A Lecture ON SKIN RASHES IN CHILDREN.

DELIVERED AT THE MEDICAL GRADUATES' COLLEGE
AND POLYCLINIC.

BY

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THE nomenclature and classification of skin diseases has always been a more or less well deserved subject of reproach to dermatologists, and even at the present day there are still grounds for criticism. The old-fashioned grouping of skin diseases, according to their anatomical appearances, into papular eruptions, vesicular eruptions, and so on, had the merit of simplicity, but it grouped together diseases which are entirely dissimilar without giving any indication of their nature or causation. Modern classifications which try to group all skin diseases according to their origin—microbic, parasitic, nervous, or otherwise—are perhaps a step in advance; but the weakness of such classifications is that there is a considerable number of skin affections to which no place can be assigned, and which must therefore come under the heading of unclassified diseases. This applies even in such a small branch of dermatology as the rashes of children, and I shall therefore only deal with some of the common rashes which you are constantly meeting with, and call attention to some of their less common features, without any formal attempt at classification.

A medical man in active practice must necessarily have an acquaintance with the ordinary rashes of children, and especially a more or less accurate knowledge of the eruptions of the acute specific fevers. And yet mistakes are sometimes made, and I have seen a belladonna rash diagnosed as scarlatina, a bullous urticaria as varicella, a copaiba rash as measles, a pustular syphilide or an impetigo contagiosa as small-pox, while on the other hand I have known a case of typhoid fever with prominent intestinal symptoms sent into hospital as a case of appendicitis for immediate operation, a well-marked rose-red rash having been overlooked.

Even in the case of diseases so commonly met with as these there is often good excuse for a wrong diagnosis by any one who is not a skin specialist. Such is especially the case when the exanthem is not accompanied by any well-marked constitutional symptoms, and there is no history of the patient having been exposed to infection, or when the eruption is anomalous or coexists with some antecedent skin disease for which the patient is already under treatment. Of course these ill-defined, mild forms of zymotic disease are a great danger to the community, and may, if unrecognized, mean almost ruin to small private schools, and even to much larger institutions, when an epidemic has been allowed to originate and spread unchecked. Some of the contagious diseases, such as ringworm, even in the old days, before the universal use of x rays, were capable of producing almost as great a scare in small boys' schools. Ringworm is, however, becoming rare among the better classes, but again this summer I have seen cases of tinea cruris in boys from one of our best known public schools, where the disease had been allowed to spread through the carelessness of the school authorities.

Although the general characteristics of the infectious fevers are well known, it may not be out of place to call attention to some of their less well-defined and anomalous characteristics. In scarlatina the invasion is usually sudden, and in children may be marked by the occurrence of convulsions. The temperature rises rapidly, and may in the course of a few hours reach 102° or 103° F. The fever does not diminish after the appearance of the rash, which occurs during the first twenty-four or forty-eight hours, and is marked by exacerbations in the evening and remissions in the morning. In fatal cases hyperpyrexia with a temperature of as much as 108° occurs, and is accompanied by delirium or nervous depression. The rash makes its appearance first on the trunk, and spreads

from the chest and abdomen to the arms and thighs and legs, but the face may escape entirely. To the touch there is often a feeling as of minute elevations in the neighbourhood of the hair follicles, but the punctiform appearance of the rash may be well marked even when the skin feels quite smooth. The rash is usually said to be scarlet, but is really of rather a deeper and duller tint, and in severe cases is accompanied by minute haemorrhagic spots which disappear on pressure. Another abnormality of the exanthem is the occasional excessive prominence of the papular lesions, which give the rash rather the appearance of that of measles than scarlet fever. Again, in some cases at the height of the eruption very numerous small vesicles make their appearance at the anterior axillary folds, or on the chest and abdomen, and these vesicles are found to contain a minute drop of cloudy fluid. On the other hand, in some instances the rash is so indefinite that it is entirely overlooked or misconstrued, and cases are said to occur in which the rash is entirely absent and the disease only recognized by subsequent peeling or albuminuria, or by the occurrence of scarlatina in other members of the family. In most cases, however, there is a certain amount of sore throat, and this is often one of the first symptoms, and may give a clue to the diagnosis when other symptoms are quite indefinite. Some cases of scarlatina are complicated by diphtheria, and in them the Klebs-Loeffler bacillus can, of course, be demonstrated, but it is important to remember that in some 10 per cent. of cases the two diseases coexist.

