

Post mortem Examination.

The sudden tragic end led me to expect to find a cerebral abscess ruptured into the ventricle, but all that was revealed was meningitis.

REMARKS.

Ballance says that when the following group of symptoms are present together septic thrombosis is certainly present:

1. A history of purulent aural discharge for a year or more.
2. Sudden onset of the illness, with headache, vomiting, rigor, and pain in the affected ear.
3. An oscillating temperature.
4. Vomiting, repeated day by day.
5. A second, third, or more rigors.
6. Local tenderness and oedema over the mastoid or in the course of the jugular vein.
7. Stiffness of the muscles of the back or side of the neck.
8. Optic neuritis.

Schlatter further says that jaundice is a frequent symptom, and that the liver and spleen are always enlarged.

There can be little doubt that if all the above symptoms were present in one case, a surgeon who had never seen a patient suffering from sinus thrombosis would have no difficulty in diagnosing it, but what chance could he expect to have of a successful result on having recourse to operation? In order to save the life of the patient it is essential that the operation should be done as early as possible; if one waits day after day to observe repeated rigors and vomitings time is allowed for general pyæmia to be established. Practically, however, the diagnosis is not as easy as it would seem by the reading of textbooks, as the cases are commonly preceded and accompanied by mastoid disease, and may be complicated, too, by the coexistence of meningitis or cerebral abscess, so that the overlapping of symptoms makes diagnosis often a difficult matter.

In the second of the above-mentioned cases a diagnosis was easily made, although there had been no rigor or vomiting; the deafness and the history of an aural discharge, together with the sudden rise of temperature and development of tenderness and oedema in the neck, rendered it imperative that the sinus should be opened, especially, too, as the mastoid had not been operated on.

In the first case, I should have been better advised if I had explored the sinus first, as the boy on admission had fluid in one knee-joint, and although he had no great rise in temperature he looked very ill; and when the mastoid was first opened only a little sanious fluid was obtained. Later on I was disinclined to open his sinus, having an infected mastoid cavity so near to it, until I felt sure of the existence of the sinus thrombosis; so that by waiting until the child had a rigor valuable time was lost. Fortunately for the patient, the delay did not cost him his life, but there is no doubt that it greatly prolonged his illness.

In the second case, I regretted cutting off the 2 in. of the jugular vein, as it would have been better to have left this hanging out of the upper part of the wound so that it could discharge into an isolated dressing; in this way infection of the long wound in the neck might have been prevented, and the reopening of it rendered unnecessary. Indeed, in another case I should feel disposed, even if the blood were fluid in the vein in the neck, to divide the jugular fairly low down, and then bring it out into the dressing, and in order to keep it patent to insert a rubber tube into it. In this way the jugular fossa would be more efficiently drained. Mr. Ballance (*Lancet*, 1904) says that removal of the vein is better than ligature, but, however high up it may be tied, there will be a little pocket left to hold pus, which will not be so easily drained through the sinus as it would if there were an open vein left through which the sinus could be irrigated.

Although this patient unfortunately died, the case must be regarded as successful so far as the treatment of the sinus infection was concerned. The death was due to meningitis.

The Fifth Pan-American Medical Congress will take place in Guatemala, C.A., this year from August 5th to 8th. UNDER the will of the late Mr. Edward Aston, of Wilmslow Park, Cheshire, the "Cancer Hospital Pavilion" at Manchester receives a bequest of £1,000, a similar sum going to the Northern Counties Hospital for Incurables at Mauldeth.

THE ETIOLOGY AND TREATMENT OF ECZEMA.

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OBSERVATION goes to prove that eczema is a pure neuropathia, and that to regard it solely as a local affection is a grave misconception calculated to lead to serious error in treatment. The theory that eczema was the direct result of specific dyscrasia, or "blood humours," has long since been relegated to the limbo of obscurity, on the very self-evident fact that specific types of eczematous eruption do not accompany specific dyscrasia. The character of the eruption is unvaried by its supposed origin.

But that certain pathological states are frequently the indirect factors in the causation of eczematous attacks may be accepted without cavil on the evidence of the multiform eczematata we meet accompanying or following such states. The origin, however, of such eczematata is to be attributed to neurotic action.

The very nature of the affection itself—an exudative dermatitis due to capillary engorgement—indicates clearly vasomotor disturbance due to some morbid influence on the sympathetic centres of the nervous system.

