

and purpura was recognized by both scientific and clinical authorities, until within the last few years.

The majority of recent writers hold to the idea of essentially differing forms of purpura, which, by Reder,¹ Neumann,² and Kaposi,³ are regarded, apart from other varieties as only two in number, viz., *purpura simplex* and *purpura hemorrhagica*. We conceive that this latter distinction is unnecessary, since cutaneous hemorrhage is included in the very idea of a purpura or a peliosis, and no difference except in degree is to be traced between the hemorrhagic purpura of certain authors and purpura simplex as described by those authors themselves. The following representation of purpura is in accordance with this position. As little should purpura senilis be classed as a separate species, since there is nothing sufficiently peculiar about the occurrence of sanguineous infiltrations on the lower extremities, chiefly of old people.

DEFINITION AND VARIETIES OF PURPURA.

By *purpura* is meant a disease accompanied by extravasations into the skin, or sometimes into the mucous membranes, which take the form of dark-red or livid spots or of more extensive hemorrhagic effusions. It may appear suddenly, *i. e.*, without precursory symptoms, or in conjunction with rheumatic pains and fever, and may run its course with or without the occurrence of internal complications. Purpura is not to be regarded as an independent disorder, but only as a symptom of other conditions originating either locally, in the vascular system, or generally, in the blood itself.

Several years ago I drew attention⁴ to the peculiarities connected with the essential character and diversified manifestations of purpura, and protested against going too far in separating the varieties thus denominated.

Mollière⁵ pronounced purpura to be only one link in a chain of diseased conditions characterized by hemorrhages into the integument and the internal organs, and included under this name, perhaps somewhat too hastily, not only many infectious disorders and articular rheumatism, but also hæmophilia and scorbutus. Not long afterward, Scheby Buch⁶ became convinced that hemorrhagic purpura was a frequent accompaniment of articular affections, and that purpura simplex, purpura hemorrhagica, and scorbutus are only different grades of the same complaint. This opinion was founded upon a series of striking and accurately observed facts, by which it was sought to be established that articular affections and scorbutus often go together, and that the unity of all these affections is consequently to be inferred.

The rheumatic nature of many forms of purpura was first pointed out by Schönlein. Traube⁷ regarded rheumatic purpura as identical with articular rheumatism, because post-mortem examinations in some fatal cases had shown him extravasation and injection into the joints, while in life no purpura had existed. We shall not here discuss the question whether articular rheumatism be identical with rheumatic peliosis, although a close etiological relation between the two morbid states might perhaps be shown to exist;

¹ Hebra's "Handbuch der Hautkrankheiten," I., S. 622.

² L. c., S. 242.

³ "Pathologie und Therapie der Hautkrankheiten," Wien, 1881.

⁴ "Ueber die hämorrhagischen Affectionen der Haut," Pester Med. Chirur. Presse, 1873.

⁵ "Nosographie du Purpura," Annales de Dermatolog., Paris, 1874, p. 44 ff.

⁶ "Gelenkaffectionen bei den hämorrh. Affectionen," Deutsch. Arch. f. Klin. Med., 1874, 26. Bd.,

S. 466.

⁷ "Gesammelte Beiträge zur Pathologie u. Physiologie," Berlin, 1871, II., S. 763.

it may be regarded as certain, however, that the rheumatic pains which are observed in many cases of purpura do not belong to the category of purely rheumatic inflammations.

Immermann,¹ likewise, seeks to merge the different varieties of purpura into one common form, and he dwells with special emphasis on the rheumatic symptoms and painful articular swellings which frequently accompany morbus maculosus. Perhaps, therefore, Immermann is only regarding the matter from a clinical standpoint when, although refusing to acknowledge the peculiar position in which rheumatic peliosis has been left by preceding authorities, he nevertheless designates one variety of morbus maculosus as *rheumatoid purpura*, and assigns it a place among the other forms of purpura.

Having decided to contemplate all the morbid processes above mentioned as one united whole, we now go on to treat of the cutaneous hemorrhages as comprehending only two forms, viz., morbus maculosus and scorbutus.