Mistakes in diagnosis usually take the form either of overlooking the rash altogether or of mistaking it for erythema scarlatiniforme, measles, dermatitis exfoliativa neonatorum, or a drug eruption, especially that caused by belladonna.

Erythema scarlatiniforme may be distinguished by the eruption being less punctiform but more diffuse and uniform, by the greater persistence of the rash and its tendency to recur, and by the absence of throat symptoms.

Measles eruptions are sometimes very like scarlet fever, but in the former the face is involved early, in the latter often not at all. In measles the spots are macular rather than punctiform, with a tendency to a crescentic outline, due to small portions of normal skin intervening between the irregular erythematous areas. Moreover, the rash of rubella is preceded by four days of catarrhal symptoms, and may be accompanied or preceded by the appearance of small bluish-white spots situated on a red base on the buccal mucous membrane opposite the molar teeth. Dermatitis exfoliativa neonatorum is a rare form of pemphigus neonatorum, due to streptococcal infection, and characterized by definite desquamation over considerable areas, which is seldom accompanied by the sore throat, fever, and albuminuria of scarlatina, and, with reasonable care, should not be mistaken for it.

Drug eruptions, and especially belladonna rash, are sometimes of an erythematous character, which closely simulates scarlatina, but they are less punctiform in character, more diffuse, are unaccompanied by the sore throat and constitutional symptoms of the infectious fever, and are frequently associated with dilatation of the pupil and a pricking sensation of the affected skin.

A rash very similar to that of scarlet fever sometimes makes its appearance as a prodromal eruption in small-pox, and especially in the milder forms of the disease. It is scarlatiniform in character, but only of short duration, and generally disappears within forty-eight hours. This rash generally shows itself on the second day, when the constitutional symptoms of headache, vomiting, and pain in the back are well marked. The small-pox rash, of course, makes its appearance on the third day of illness, and then these symptoms often diminish or disappear. Of the appearances and characteristics of the typical small-pox eruption I do not propose to say anything, as it is sufficiently familiar, but every one is not equally well acquainted with some of its anomalous forms. Of these the most unfavourable to the patient is the appearance at the end of the incubation period, when the true rash appears or should appear, of a petechial eruption. The petechiae and ecchymoses are not raised above the level of the skin, and at first they disappear on pressure. They may lie in the spaces between the vesicles of the ordinary small-pox eruption, and the fluid in these vesicles then often becomes

stained with blood and the contents haemorrhagic. The petechiae are quickly followed by definite purpuric lesions, of a purple or dark-red colour, which do not disappear on pressure, and are diffusely scattered over the limbs and trunk. The purpuric patches generally spread to the face, which becomes swollen and puffy. The patches sometimes take on a still darker tint, and the pustules contain a mixture of pus and blood. Haemorrhages also occur from the mucous membranes, the patient becomes intensely prostrated, and death almost invariably occurs.

Such severe cases are not often seen nowadays, indeed the tendency of the disease seems to be towards a milder type, and you may remember an epidemic of small-pox in America some years ago in which the mortality among many thousands of vaccinated and unvaccinated cases in the United States during the first three months of 1901 was not much over 1 per cent. This epidemic was of a mildness absolutely unprecedented, and we can only hope that the next epidemic in England, which is certain to come in time, may be marked by an equal want of severity.

The differential diagnosis of small-pox is of some interest, as it is so often mistaken for varicella, pustular syphilis, bromide eruptions, and impetigo contagiosa. The most frequent mistake is to confuse it with varicella. In varicella there are not the same initial symptoms so characteristic of a well-marked case of variola, but the initial symptoms are either absent or so modified in mild cases of small-pox that a diagnosis has to be made from the appearances of the rash. In varicella the eruption consists of distinct vesicles, containing clear fluid, which are unilocular and easily ruptured. They are rather soft to the touch, variable in size, from a millet seed upwards; they may be seen in every stage of development, and first make their appearance on the back and parts of the body covered by clothing. They make their appearance in crops, and in two to four days become covered with a crust, which is brownish in tint, and, when it falls off, leaves a red rather than a pigmented spot, which passes into a very superficial temporary scar. Umbilication is rare, and only occurs from drying up of the central contents.