The processes of secretion and nutrition being so largely controlled by the sympathetic, it is only rational to turn to it in the course of investigation into the source of this troublesome affection as the probable fountain head, when we are met with multifarious instances of reflex neuroses conditional on its inhibitory influence. The eruption of urticaria is generally consequent on disturbance of the digestive functions. Urticaria is practically the equivalent of the initial stage of eczema, and not infrequently develops into it. Herpes zoster appears only on the track of an angry nerve, and disappears synchronously with the concomitant neuralgia. Herpes is a frequent companion of certain catarrhal affections, and the intolerable pruritus which so often is associated with icterus, albuminuria, amenorrhœa, and other functional disturbances, can only be of sympathetic origin.

In the same way eczema is a common concurrent of many functional and nervous derangements. So often, indeed, is it associated with gout as to tempt one to formulate "gouty eczema" as a specific type; but that it certainly is not, but the indirect outcome of the intense disturbance of the nervous system, not of the direct toxic action of the gout. Sometimes it is the precursor, sometimes the follower, of the gouty attack.

Uterine disorders bring often with them in their train the added misery of eczematous eruptions, and there are many women who are never pregnant without this affliction. Indeed, there are some who (quoting Hebra) "during several pregnancies were attacked by eczema of the hands always at the same period, so that in the later ones they could be more certain of having conceived, from the appearance of this disease than from the cessation of the menses or the movement of the child." Disordered menstruation even will often bring on eczema of undoubtedly neurotic character.

In mental cases—especially imbecility—eczema is most prevalent.

It would be easy to enumerate instances in plenty in proof of the inhibitory influence of the sympathetic system of nerves. Hebra himself in a half-hearted sort of way ("to prevent misunderstanding," and treating the question as one "that must be left for the solution of professed physiologists"), after dealing with all sides of it, says:

Every case of this disease is not the result of local irritation, but may be caused by affections of the rest of the body. Even in these instances, however, the disturbance of cutaneous circulation may be explained by the *consensus nervorum*, just as well as by the assumption hitherto current of the presence of some morbid product in the blood.

Even where local irritation is the exciting cause of the attack it still remains a neurosis. External toxic applications, friction, heat, and cold, and the turgescence of varicosity are only the irritants of the peripheral filaments of the sensory nerves which set the eczema going.

Eczema may thus be divided into two classes for purposes of treatment: (1) That from within, acting through the sympathetic chain of the functional system, may be denoted the ganglionic or idiopathic form, and

(2) that arising from external or local irritation, the peripheral or traumatic.

This classification indicates the line which the treatment should follow with success. Though there is no drug or set of drugs whose action can be called specific in a complaint with manifestations so diverse as in this, there are a select few we can use with confidence to obtain the necessary control over the neural disturbance, either directly or indirectly, be the exciting cause what it may.

Thus, if a storm of gout has upset the sympathetic nerves, with the result of an eczematous eruption, the usual treatment for gout must be adopted, plus a direct nerve sedative. In this instance potassium iodide and acetanilid act well; but colchicum should be avoided, as it dilates the capillaries and tends to increase the exudation, whilst it often has a distinctly irritative effect upon the skin.

In eczema of an asthenic type, from anaemia, the indication is the liberal administration of iron with such nerve tonics as strychnine and quinine, to brace up the vasomotors. If alcohol is the irritant, abstinence, with the bromides and atropine, will bring speedy alleviation, the latter because of its peculiar control over the capillaries and power of checking perspiration. It must be given in small doses, however, as increased amounts paralyse the termination of the secretory nerves and relax the capillaries. Dyspepsia, so frequently the exciting cause, calls for careful dieting, attention to the bowels, and correction of the alimentary disturbance, plus such nerve sedative as the bromides, in sufficient doses to arrest the gastric nerve irritation.

The eczema that accompanies uterine trouble disappears, as a rule, with its removal, just as the eczema of pregnancy terminates with the parturition; but a nerve sedative is essential to its immediate relief, and chloral and belladonna are the best here.

As in the above so in all others, of whatever nature, whilst carefully devoting attention to the exciting cause, the necessary nerve sedatives must form the one chief element in the treatment.

Local applications must be resorted to in addition, and of the thousand and one which have at different times been lauded, there are two or three only which are of assured and permanent benefit. Analgesic action is the desideratum to meet the peripheral irritation. Nothing can compare, for the immediate and permanent relief which it confers, with carbolic acid if properly utilized, but as it has hitherto been applied in almost futile style, its real practical value has not been realized. In almost every treatise on the subject, while it has been highly recommended as a relief to the distressing pruritus, the strength in which it has been prescribed has rendered it useless as a curative agent. Now, carbolic acid, as demonstrated long ago by Dr. Bill, is a most powerful local anaesthetic if used in sufficient strength, and the anaesthesia which it produces is persistent for a longer period than any other. The burning sensation it causes at first soon passes off, leaving a painless surface. The pure (liquid) carbolic applied to a red inflamed eczema gives sharp but short punishment and leaves the part practically dead, and this dries rapidly, forming a scab under which the previously raw surface heals quickly; the scab on falling off leaves the surface clean and sound. This is heroic treatment, and must be applied to only limited areas at one sitting; the pain of the application can be obviated by cocaine if the subject is sensitive, and before the effect of the cocaine has passed off the part will be anaesthetized by the carbolic. For small patches, such as appear on the hands, feet, scalp and ears, it is particularly serviceable. For general use in all eczematous eruptions at every stage the 1 in 11 solution should be used, and though it certainly smarts for a time, it gives immediate relief to the symptoms and rapidly checks and arrests the progress of the eruption.

