AN INaugural DisSertation,
ON
Hydropsphoria
SUBMITTED TO THE
President, Board of Trustees, and Medical Faculty
of the
University of Nashville,
For the Degree of
Doctor of Medicine.
BY
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1856
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Hypodermia, signifying a dread of water is applied to a disease arising from the bite of a rabid animal. It is contended by some writers, that this is the only medium through which the disease can be propagated, amongst the human species; and the proof of this view, seems to be clear and conclusive. Yet, others have arrived at the belief, and endeavored, to establish an idea of its origin, also, in a peculiar state of the system; because, they have met with cases of a similar character, and could not trace their origin to the bite of the animal.

In these cases, as in many of an every day occurrence, the similarity might be ever so great, and still an entirely different disease; which would sooner or later manifest itself, by some symptoms that would to
a close observer, define, the disease, and prove the incorrectness of an earlier diagnosis. Again, from the suitable, and confused state of the mind of the patient, no reliable information could be obtained, as to his former history: therefore, it would be difficult to ascertain from him, whether he had ever been bitten by a rabid animal or not.

Various circumstances besides, tend to disprove the opinion of a spontaneous occurrence of hydrophobia in the human species.

It would be as reasonable to suppose, that all the symptoms arising from the insertion of the virus of a rattle snake would spring up, de novo, as smallpox, as that hydrophobia should spontaneously occur, and spread.
itself over the country; in addition, nearly all cases in which this disease has occurred, the cause in some way may be traced back to the bite of the animal, by an early examination.

As to the physiological nature of the virus there appears to be but little known, further, than that it has the appearance of saliva, common to all animals; for, it is the saliva that contains the poison. Its chemical character is still more obscure.

If by any chemical agency it could be separated, and its properties defined, some clue might be had to a remedy, for the cure of the disease of which it gives rise.

The animals most likely to be the subjects of communicating this disease belong to the canine & feline races.
It is maintained, by some authors, that other animals as well as those already referred to, may communicate the disease under consideration also; such for instance as the cow, horse, &c., also, the human subject. This likely is true, but there are fewer recorded cases of this kind than the former, arising perhaps, from their having less propensity to bite; but all wounds inflicted by any of these animals in a mad state should be regarded as dangerous and so treated.

It appears from the statistics of Hydrophobia, that the male animal is often, found in this state than the female, the cause of which seems to be obscure, it may possibly be due to a stronger nervous influence.
That it may occur in the inferior animals without a transmission of the virus from one to another, is, reasonable, since by observation it has been proven so far as could be done, that the animal may become mad, without having been previously bitten; still, the disease may occur either way and symptomatically alike, in this respect, differing with the human species.

All that are bitten by a rabid animal do not of necessity take on the disease; many experiments have proven that the virus does not always take effect, arising, probably from a peculiar state of the system at the time of receiving the wound, as well, in that of the inferior animals as the human species.
The virus may be arrested by the intervening substances, such as the clothing of persons, and the hair or external covering of the inferior animals, thus sufficing from the teeth, as they penetrate the saliva, and preventing the insertion of the virus into the wound.

The season of the year that is most remarkable for the occurrence of the malady amongst the inferior animals is reputed to be in the spring and autumn. Why this is so, is not easily accounted for, by any plausible reasoning any more, than why the animal should become ravid at all. It would seem that ravid animals are confined to temperate climes, alone, since, the disease under consideration is unknown, in either torrid or frigid Zone.
The avoiding of water by mad animals, and the disgust at or antipathy to it in this peculiar state is, doubtful as they have frequently been found near it and even bathing in water; this is probably a superstitious notion prevailing with the ignorant and like, many others of a similar character without the shadow of truth. It has been asserted, that the virus may be communicated by an animal without being mad; for instance, where a person is bitten, after exciting its anger by teasing, or accidentally, paping from paping near strange enclosures. Cases of such description are frequently noticed in the public prints of the day, but as to the precise nature there appears to be, a want of authentic information.
It is most probable these bitten were, of a peculiar temperament, irritable, and predisposed to take on disease from any cause, and the result was the same, as if arising from a wound made in any way; for many persons are so constituted as to become seriously ill, from the simple sting of a bee, wasp, or the bite of insects; so that it is highly probable the same may obtain, in the instances above referred to; but in every case of suspicious character the evil should be anticipated, by timely interference.

The time of incubation, or that intervening between the bite of the animal and its appearance, as symptomatic, of disease varies, as is observed in the reports of different writers on the subject.
That it has no regular period of development, as measles, or smallpox, is, evident from the great discrepancy of different reports. Stating, its development, sometime within a few days, as others, as long as two years or more; and it is not true, that the poison would remain in the system so long without development.