On the other hand, the small-pox eruption at first consists of hard, shotty papules which show themselves on the face, and afterwards on the trunk and limbs and hands, but most abundantly on the uncovered portions of the body. The papules soon develop into vesicles, and then into pustules with dense, cloudy contents. They are often umbilicated, are multilocular and not easily ruptured, become covered with a thick scab which falls off, leaving a pigmented spot with some amount of pitting. These various changes in the papule usually take place in ten to fourteen days; in mild cases the time may be somewhat shorter.

When the prodromal symptoms are well marked, and the initial eruption abundant and typical, there is little difficulty in making a diagnosis; but in mild, sporadic cases of small-pox all the above points of difference should be taken into account, and, in any very doubtful case, the patient isolated for a few days, when the nature of the illness will make itself sufficiently clear.

A pustular syphilide may, especially when the initial lesion cannot be determined, easily give rise to a suspicion of small-pox. In both diseases there is initial fever, with prodromal joint and back pains and headache, and in both a papular eruption which becomes pustular. But in the syphilide the course of evolution in the rash takes longer. There is more definite induration at the base of the lesions, which are often polymorphous and in places tend to ulceration. The eruption of syphilis comes out in successive crops instead of at one time, and is usually accompanied by sore throat and enlarged supratrochlear or suboccipital glands. Of course, the discovery of a primary chancre, whether of the tonsil, mamma, or elsewhere, would make the diagnosis conclusive. It is hardly worth while to discuss the differential diagnosis from bromide and other drug eruptions, or from impetigo contagiosa, for, with ordinary care, such mistakes should never arise.

In connexion with the prevention of small-pox by vaccination, some rather interesting developments are at times met with in children.

Vaccinia, or cow-pox, when artificially induced in the human subject by inoculation, is, of course, in most cases

protective against small-pox, and usually runs a mild and normal course; but it may be of interest to call attention to some anomalous results of such inoculations. Perhaps the most unusual of these is, instead of the ordinary pustule, the formation of a granuloma. This has been described most frequently by American authors. After the vaccine vesicle has been partly developed it ruptures, and the lesion takes on an indurated granulomatous appearance, somewhat allied to that of botryomycosis, which may persist for some weeks without undergoing involution and without marked change in its characteristics. The peculiar fact about such developments of the vaccination vesicle is that they are *not* protective against small-pox. They disappear like an ordinary vaccinia with simple antiseptic treatment, leaving slight scarring.

At the other end of the scale are those very severe reactions which are accompanied by acute phlegmonic inflammation and sloughing and well-marked constitutional disturbance, and, when the lesions become generalized, seriously affect the general health, and may even cause death. Quite apart from the ordinary vesicles which develop as a result of vaccination, and even preceding them, certain skin eruptions may occur as a result of the toxæmia produced by the vaccine virus. The morbilliform rash which is sometimes produced by injecting diphtheria antitoxin is, of course, well known, but the rash which follows vaccination in the first two or three days is rather of an urticarial character, with the usual appearance of this disease, or resembles a local or general erythema or an erythema multiforme. When the rash is of the nature of an erythema multiforme, it may be associated with the presence of vesicles or bullae, but these are only of a transitory character and soon disappear. Most of the bullous eruptions which appear two or three weeks after vaccination are usually forms of bullous impetigo contagiosa, due to a secondary streptococcal infection. A week or so after vaccination, absorption of the virus may produce a purpuric or erythematous eruption, and, as sequelae of vaccination, psoriasis, eczema and other skin diseases have been described, but I think it doubtful how far they have any connexion with the vaccination. I have recorded cases of lupus vulgaris appearing on a vaccination scar, and cases of syphilis and leprosy are also said to have occurred from inoculation of these diseases at the time of vaccination, but again it is impossible to prove that the wound has not become contaminated secondarily. If such cases have occurred, they were unquestionably due to gross carelessness on the part of the operator, and are hardly likely to recur at the present time. Pemphigoid lesions might result from the use of calf lymph, inasmuch as such lesions do occur in cows and might conceivably be conveyed to the human being with the lymph, and cases of acute pemphigus have undoubtedly occurred in butchers and others who have to do with cows, probably as a result of inoculation. True erysipelas, with the typical fever, constitutional disturbance and rapidly spreading inflammation of the skin with a sharp-cut edge, has been said to occur as a result of a mixed inoculation at the time of vaccination, but again it is difficult to be sure how many cases have resulted from secondary infection at some period following vaccination. Generalized vaccinia is of very infrequent occurrence, and more than sporadic cases seldom occur. The eruption is either sporadic, in which case a few vesicular lesions occur around the point of inoculation, or the eruption may become partly or entirely generalized, an extensive pustular rash spreading over the body a week or more after vaccination and continuing to spread for a month or so longer. If very extensive it may cause the child's death.