Tincture of iodine also smarts somewhat, but gives great relief to the itching and burning, and lessens the infiltration. The two together make a happy combination— $\frac{3}{i}$ of tinct. iod. to $\frac{3}{ix}$ of the 1 in 11 carbolic solution for a lotion, to be kept applied on lint under oiled silk. In the intertrigo which so commonly occurs between the toes and extends into the tough skin of the feet, a bath of this for the feet, frequently repeated, gives wonderful relief. Starch poultice makes a good vehicle for the

application of this lotion, and is useful on tender surfaces, such as the face and neck, painted on.

Suprarenal extract is a good application previous to the carbolic, owing to its power of reducing the turgescence and exudation, thus leaving the surface fit for its action; whilst, applied in the very beginning of the initial erythematous stage, it will often entirely arrest it. Adrenalin is undoubtedly the best form of this substance.

Greasy applications should only be applied in the dry desquamative stage. Used in the moist stages, they only aggravate the trouble by retaining the acrid irritating exudation. This exudation should be constantly washed away with pure cold water, which should be poured very gently over the part, and all friction avoided. Soap, whether medicated or otherwise, should be religiously avoided. Suprarenal added to the water greatly increases the relief it gives.

These remarks are based on observations extending over the last fifteen years, during which I have met with very considerable success in following out my deductions on the neurotic character of eczema, and I commend the treatment as worthy of trial.

DIVING AND CAISSON DISEASE.

A SUMMARY OF RECENT INVESTIGATIONS.

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[Communicated by the DIRECTOR GENERAL, R.N.]

As I believe that the recent and most important researches into the most interesting subject of diving have not been published in any form in the medical press which circulates amongst members of the medical profession in general, I may, I hope, be pardoned for attempting to enumerate them in brief form, and point out that the work done at the Lister Institute by Dr. Haldane, Dr. Boycott, and Lieutenant Damant, on behalf of the Special Committee appointed by the Admiralty, has completely revolutionized both the procedure of diving and the treatment of those morbid conditions which are met with among divers, and attributable to that occupation. In H.M. navy diving operations are continually being carried out for instruction, for periodical exercise, and for all kinds of practical work, though seldom at greater depths than 17 fathoms, and usually at much less. Medical officers of the navy are at times called upon to treat cases of so-called caisson disease, and a knowledge of the principles and practice of diving, and also of the best way to deal with any symptoms which may arise, is essential to them. Until quite recently, if anything went wrong with a diver he was at once brought to the surface, and was on no account permitted to go down again on that occasion. Now, on the other hand, should a diver come up suffering from the effects of too great a depth, too long a stay below, or too rapid an ascent, he is invariably sent down again, kept there for a certain time, and thereby cured.

When a man is subject to the normal atmospheric pressure of 15 lb. to the square inch, his tissues are saturated with nitrogen at that pressure. Suppose, now, that this man goes down in a diving dress to a depth of 28 fathoms; he will then be subject to the pressure at that depth—namely, 75 lb. plus the atmospheric pressure of 15 lb., making a total of 90 lb. The tissues, which were previously saturated with nitrogen at a pressure of 15 lb., will now have to become saturated at the new pressure of 90 lb., or six times as much as before. The blood will therefore take up nitrogen from the inspired air until that point is reached. This change that takes place in the amount of nitrogen in the tissues is called the "process of saturation," and there are three chief factors in its causation—"atmospheric pressure," or the normal one of 15 lb.; "positive pressure," or pressure in excess of atmospheric pressure; and "absolute pressure," or the total pressure at the time being plus atmospheric pressure. Therefore absolute pressure equals positive pressure plus 15 lb. The process of saturation takes place as follows: The arterial blood in the lungs takes up nitrogen from the inspired air, supplied by the pump, and conveys it to tissues, returning in the venous state to the lungs devoid of nitrogen and again absorbing it. The tissues, being only saturated with nitrogen at atmospheric