

begins to fade. Even before it has entirely gone, desquamation usually begins. Some of these cases cannot be distinguished from scarlet fever in the stage of eruption. The throat symptoms, however, are usually absent, and the tongue rarely shows the changes which are so marked in scarlet fever. In the desquamation of this affection the hair and nails are commonly affected. It is, too, a disease liable to recur. Some of the instances of second and third attacks of scarlet fever have been cases of this form of dermatitis.

2. *Measles*, which is distinguished by the longer period of invasion, the characteristic nature of the prodromes, and the later appearance of the rash. The greater intensity of the measly rash upon the face, the more papular character, the irregular crescentic distribution, are distinguishing features in a majority of the cases. Other points are the absence of the sore throat in measles and the peculiar character of the desquamation.

3. *Rötheln*.—The rash of rubella is sometimes strikingly like that of scarlet fever, but in the great majority of cases the mistake could not arise. In cases of doubt the general symptoms are our best guide.

4. *Septicæmia*.—As already mentioned, the so-called puerperal or surgical scarlatina shows an eruption which may be identical in appearance with that of true scarlet fever.

5. *Diphtheria*.—The practitioner may be in doubt whether he is dealing with a case of scarlet fever with intense membranous angina, or a true diphtheria with an erythematous rash. The erythema in diphtheria may appear early, before the throat symptoms are well developed, or as they are appearing, in which case it is usually slight and disappears quickly. There is also, when the disease is at its height, a later erythema, which may be very diffuse and intense. The subsequent desquamation can not always be relied upon to make clear the diagnosis, for any intense erythema of sufficient duration will be followed by this process. None of the preceding conditions offer difficulties so great as these cases of angina with erythematous rash, and it may be impossible to determine satisfactorily the true nature of the trouble. Fortunately, so far as treatment is concerned, this does not make much difference. A bacteriological examination of the exudate should be made in doubtful cases.

6. *Drug Rashes*.—These are partial, and seldom more than a transient hyperæmia of the skin. Occasionally they are diffuse and intense, and in such cases very deceptive. They are not associated, however, with the characteristic symptoms of invasion. There is no fever, and with care the distinction can usually be made. They are most apt to follow the use of belladonna, quinine, and iodide of potassium.

**Prognosis.**—Epidemics differ in severity and the death-rate is extremely variable. Among the better classes the death-rate is much less than in hospital practice. There are physicians who have treated consecutively a hundred or more cases without a death. On the other hand, in hospitals and among the poorer classes the death-rate is considerable,

ranging from 5 to 10 per cent in mild epidemics to 20 or 30 per cent in the very severe.

The younger the child the greater the danger. In infants under one year the death-rate is very high. The great proportion of fatal cases occurs in children under six years of age.

The unfavorable symptoms are very high fever, early mental disturbance with great jactitation, the occurrence of hæmorrhages (cutaneous or visceral), intense pseudo-membranous angina with cervical bubo, and signs of laryngeal obstruction.

Nephritis is always a serious complication and when setting in with suppression of the urine may quickly prove fatal. It is noteworthy, however, that a large majority of the cases of scarlatinal nephritis recover.

**Treatment.**—The disease cannot be cut short. In the presence of the severer forms we are still too often helpless. There is no disease in which the successful issue and the avoidance of complications depends more upon the skilled judgment of the physician and the care with which his instructions are carried out.

The child should be isolated and placed in charge of a competent nurse. The temperature of the room should be constant and the ventilation thorough. The child should wear a light flannel night-gown, and the bedclothing should not be too heavy. The diet should consist of milk, broths, and fresh fruits, and water should be freely given. With the fall of the temperature, the diet may be increased and the child may gradually return to ordinary fare. When desquamation begins the child should be thoroughly rubbed every day, or every second day, with sweet oil, which prevents the drying and the diffusion of the scales. An occasional warm bath may then be given. At any time during the attack the skin may be sponged with warm water. The patient may be allowed to get up after the temperature has been normal for ten days, but for at least three weeks from this time great care should be exercised to prevent exposure to cold. It must not be forgotten, also, that the renal complications are very apt to develop during the convalescence, and after all danger is apparently past. Ordinary cases do not require any medicine, or at the most a simple fever mixture, and during convalescence a bitter tonic. The bowels should be carefully regulated, either with small doses of calomel or with mild aperients.

Special symptoms in the severe cases call for treatment.