Epidemic generalized vaccinia is still more rare, but such an epidemic of unusual severity was recorded by Hill and Ross in the *Journal of Hygiene* in 1910. The epidemic involved 426 cases with 31 deaths, and of these cases 363 and 28 deaths occurred in the cool districts of Natal, while 62 cases and 3 deaths occurred in warmer districts. The cases in the epidemic may be classed in three groups:

1. In 20 per cent. a generalized eruption, apparent all over the body from the fourteenth to the twenty-eighth day after vaccination, and, in many cases, after the scab had fallen off.
2. In 75 per cent. secondary vesicles made their appearance round the original vesicle on about the eighth day, followed by

crops in various parts of the body for the next two months, and in certain cases even for three months.

3. In the remainder the eruption followed one of the preceding types, then subsided altogether, to reappear a month or so later, after some ailment or some lesion, such as a burn.

In the first group the eruption appeared as small macules, which were surrounded by a slightly reddened area, but the hard, shotty feeling, which is characteristic of the small-pox papule, was absent. The macules became papular, and in two or three days vesicular umbilication was frequent, and on about the eighth day they became pustular, and secondary fever set in. The eruption appeared also on the mucous membranes of the mouth, gums, palate, and pharynx. The lesions were, as a rule, more abundant on the vaccinated than the unvaccinated area, and were especially well marked on the forehead, neck, and scalp. On the front of the neck the lesions often tended to become confluent. The rash was often extensive on the thighs, less on the chest and back, and still less on the palms of the hands and soles of the feet, and scanty or even absent from the abdomen. The general appearance rather suggested small-pox, the temperature was high, and the children, in severe cases, got gradually weaker and weaker, and died either of exhaustion or some intercurrent affection, such as enteritis, bronchitis, or bronchopneumonia. Death occurred usually in the later stages of the disease, some as early as five weeks after vaccination, some as late as three months.

A calf was inoculated with some lymph from the vesicle on one of the children's feet, and typical but not very extensive vesicles resulted. The lymph was obtained from one source only, and about 75 per cent. of the individuals who suffered were vaccinated from a packet of tubes bearing one number, which would seem to indicate that the contents of the packet came from one calf. The total amount of lymph, however, was taken from six calves, and this would seem to indicate a particular factor inherent in the strain of lymph rather than in the reaction of any particular calf.

I have already drawn attention to the fact that nearly six times as many cases occurred in the cool districts of Natal as in the warm, and this may perhaps be accounted for by some change which took place in the lymph when exposed to a higher temperature.

So far I have dealt with diseases which are well recognized as infectious, but I shall now say a few words about a skin disease which is not more than mildly contagious, but of which I seem to have seen more cases last summer than usual. I mean pityriasis rosea.

Although a well-marked case of this disease is fairly straightforward and easy of recognition, the less well-defined cases may easily be mistaken for seborrhoeic eczema, psoriasis, tinea circinata, or the maculo-papular scaly syphilide. The eruption is sometimes discrete, frequently confluent, irregular or circinate in outline, slightly raised or scaly, and of a pale pink or reddish colour. The patches are most abundantly situated on the trunk, and may not number altogether more than twenty or thirty, or they may cover practically the whole of the chest, abdomen, and back, and also be present on the limbs. They vary in size from a pea to an inch or more in diameter, and may either attain their full size and number in a few days, or increase slowly during a period of a week or two, showing themselves irregularly one after the other or in several distinct crops. Some of the larger patches spread peripherally and clear up in the centre, so as to form circinate lesions of varying size, becoming, as they tend to fade, of a salmon-pink colour. After the rash has been present several days, some such circinate patches are generally found, very slightly raised above the surface, but with a well-marked scaly surface. Small patches often tend to coalesce, to form larger lesions, which again clear up in the centre and spread peripherally. The face is rarely involved, but the neck, chest, arms, and thighs all tend to be affected. Subjective sensations are uncommon, and at the most there is slight itching when the patient gets at all hot.