1. Morbus Maculosus Hæmorrhagicus, s. Purpura Hæmorrhagica (Werlhofi).

This disease is characterized by the appearance, on almost any portions of the surface, of dark-red or bluish-red extravasations, usually only as large as a hemp-seed or a lentil, but in severe cases attaining the size of a bean or of the palm of the hand. The spots do not come out suddenly, and a certain order of succession is generally observed in their development. In the great majority of cases the extravasations first appear on the upper extremities, then spread to the body and breast, and finally to the lower extremities. In the last-named situation their occurrence is comparatively rare, and is always an indication of serious disorder. According to the majority of authors, hemorrhagic purpura is distinguished from the simple form by the larger extent of surface invaded by the spots, and by accompanying affection of the mucous membrane, together with high fever. This distinction, however, in most of my cases of purpura, I have been unable to trace, having often encountered both violent febrile symptoms accompanied by an unimportant amount of extravasation, and slight general symptoms with strongly marked hemorrhagic phenomena; frequently also there is a disproportionate appearance of extravasation, since trifling hemorrhages often result in considerable effusion or we may have but a small amount of cutaneous hemorrhage, which, however, may develop into the opposite condition, and *vice versa*.

In almost all cases of purpura, the appearance of the spots is preceded by great debility, heaviness in the limbs, general uneasiness, etc.; the pulse is more or less quickened and there is sometimes a constant or an intense fever. A slight decline in these symptoms usually takes place as soon as extravasation sets in. The hemorrhagic spots are uncertain in their period of duration, and, the process of effusion into the skin being an irregular one, they are seen breaking out in many places, while fading away in others.

These alternating phenomena often continue for some time, since the debility which accompanies the disorder is not diminished by the successive sanguineous effusions, and the general indisposition endures almost throughout the whole period of the disease. In a great many cases, drawing and tearing pains, accompanied by general depression and febrile movements, are felt in the joints and in single groups of muscles, before the hemorrhages appear. When these symptoms abate, the extravasations usually make their first appearance on the lower extremities, etc. *An œdematous swelling of individ-*

¹ This Manual, Vol. XIII., 2d half, p. 744.

ual joints, especially those of the knee and ankle, now sets in, and is attended with a good deal of spontaneous pain; the œdema, however, seldom proceeds far, and subsides within a few days; at the same time, the rheumatic pains abate, the hemorrhagic spots fade away, and in the course of two or three weeks all the morbid phenomena have disappeared.

The more aggravated forms of purpura are either developed from those which commence with a moderate degree of fever, or they manifest their increased severity from the outset. They are characterized not only by a greater number and wider diffusion of the hemorrhagic spots, but also by the development of conditions which may occasion lasting constitutional disturbances. We now find livid ecchymoses from the size of a pea to that of a kreuzer, and irregularly shaped blotches covering several square centimetres and formed by the coalescence of individual spots. Along with these there are extravasations into mucous membranes, and sometimes actual sanguineous effusions into some one of the bodily cavities. In severe cases the tension of the vascular walls throughout the whole system is greatly relaxed, and hemorrhages into internal cavities and parenchymatous organs are the spontaneous result. In this way sanguineous effusions take place into the stomach, the lungs, the bowels, the uterus, and even into the arachnoidal cavity. Of course, such complications may lead to a fatal issue, yet this is seldom the case.

When purpura is complicated with severe constitutional symptoms, and marked by a large amount of cutaneous extravasation, the results of great losses of blood will soon be apparent. Such patients present a decidedly anæmic appearance, their blood is poorly supplied with solid constituents, and symptoms of hydræmia supervene, through which the complaint may be protracted and many subsequent ailments be produced.

The duration of purpura cannot be precisely fixed. In many cases the disease continues for only a few days (eighteen to twenty), in others again for several weeks, and it has even been known to last for months and years.

(b) *Purpura scorbutica; Scurvy.*¹

The symptoms of scorbutic purpura point to the existence of a blood-dyscrasia, and this disease may be regarded as the true representative of a general morbid state, arising from dissolution of the blood, and localized on the cutaneous surface. The appearance of extravasations on the skin is always preceded by general lassitude, with pains in the extremities and different joints; there is often only moderate fever, which endures for a longer or shorter time according to the form of the disease. The purpuric spots usually appear first on the lower extremities, they spread thence over a great part of the body, and in malignant cases increase to extravasations as large as a dollar or as the palm of the hand, which in some places change into ulcers with a discolored sanious border. An unfailing symptom is the affection of the gums; they become inflamed, painful, swollen, and subject to spontaneous hemorrhage; the teeth loosen and fall out easily; moreover, effusions of blood or serous exudations may take place in other mucous membranes or in internal organs, where they constitute in many cases a direct cause of death.

Scorbutus is the most dangerous form of purpura, and the accompanying cutaneous hemorrhages are only one manifestation of the general nutritive disturbance. Fortunately, the disease is now much less prevalent than in former times, when it frequently assumed an epidemic form—the inevitable result of infectious surroundings, unwholesome nourish-

¹ For more extended remarks on scurvy, see this Manual, XIII., vol. 2.

ment, and impure air. These morbid influences operate most injuriously where human beings are crowded together in confined abodes (forts, prisons, hospitals, ships). A distinction (in reality a purely topographical one) was hence drawn between *land-scurvy* and *sea-scurvy*. At present, since improved sanitary conditions have so generally resulted from the enforcement of rational hygienic rules, an epidemic of scurvy is comparatively very rare and such sporadic cases as occur are of a much milder type.

