

## A LECTURE ON SCARLET FEVER AND ITS PREVENTION.

By GEORGE JOHNSON, M.D., F.R.C.P.,

Professor of Medicine in King's College; Physician to King's College Hospital.

GENTLEMEN,—There are few diseases which at the present time cause greater anxiety, suffering, and mortality, than scarlet fever. We hear of it and we meet with it everywhere—in public institutions and in private dwellings; in large towns, in small villages, and in isolated country houses; in the cottage of the poor, in the parsonage and the palace—no class of life is exempt from the scourge. The immediate mortality from the disease, as shown by the returns of the Registrar-General, is alarmingly high; but the deaths which result directly from the fever are probably less numerous than those which are indirectly, but not less certainly, due to the malady and its numerous secondary complications.

Scarlet fever is a highly infectious disease. The symptoms are the result of a morbid poison, of whose nature we know nothing except what we learn by observing its operation upon the living body. During the progress of the disease the fever-poison is rapidly generated within the system and thrown off through various outlets into the surrounding air. This process of elimination, which, as regards the patient, is conservative, and, in fact, forms an essential part of the process of cure, is dangerous to his associates and attendants. The poison retained within the system is a source of danger and often a cause of death to the patient, while the poison thrown out of the body is injurious and destructive to others. The case of two brothers now under my care in the Hospital affords a good illustration of both these propositions.

A. C., aged 12, was living in a house where a girl had been suffering from scarlet fever. On the 28th September, he had shivering headache and sore throat. He got up each day, but was unable to continue his work. On the 1st October, he noticed that his skin was covered by a scarlet rash. Notwithstanding this, on the following day he went in a third-class carriage to Uxbridge, and shared the bed of his elder brother, who was a servant in a small farm-house. The day after A. C.'s arrival, his brother, B. C., complained of sore throat, and about the third day he had the scarlet eruption on his skin. Meanwhile, the first patient, A. C., was going out daily and doing some work on the farm, until on the 14th October, he noticed that his urine was high-coloured and scanty, and he had general dropsical swelling over the body. On the 20th October, he was admitted with the usual symptoms of acute renal dropsy, from which he is now rapidly recovering. His brother, who remained in bed during the first week of the fever, has had no renal or dropsical symptoms. When admitted on the 28th of October, he was suffering only from debility, and his skin was still freely scaling.

The case of these two brothers illustrates the double danger which results from a scarlet fever patient being allowed to go about. On the one hand, there is the danger of conveying the disease to others; and, on the other hand, there is the risk of renal and dropsical complications, consequent on the repression of the cutaneous rash by exposure to cold.

The main purpose which I have in view to-day is not to discuss the pathology or the treatment of scarlet fever, except so far as this may be necessary while I proceed to point out to you the chief circumstances which favour the spread of the disease, and the means of preventing its spread.

A sufferer from scarlet fever, for a period of about a month from the commencement of the disease, is continually throwing off from his body a material poison, which has the power of conveying the disease to others. The poison is chiefly contained in the discharges from the throat and nose, and in the scales which are thrown off from the skin. It is probable that a portion of the poison may pass off by the bowels, and another portion by the kidneys. That the inflammation of the kidneys, which not unfrequently complicates the disease, is the result of an effort to eliminate the poison and its products, can scarcely be doubted; the epithelial desquamation within the uriniferous tubes being exactly analogous to the epidermic desquamation on the surface of the skin.