A peculiarity of the disease, which is quite characteristic, is the appearance in many cases of a so-called "herald patch," which is larger than the other subsequent patches, and precedes them by a week or ten days. It is of the same colour as the succeeding generalized eruption, but may be more well defined and somewhat more scaly. The

disease is almost equally common in both sexes, and may appear at any age; it is said to be less frequent in individuals of dark hair and complexion, but I am not myself convinced of this.

Although no ringworm fungus or other parasite has ever been found in the disease, it is, as I have already stated, in my opinion undoubtedly parasitic, and probably mildly contagious, inasmuch as more than one case in the same family has been recorded by several observers. Microscopic examination does not help us much, except to show the absence of ringworm fungus, and a diagnosis cannot be made from microscopic sections alone. But apart from the absence of ringworm fungus in the scrapings, a distinction from tinea circinata can often be made clinically from the fact that the lesions of pityriasis rosea are rarely so circular as those of tinea circinata, and the peripheral border is not so sharply marginate, while the centre does not tend to clear up so thoroughly as in cases of body ringworm. Also, the lesions of tinea circinata are much more frequently found on the face than those of pityriasis rosea.

In psoriasis the distribution is also different, and the elbows and knees and scalp are much more frequently affected, the scales are thicker and more adherent, and the edges of the patches are sharper and more defined.

Seborrhoea may closely simulate pityriasis rosea, but the scalp or eyebrows are frequently involved in seborrhoea, the scales are more greasy, and its evolution is slower.

The maculo-papular syphilide, for which pityriasis rosea is so often mistaken, differs in that there is more definite infiltration, the lesions are somewhat darker in tint and occur more frequently on the palms and face, while there is usually corroborative evidence of syphilis to be found elsewhere.

As regards treatment, a soap and water bath every day, or, if there is any itching, a starch or alkaline bath, should precede the application of any lotion or ointment. An excellent lotion may be ordered of glycerini acidi carbolici mxx , sodii bicarb. gr. x , boracis gr. v , aq. dest. $\text{ad } \text{zj}$; or liq. sodae chlorinatae mxxx , spt. lavand. zij , aq. dest. $\text{ad } \text{zj}$. If an ointment is preferred, a weak sulphur or salicylic ointment, containing 15 grains of either or both to the ounce of vaseline, may be ordered; or an ointment containing yellow oxide of mercury and resorcin may be made up with lanolin and lard. Under such treatment the disease tends to disappear in about a month.

Many even of the common rashes which occur in children have been of necessity omitted from this paper, and I can only hope that some of the features in children's rashes to which I have tried to draw attention may prove of slight assistance or interest to some one in practice.

THE late Sir Joseph Dalton Hooker, O.M., M.D., the famous botanist, left estate of the gross value of £36,861, of which £32,380 is net personality.

THE usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on March 15th, Dr. de Havilland Hall in the chair. The amount of sickness pay disbursed in the early months of the year is always much greater than the amount required in the summer and autumn, and so far the experience of 1912 is about normal. The number of new sickness claims received has been rather large, but, being for the most part of short duration, they have not caused a more than usually heavy expenditure. The committee examined the draft of the annual report for 1911. The business of the society during last year was exceptionally good, and produced a considerable increase in its financial stability. The invested funds now exceed a quarter of a million sterling. The number of new entrants has grown with the age of the business, and the number obtained in 1911 was, with one exception, the largest secured during any previous year's working. The number of sickness members who attain the age of 65 years and, in accordance with the rules, then go out of benefit necessarily grows year by year. A substantial bonus is paid to each of them, and by a recent resolution of the committee a bonus is paid to the representatives of those sickness members who die before attaining the age. Many letters received at the office show that these bonuses are very much appreciated. Prospectuses and all further particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.