ANATOMY.

The pathological anatomy of purpura is at least more accurately understood than its patho-chemical relations. Rayet¹ stated that the effusions presented different appearances according to their situation among the cutaneous layers, the smallest spots being discovered in the corium, and the largest in the subcutaneous cellular tissue.

Similar results were arrived at by Gustav Simon,² who found an accumulation of blood between the corium and the epidermis; he also observed that beneath the more highly-colored spots the deepest layers of the epidermis appeared infiltrated with blood, and that blood-corpuscles were plainly visible in the extravasations. Effusions into the epithelial tissue, as well as secondary hemorrhages into the skin and mucous membranes, were first made the subject of an exhaustive investigation by E. Wagner.³ According to him, the effused blood lies between the individual layers of the cutis—especially the stratum lucidum, which forms the transition to the epidermis—and the boundary-line of the Malpighian network; the latter, as well as the true corium and the sudoriparous glands, show no trace of extravasated blood. The extravasation itself consists of a compact aggregation of red blood-corpuscles which appear embedded in a peripherally-disposed layer of reticulated fibrin.

Wagner was unable to account for the occurrence of hemorrhages into the tissue by the condition of the vascular system itself, since in several carefully observed instances of the hemorrhagic diathesis the epithelium had remained quite unaltered; consequently, he seemed obliged to fall back upon the supposition of an extravasatio per diapedesin, since this led him nearer than any other to a real solution of the problem.

The idea that the cause of cutaneous hemorrhage was to be sought in the patho-chemical state of the liquor sanguinis is one which occurred to some of the earlier physicians. Many of these authorities claimed to have found that the blood of purpuric subjects was deficient in coagulability, while others opposed this view.

Andral and Gavaret, as also Bequerel and Rodier,⁴ found the liquor sanguinis unaltered in constitution, but of lower specific gravity, in several diathetic affections, as well as in cases of scurvy.

In beleaguered Paris, during the Franco-Prussian war, scurvy was of frequent occurrence, affording unusual opportunities for a thorough study of the disease. Among the numerous and detailed publications on this subject, those of Chalvet are deservedly prominent.⁵ He observed that the blood of scorbutic subjects was pale and watery, that the proportion of fibrin in its clot was increased twofold, and that of the red corpuscles diminished; while it contained only trifling amounts of potash and iron. Similar exam-

¹ "Traité des malad. de la Peau," Paris, 1835, p. 520.

² "Hautkrankheiten, anatomisch erläutert," Berlin, 1854, p. 77.

³ Archiv der Heilkunde, Band 9 und 10, 1868 und 1869.

⁴ Gazette médicale, 1847, Nos. 25 and 26.

⁵ Schmidt's Jahrbücher, 1872, 1. Bd., S. 88.

inations have led other investigators to more or less different results; but, from the present state of our knowledge we are justified in concluding that the composition of the blood in scurvy and purpura is not materially different from that which obtains in other so-called blood-diseases.

DIAGNOSIS.

The diagnosis of purpura will not be difficult if undertaken with the aid of the foregoing symptomatic picture, and if the cutaneous alterations arising from hemorrhages be duly taken into account, the red or livid spots characteristic of this disease will be easily differentiated from similar phenomena occurring in the course of other exanthemata. An exudation of longer or shorter duration takes place in measles, in the initial stage of small-pox, and even in isolated cases of cholera (*roseola cholericæ*), but it never proceeds to extravasation; the febrile symptoms are always strongly marked, sometimes becoming intense, and the accompanying affections of the internal organs are of a very different nature. In typhus fever, the petechial extravasation is likewise preceded for a lengthened period by quite another series of phenomena, whose nature is sufficiently familiar. Equally unlike purpura is hemorrhagic small-pox, *i. e.*, that peculiar process, dependent upon variolous contagion, which does not give rise to spots and pustules, but through which the disease, almost at a stroke, takes on the form of a diffuse hemorrhagic affection of the skin and mucous membranes. The symptoms of this disorder are of a malignant character from the very beginning; high fever, violent sensorial disturbance, delirium alternating with profound sopor, are accompaniments of the cutaneous extravasation, and are much more sudden and overwhelming in their onset than in purpura—often resulting fatally within a few days. Diagnostic errors may, as we have said, be easily avoided by paying due heed to the constitutional symptoms.