Now, taking these facts as the basis for our practice, let us consider what we have to do when a case of scarlet fever occurs in a private house or in a public institution. Our object is twofold; first, to conduct

the patient safely through the disease; and, second, to prevent the extension of the disease to the other inmates. It is fortunate that these objects in no degree conflict with each other. We need not here discuss the expediency of removing some of the inmates from the infected house. I assume that the house is sufficiently capacious to allow of the complete seclusion of the patient. This is the first requisite. He should be placed in a room as remote as possible from other inhabited rooms—better at the upper part of the house. The room must have an open fireplace, in which a fire should be kept burning night and day. This, with a carefully regulated opening of doors and windows, insures free ventilation of the room, which is wholesome alike for the patient and his nurse. The room should be cleared of all needless carpets, curtains, draperies, and articles of dress, which may form a nidus for the poison. If the nurse has been protected by a previous attack of the disease, so much the better. A second attack in the same individual is quite exceptional. The nurse in attendance upon the patient should have the least possible communication with the other inmates. She should wear a glazed cotton dress, which can be readily washed and disinfected, or, if need be, burnt when the nursing is completed.

One of the main objects of preventive treatment is to disinfect the poisonous emanations from the body at the earliest possible period after their formation. A basin containing Condy's fluid, or carbolic acid, or chloride of lime, should be kept by the bed-side for the patient to spit into. The mouth and throat should be frequently gargled with diluted Condy's fluid. It is better, as Dr. William Budd suggests, that, in place of pocket-handkerchiefs, bits of clean rag should be used to wipe the mouth and nose, and that these when once used should be burnt. The discharges from the bowel and kidney are to be received on their very exit from the body into a vessel containing some disinfectant—carbolic acid, Condy's fluid, or a solution of sulphate of iron. All glasses, cups, or other vessels, used by or about the patients are to be carefully cleansed before being used by others. The hands of the nurse and medical attendant may be disinfected by washing them in diluted Condy's fluid, or more conveniently by the carbolic acid soap. The patient's bed and body-linen, immediately on its removal, should be immersed in boiling water, and subsequently in water containing carbolic acid. Even after this the laundress should be warned to take special precautions, and to wash this linen apart from the remainder of her week's wash. There is reason to believe that a neglect of these precautions has frequently led to the spread of the disease.

The main outlet for the scarlet fever poison is through the skin. The particles of epidermis which are thrown off more or less abundantly during the progress of the fever are most active agents in the spread of the disease. The skin-eruption and the subsequent scaling, which form an essential part of the process of cure, are also the chief means by which the disease is conveyed to others.

It is essential for the patient's welfare that the eruption should be encouraged and not repressed. A warm bath once or twice a day, when the patient is not too ill to bear the fatigue, keeps the rash well out, favours the exit of the poison, prevents renal complication, and is usually most soothing and agreeable to the patient. After the bath, the whole surface of the body, including the scalp, in accordance with Dr. W. Budd's directions, may be anointed with camphorated olive oil. It is doubtful whether, as Dr. Budd believes, the camphor have any disinfectant property; but the oil allays the troublesome itching of the skin, and it may have the yet greater advantage of entangling the poisonous particles of epidermis, and so preventing their ready diffusion into the air.

The warm baths may be repeated night and morning until the process of desquamation has ceased; and, while the patient is in the bath, the skin may be well cleansed and disinfected with carbolic acid soap. It is a good and safe rule to act upon, that, until the process of cutaneous desquamation has entirely ceased, the patient should neither expose himself to cold, nor associate with other members of his family. When, in the early stage of the disease, the patient is too ill and feeble to bear the bath, the outcoming of the rash may be promoted, and the favourable progress of the disease assisted, by a daily packing for an hour or more in a warm wet sheet covered by blankets.

Since the poisonous discharges and secretions find their way into the closets and drains, the emptying of slops from the sick-room should be followed by a liberal downpouring of carbolic acid or some other disinfectant. Care should be taken that there is no leakage from the drains, or escape of sewer-gases within the house. I heard lately of a school in which repeated outbreaks of scarlet fever were traced to an overflowing cesspool, which had probably become contaminated by the fever-poison. The removal of this nuisance put a final stop to the disease.

When the disease is over, the bedding and clothing of the patient and his attendants, the floors, the walls, and the ceiling of the room,

the surface of the furniture, and the interior of cupboards, drawers, and closets, must be thoroughly cleansed and disinfected. If the walls of the room be covered with paper, this should be entirely removed and burnt; the ceiling whitewashed; and the floor scrubbed with soap and water, and then with carbolic acid. After this, the room should be left for a time unoccupied, with a fire in the grate, and the doors and windows open.

