artery like a hard cord. Dr. Liveing says, "I carefully compared the temporal arteries in a well-marked hemicranial paroxysm, but could discover no such increased rigidity of the one on the painful side as Du Bois Reymond describes." Du Bois Reymond himself saw a difficulty about his hypothesis, for he says, p. 465, "One symptom among those presented above, and which is never wanting in the description of migraine, certainly does not accord with our theory; namely, the reddening of the conjunctiva, which occurs during the attack. The reason of this, probably, may be that the muscular fibres of the vessels of the conjunctiva are either relaxed earlier, or began to contract sooner than those of the other affected vessels." The tetanic state has, in fact, passed away with the commencement of the headache; the beat of the temporal artery, instead of being hard, is soft and full, its walls have lost their tonicity and are yielding, and this condition is also shown by the reddening of the conjunctiva.

That the stage of headache is accompanied by a fulness of the vessels, is shown very strikingly by Möllendorff's investigations. Had I seen this author's paper before my own was published, I should merely have brought forward my examples in support of his views, but, at the same time, I should have insisted more strongly than he does on the antecedent contraction of the arteries, and especially its relation to the disturbance of vision which, in many cases, precedes the headache. Möllendorff says (*loc. cit.*, p. 387), "If, during an attack of hemicrania, sufficient pressure be exerted on the common carotid of the painful side near the thyroid cartilage, as almost to stop pulsation in the temporal artery, the headache ceases as if by a charm, the eyes are joyfully opened, and the depressed and painful expression passes off. But, on discontinuing the pressure, the pain unfortunately returns with the first wave of the pulse. The first pulsations are, in fact, more painful than before; since, owing to the defective tonicity of the vessel, the fresh rush of blood causes greater vibration of its walls; the throbbing, however, soon becomes more uniform."

"If, on the other hand, before the pain has reached its climax, the carotid artery of the opposite side or the subclavian artery of the same side be compressed, the pain is then increased. The blood-stream in one direction being thus cut off, a greater volume of blood is driven towards the relaxed carotid, and, owing to the paralysed muscular tonicity, admitted into it. If, however, the pain have reached its climax, then compression of the carotid artery of the unaffected side alleviates somewhat the headache, by allowing a more rapid lateral flow of blood to the unaffected side, and so relieving the painful side. This experiment has been invariably successful with every person that I have had an opportunity of seeing, during an attack of hemicrania."

"That there is an increased arterial flow of blood, resulting from the enlargement of the vessels, is also strikingly shown by the ophthalmoscope. It is, however, difficult to prevail upon the patients, during the attack, to submit to this very painful investigation. I can, therefore, only furnish the following result of repeated observation on the same individual."

"The eyes were quite normal and darkly pigmented. During the intervals between the attacks, no difference was observable in the two eyes on examining them with the ophthalmoscope. The fundus appeared dark brownish-red; the optic papilla normal; the arteria and vena centralis retinæ in each eye equal. During the attacks, the fundus of the affected eye was bright scarlet red; the optic papilla reddened and swollen; the arteria and vena centralis retinæ broader—the latter