But even non-febrile states may occasionally give rise to errors. In extravasations from contusion, diagnosis would seem to be easy, owing to the small extent of the hemorrhage, the swelling, and the increased sensibility of the parts; yet there is a class of artificially produced phenomena of this kind which it is important that we should be able to recognize promptly. Take, for example, *purpura pulicosa*. It may seem almost ludicrous to make mention in this place of the cutaneous appearances which are caused by flea-bites, since they are of adventitious origin, rather than actual products of disease and are partly hemorrhagic, partly erythematous in their nature, yet we can recall one case in which the body was covered with several hundred flea-bites, and which certainly bore a striking superficial resemblance to purpura. In hospitals and among the very poor such spectacles as this are not uncommon, though seldom presented by patients of a higher class. The peculiar and unmistakable aspect of these subjects, the character of the spots when closely examined, with their central punctures surrounded by an erythematous blush, as well as the marks of scratching which are almost always perceptible, will readily disclose the real nature of the disorder.

ETIOLOGY.

The causes of purpura are either direct or indirect, and differ in part from those which give rise to hemorrhages in general; rupture and atrophy of the vessels must in most cases be excluded, since anatomical examination has revealed no such lesions from purpura in the cutaneous vascular system. The outward aspect of the extravasation, and the bloody infiltration of the different cutaneous layers, would lead us much more readily to infer a transudation of the liquor sanguinis through the elastic walls of the

vessels into the surrounding tissue, as the only possible mode in which the hemorrhagic spots can be directly produced. This explanation, however, presupposes an abnormal condition of the organism, which must proceed either from an alteration in the liquor sanguinis, or from a morbid state of the vascular apparatus; although it is true that no satisfactory explanation can be based either on the incomplete analyses of the blood or on the imperfectly understood relations of the vaso-motor nerves. On the whole, therefore, we incline to the opinion that a morbid alteration in the liquor sanguinis, together with an affection of the vaso-motor nervous system, constitutes the pathological influence which determines the production of purpura.

In regard to a morbid condition of the liquor sanguinis, we have already mentioned that chemical investigations have hitherto led to no conclusions which would justify a positive statement concerning any definite alteration of the blood; still this is far from proving that no such alteration can take place.

As to a diseased state of the vascular system, we have few reliable data. Anatomical evidence of an alteration in its structure is indeed wanting; yet there are certain conditions in which a disease of that structure must be presupposed, which exist whenever slight causes give rise to hemorrhages in parts far distant from each other, and which constitute what is known as the *hemorrhagic diathesis*.

In this we observe a diminution in the normal tone and requisite elasticity of the vascular walls, probably dependent on insufficient nutrition of the vaso-motor nerves, or on their paralysis; such a condition must be regarded as a local enfeebled state of the vascular apparatus, which is synonymous with a vaso-motor disease.

This vaso-motor disease, or, more correctly, vaso-motor neurosis, may be caused either by a direct (central) or reflex irritation; though we cannot be certain in every case of purpura to which of these it is due. Under all circumstances, however, the morbid agent which leads to extravasation in the skin or into the internal organs and gives rise to purpura, appears to produce also the vaso-motor neurosis; still, it seems more correct to regard purpura as a trophic affection, and all the indications which might lead us to class it as an angioneurosis point equally to its acceptance as a tropho-neurosis.

Among the indirect causes of purpura are to be reckoned morbid influences of the most varied nature; insufficient and unsuitable nourishment; constant exposure to damp or impure air; mental depression; emotional conditions, as grief, etc., all of which may also lead to changes in the vaso-motor nerve-centre.

Certain drugs sometimes cause cutaneous hemorrhage; thus Tilbury Fox¹ saw hyperæmiæ and sanguineous extravasation produced on the surface by the inhalation of four grammes of tincture of benzoin; Fournier² relates that the administration of iodine was occasionally followed by a peculiar kind of purpura—numerous extravasated spots, mostly the size of a pin's head, appearing on some patients every time they took the medicine, and lasting for several weeks. Similar cases have been reported by other authorities, the form of purpura described in all these instances reminding us strongly of the reflex urticarial eruptions produced by certain articles of food. Individual outbreaks of purpura, and especially of scurvy, are undoubtedly attributable to the causes we have adduced, since the appearance of the latter disease in an almost epidemic form may be observed in ill-ventilated and overcrowded habitations, as jails, hospitals, etc., when the dietetic conditions are unfavorable, and in besieged towns under analogous circumstances.

Hayem, during the siege of Paris in 1871, made a careful study of the epidemic of

¹ Lancet, 1874, No. 6.