The preventive measures which I have mentioned are effectual in arresting the spread of scarlet fever amongst those who have space, money, intelligence, and the desire to save life. It is far more difficult to deal with the disease as it occurs in the overcrowded dwellings of the poor, where the healthy, the sick, and even the dead, are often found occupying the same apartments. The Association of Medical Officers of Health have recently published some useful suggestions relating to measures of public hygiene. They recommend that information by means of public handbills should be diffused through every family, as to the contagiousness of scarlet fever and the mode of preventing it. Every case of the fever should be reported to the officer of health, who would then give the needful information and assistance. Public day and Sunday schools in an infected district should be authoritatively closed. It should be a punishable offence to send a child to any school, public or private, from a house or family in which fever exists. Sufferers from scarlet fever should not be permitted to visit the out-patient rooms of hospitals or dispensaries. Sufficient hospital accommodation should be provided for the poor, with arrangements at each hospital for the disinfection of the person and clothing of the patient on his discharge. The medical officer of health should, when necessary, have the power of enforcing the removal of patients from overcrowded houses. An appropriate carriage should be provided in every district for the removal of the sick to the hospital. At present, public cabs are largely used for this purpose; and the Sanitary Act, as it relates to the use and disinfection of public carriages for the conveyance of persons with infectious diseases, is not enforced as it ought to be.

There should be in every district one or more mortuary houses for the reception of the dead; and removal thereto should, when necessary, be compulsory.

The sanitary authorities should provide such a staff of assistants and appliances as may be necessary to disinfect houses, clothing, bedding, etc. The twenty-third section of the Sanitary Act, empowering local authorities to provide means of disinfection, has been almost ignored in the metropolis, not even a "proper place" being provided where disinfection may be carried out. There should be arrangements by which articles of clothing, bedding, etc., destroyed by order of the medical officers of health, may be either replaced or paid for. During the disinfection of a house or apartment, or when the sick cannot be removed, it is necessary to remove the healthy. For this, there should be one or more houses of refuge provided, in which poor families may be temporarily lodged, and with means of disinfecting the persons and clothing of those removed. A house of refuge is at the present time utterly unknown in the sanitary arrangements of the metropolis.

It is well to bear in mind that, although the poor are the chief, they are by no means the only, sufferers from the defective sanitary arrangements to which I have referred. When scarlet fever prevails extensively amongst the working classes, there are many channels through which the subtle contagion may reach their employers. To mention only a few amongst numerous sources of infection, it is certain that the tailor, the dressmaker, the upholsterer, the baker, the shop-assistant, male or female, the laundress, and even the milkwoman, may be the unsuspected agents by which the morbid poison is conveyed to the very highest classes. It is manifest that all classes are equally interested in arresting the progress of this truly formidable disease.

**BEQUESTS, ETC.**—The East London Hospital for Children has become entitled to £2,000, subject to the life interest of a gentleman aged 60; and to £20,000 contingent upon the death of a child aged five, before attaining 21, under the will of John Saunders, Esq.—Miss Eleanor Atherton has bequeathed £1,000 to St. Mary's Hospital, Quay Street, Manchester; £1,000 to the Manchester Royal Infirmary and Dispensary; and £500 to each of the following, viz.:—the Eye Infirmary; the Asylum for Idiots, Earlswood; the Royal Hospital for Incurables, Putney; and the British Home for Incurables, Clapham Rise; in addition to several munificent bequests to other charitable and religious institutions.—The Salop Infirmary has received £300 under the will of Richard Hodges Gwyn, Esq.; and £200 under the will of Henry Bayley Clive, Esq.—The Bristol Royal Infirmary has received £300 under the will of W. H. Edwards, Esq.—Capt. W. B. Phillimore has made a sixth donation of £25 to the National Hospital for Consumption, Ventnor.