When the temperature is above 103° the extremities may be sponged with tepid water. In severe cases, with the temperature rapidly rising, this will not suffice, and more thorough measures of hydrotherapy should be practised. With pronounced delirium and nervous symptoms the cold-pack should be used. When the temperature is rising rapidly but the child is not delirious, he should be placed in a warm bath, the temperature of which can be gradually lowered. The bath at a temperature of 80° is beneficial. In giving the cold-pack a rubber sheet and a thick layer of



blanket should be laid upon a sofa or a bed, and upon this a sheet, wrung out of cold water. The naked child is then laid upon it and wrapped in the blankets. An intense glow of heat quickly follows the preliminary chilling, and from time to time the blankets may be unfolded and the child sprinkled with cold water. The good effects which follow this plan of treatment are often striking, particularly in allaying the delirium and jactitation, and procuring quiet and refreshing sleep. Parents will object less, as a rule, to the warm bath gradually cooled than to any other form of hydrotherapy. The child may be removed from the warm bath, placed upon a sheet wrung out of tolerably cold water, and then folded in blankets. The ice-cap is very useful and may be kept constantly applied in cases in which there is high fever. Medicinal antipyretics are not of much service in comparison with cold water.

The throat symptoms, if mild, do not require much treatment. Applications may be made with a spray, and if the laryngitis becomes severe the measures should be used which will be mentioned under croup. Cold applications to the neck are to be preferred to hot, though it is sometimes difficult to get a child to submit to them. In connection with the throat symptoms the ears should be specially looked after, and a careful disinfection of the throat by suitable antiseptic solutions should be practised. When the inflammation extends through the tubes to the middle ear, the practitioner should either himself daily examine the conditions of the drum, or, when available, a specialist should be called in to assist him in the case. The careful watching of this membrane day by day and the puncturing of it if the tension becomes too great may save the hearing of the child. With the aid of cocaine the drum is readily punctured. The operation may be repeated at intervals if the pain and distention return. No complication of the disease is more serious than this extension of the inflammatory process to the ear.

The nephritis should be dealt with as in ordinary cases, and indications for treatment will be found under the appropriate section. It is worth mentioning, however, that Jaccoud insists upon the great value of milk diet in scarlet fever as a preventive of nephritis.

Among other indications for treatment in the disease is cardiac weakness, which is usually the result of the direct action of the poison, and is best met by stimulants.

Many specifics have been vaunted in scarlet fever, but they are all useless. J. C. Wilson recommends chloral in one or two grain doses for a child of two or three years.

### VIII. MEASLES.

**Definition.**—An acute, highly infectious disorder, characterised by an initial coryza and a rapidly spreading eruption.

**Etiology.**—The infection of measles is very intense and immunity against attack not nearly so common as in scarlet fever. It is a disease of childhood, but unprotected adults are liable to the infection. Indeed, measles is more frequent in adults than is scarlet fever. Within the first six months of life the liability is not so marked, though I have known infants of a month and of six weeks to be attacked. The sexes are equally affected. The contagion is communicated by the breath and by the secretions, particularly those of the nose. It may be conveyed by a third person and by fomites.

The disease is practically endemic in large centres of population, and from time to time spreads and prevails epidemically. It occurs at all seasons, but prevails more extensively during the colder months. There is no infectious disease in which recurrence is more frequent. There may be a second, third, or even a fourth attack.

The contagion of the disease is unknown. No one of the various organisms which have been described meets the requirements of Koch's law.

**Morbid Anatomy.**—Measles itself rarely kills, but the complications and sequelæ combine to make it a very fatal affection in children. There are no characteristic post-mortem appearances. The skin changes are those associated with an intense hyperæmia.

There is a catarrhal condition of the mucous membranes, particularly of the bronchi. The fatal cases show almost invariably either broncho-pneumonia, capillary bronchitis with patches of collapse, or less frequently lobar pneumonia. The bronchial glands are invariably swollen. Pleurisy is less common. During convalescence from measles there is a special liability to tuberculous invasion, and tuberculous broncho-pneumonia claims a large number of victims. The bronchial glands may also be affected.

The gastro-intestinal mucosa may be hyperæmic. Swelling of Peyer's glands is not at all uncommon and may reach a very intense grade in the patches.

**Symptoms.**—**Incubation.**—This is about ten days, but the limits are variable, and it may be as long as twenty days. The disease has been frequently inoculated. In such cases the incubation period is less than ten days.

**Invasion.**—The disease usually begins with symptoms of a feverish cold. There are shiverings (not often a definite chill), marked coryza, sneezing, running at the nose, redness of the eyes and lids, with photophobia, and within twenty-four hours cough. These early catarrhal symptoms are more marked in measles than in any other infectious disease of children. There may be the symptoms so commonly associated with an on-coming fever—nausea, vomiting, and headache. The tongue is