² "Jodisme Petechial," Annales de Dermatologie, Paris, 1877-78, p. 21.

scurvy which then prevailed. He found that the food-supply of the inhabitants, considered not merely as to its quantity, but also and chiefly with regard to quality, exerted a most important influence in bringing about the disease, since not only the meat and wine, but also the vegetables then obtainable in Paris, were far from fresh, and hence were largely deprived of those elements—the potash-salts—most indispensably required for the maintenance of health.

PROGNOSIS.

This depends upon the character of the symptoms. It is favorable in cases of simple, uncomplicated cutaneous hemorrhage, but when effusions take place into internal organs the complaint assumes a more serious aspect, especially if it breaks out repeatedly upon the skin and is accompanied by high fever. The prognosis is bad when hemorrhages occur in vital organs, as they may become so profuse as to cause a fatal result. The constitution, the age, and the vital relations of the patient must also be taken into account, and the probable consequences of anæmia should never be overlooked when the loss of blood is considerable.

In scurvy, the prospect of recovery is much improved at the present day, since sanitary rules have been based upon a broader and more intelligent comprehension of hygiene; nevertheless, a cure is always more likely to be effected in sporadic than in epidemic cases.

TREATMENT.

Rational procedures will nearly always insure us a result either partially or wholly satisfactory.

The empirical use of acids, especially sulphuric acid, and of preparations of iron and bark, by some of the older physicians, was attended with success, and this must now be regarded as the only proper method, since the leading indications are, first, to invigorate the vascular structure and restore the nutritive properties of the liquor sanguinis, and, second, to compensate for the loss of blood. In accordance with these principles, we administer, on the first appearance of the spots, Elixir. acid. Halleri 1.0–1.5 grm. pro die, lemon-juice, pure or dissolved in sweetened water; in cases of larger extravasations, Liquor ferri sesquichlorati (1.0–2.0 grm. pro die), Extract secalis cornuti in solution (2.0–2.5 grm. to 100.0 Aq. d.) or by subcutaneous injection (Ergotini, Aq. dest., ana 5.0. D. S., $\frac{1}{2}$ to 1 syringeful twice daily), which last is often of the greatest service. For scorbutic affections of the gums we employ a wash composed of Ext. ratanhia (5.0–10 grm. to 300.0 of fluid). The gums are also painted with citric acid or dilute chromic acid (5.0 to 200 solution, Millard). For the debility, quinine and iron in suitable doses, and a generous diet of meat and fresh vegetables, with wine, are best adapted to restore the saline ingredients of the blood, since potash and iron constitute equally important elements in the composition of its corpuscles. In cases of hemorrhage into internal organs, cold applications by means of wet compresses, ice-bags, injections (when they can be made directly into the affected cavities), etc., according to the locality of the effusion; in purpura with rheumatic or articular pains, salicylic acid in the usual doses.

To hasten the removal of the cutaneous spots, we may resort to lotions, though these act only by increasing vascular tension. Tripier observed that absorption was promoted by local faradization, which, however, was unsuccessful when the extravasations were large and scattered over all parts of the surface. When there is marked atony of the skin, especially on the lower extremities, constant pressure by means of roller bandages will also facilitate absorption.

DERMATITIDES SUPERFICIALES

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We shall class as superficial inflammations, first, those due to thermal, chemical, and mechanical influences, and, second, catarrh of the skin, eczema.

Affections of the former variety present all the signs characteristic of inflammation in general, viz., redness, swelling, heat, infiltration and pain. Like other inflammations also, they terminate either by resolution, by suppuration, or by gangrene.

According to their respective causes, they are divided into:

1. Dermatitis calorica.
2. Dermatitis traumatica.
3. Dermatitis e venenis et causticis.

Dermatitis Calorica is subdivided into dermatitis ambustionis et congelationis.

DERMATITIS AMBUSTIONIS.

BURNS.

The alterations on the cutaneous surface and in the system at large produced by burns, differ according to the capacity for heat possessed by the substance which inflicted them, the length of time during which the action is kept up, the extent of surface acted on, and the individual susceptibility of the patient. The resulting lesion is the more dangerous, the greater the capacity for heat (*i. e.*, in the case of fluids, the higher their boiling points, and the more they are concentrated), the larger the area involved, and the less the subject's constitutional power of resistance (children).

Burns are caused:

1. By radiant heat (of the sun).
2. By the action of fire (including explosions of gunpowder, illuminating gas, and fire-damp).
3. By direct contact with heated bodies.

According to their degree, they are divided into:

Dermatitis ambustionis erythematosæ, bullosæ, escharotica.