## THE PATHOLOGY OF GENERAL PARESIS.\*

By W. H. O. SANKEY, M.D., Sandywell Park, Cheltenham,  
Lecturer on Psychological Medicine in University College, London.

FRENCH authors have for many years held that general paresis is a distinct morbid species. Some years ago, I examined this question from a symptomatological point of view; and at that period I was disposed to believe that the evidence was in the main favourable to their opinion. Subsequent experience and reading have confirmed my previous belief. I am now disposed to go still further, and to assert that, if we exclude certain cases usually found in our asylums of imperfect development, cases of climacteric decay, and cases of epileptic mania in which the mental symptoms are secondary, all the rest belong but to two species of disease—viz., Ordinary Insanity in its various stages, and General Paresis.

The diagnosis of one of these diseases thus affords, by a negative process, the diagnosis of the other. In other words, I believe that to ascertain that the symptoms of a case do not belong to one disease shows that they do belong to the other.

As my remarks must be necessarily brief, I will not here repeat the evidence from the symptoms for considering general paresis distinct in species from other forms of insanity; but I will state in few words my reasons for including all other cases of insanity under one species.

I hold that, for a disease to be considered a distinct morbid species, it should be shown to have a distinct origin, a distinct and peculiar course of progress and termination, with distinct anatomical characters; and until this can be proved, or even until a tolerable uniformity between a given set of cases can be shown, I do not think we should consider that we have a distinct disease. I do not know of any distinct characters in the so-called different kinds of insanity which satisfy these requirements. On the contrary, if we examine in any asylum a number of imbeciles giving no distinctive characteristic in their imbecility, we shall find among the cases some which were called formerly puerperal insanity, some homicidal insanity, some melancholia, suicidal mania, phthical mania, hysterical mania, amomania, and so on. These cases at their outset have been probably attributed correctly to some peculiar cause; but the morbid process occasioned has run a given course, varying within certain limits only. They have terminated in a state of imbecility having a general resemblance, yet varying also possibly in some peculiarities.

My belief is, that the course of all these cases may be thus epitomised in general terms. With respect to the mental phenomena, the patients have first gone through a stage of depression of spirits; next, of morbid apprehension, alteration of the moral faculties, illusions going on to delusions, and disorder of intellect proper, imbecility, and dementia. With respect to the motor phenomena, they have shown either restlessness, agitation, and violence; or dulness, inaction, and stupor; but no form of paresis.

The above being the phenomena of insanity proper, by a process of exclusion, cases which have not gone through these stages should be cases of general paresis. There is, however, besides this negative mode of proceeding, in many cases, positive evidence, derivable from a totally different set of phenomena; and this long before any motor defect is present. These phenomena are such as great garrulity, wild and exuberant spirits, alteration of character, sexual impropriety, etc.; and more especially I would mention, in some cases certainly, an early exhibition of maniacal violence.

These two sets of phenomena must necessarily have each a different pathology and etiology. For brevity's sake, I will omit the steps by which I was led to my conclusions, but will state the solution at which I have arrived.

I believe that the difference in the phenomena is due to this. In ordinary insanity, the cerebrum is affected through its nutrition-processes—in other words, through the blood. In general paresis, the primary effect is produced *directly* on the nerve-tissue, by a mental shock or a severe physical shock, acting directly on the nervous centres.

The first symptoms of the one disease are connected, therefore, with the nutrition-processes; while the first symptoms of the other disease are connected with the nerve-functions.

In ordinary insanity we have, primarily, distinct evidence of disturbance of the digestive functions, such as loss of appetite, foul tongue, constipation, acidity, flatulence, præcordial pain, palpitation, etc.; and eventually diseases of the blood-making organs—diseases of the lungs, liver, kidneys, and heart—as shown on *post mortem* inspection. On the other hand, the early symptoms of general paresis are quite uncon-

\* Read in the Psychological Section at the Annual Meeting of the British Medical Association in Newcastle-upon-Tyne, August 1870.