The wound when first inflicted, heals up tardily, exhibits no sign of inflammation, or disposition to become troublesome, and thus passes on without the slightest manifestation, constitutionally, or locally, of any serious mischief, until, after the period of incubation, which is usually about six weeks or forty two days.

The symptoms are usually, so characteri-
as to distinguish Hydrophobia from all other diseases.

They are divided into two classes. The first, are: itching, irritation, and some pain, also, twitching of the muscles near the wound, or rather, a reopening of the eschar, these occur before the more permanent symptoms supervene, rendering it probable that some active process takes place in the part itself, though this does not accord with the pathology of most poisoned wounds. The general symptoms are, ordinarily preceded by giddiness, heat, chilliness, and a feeling of discomfort. This class of symptoms lasts from two to six days; then the second class, or special symptoms begin. They are as follows, viz.,
great nervous irritability, considerable-
mental derangement, spasms, especially of deglutition and respiration, increased vascular action, the pulse rising in frequency, sometimes as high as one hundred and fifty; the breathing is aptly compared to that upon entering the cold bath, or upon baptizing suddenly from a warm to a cold temperature. This occurs at irregular intervals, and may be produced by, or increased by, by pouring water from one vessel into another. With in hearing of the patient, or by simply calling his attention to fluids.

This phenomena is ascribed to a spasmatic contraction of the diaphragm, and usually, gives rise to convulsions, and suffocation, pointing to the part of the stomach. Very great sensibility of the
surface is also present; the cutaneous nerves become so sensitive, as, not to bear the touch of the finger, a cool current of air, restling of the bed clothes, in a word not the slightest touch imaginable, with and its producing convulsions and were agony.

The nerves of special sense appear to be no less impresible, a flash of light, or a sudden sound, produces a similar effect, as that of touch upon the patient.

The very great impression made by pouring water, or the rattling sound of, when poured from different vessels, within hearing of the patient, seem to be due, to a sense of pain on attempting to swallow liquids; for the muscles of deglutition are
Spasmodically and painfully effected in the attempt to swallow liquids of any kind. A very distinguishing feature of this disease, is great mental derangement, a vague sense of the presence of the most frightful beings, and impending danger; supposing himself surrounded by the enemies of such a character alone, as a deluded imagination could conjure up. These delusions alternate with fits of frenzy. It has been erroneously stated, that the patient would bark and growl, like a dog and endeavor to bite those near by, at times; but the supposed barking is only an effort at breathing and the grunting, biting, only, effect of throwing of the, membranous mucous, that has collected in the faucæ.
The symptoms nearly, or entirely, abate sometimes before death; the mental anxiety subsides, delirium and breathing, easy, and the antipathy to water disappears, so that the patient eats and drinks, without the slightest inconvenience.

It would seem, judging from the symptoms that this is a nervous affection, and is so regarded, by all authors; but why it should manifest itself so peculiarly, is a question that has not, nor may never be satisfactorily answered.

It can only be said, that, "Hydrophobia in common with all diseases has, its particular symptoms and modified manner of development, in each case. If a reason could be adduced, for the
special signs, it would perhaps suggest, a successful mode of treatment, or, at least, be a valuable auxiliary, whereas all efforts as yet have utterly failed.

Post-mortem examinations have revealed nothing that even partially accounts for the strange phenomena distinguishing this disease. The morbid changes which have been observed in autopsical investigations, are, congestion of the membranes, and substance of the brain, spinal chord, & effusion of serum; the oesophagus, trachea, and bronchi, are congested, also, the lungs, and the papilla about the root of the tongue, enlarged. The stomach sometime contains a dark fluid, with purple spots upon its lining membrane, also, the same upon that of the bowels.
Now, it seems, from the report of every examination, that the above-named lesions are not constant; never all found in the same subject, and in some instances not even one. This of itself proves that there is no reliance to be placed on such revelations, so far, as the true cause of such phenomena are concerned. Again, most of these appearances might result from other and simpler diseases, or may occur after death from many causes; here, again, then, the profession is foiled in its attempts at discovering anything that would enlighten it upon the subject.

The above history is sufficient to discover at once the futility of attaching any importance to the pathology of hydrophobia.
Diagnosis. There are few diseases with which hydrophobia may be confounded. The most difficult of distinction is imaginary hydrophobia, for it should be denominated, i.e., the diseases, hysteria, delirium tremens, phrenitis, etc. The former probably is the one most often mistaken for it, and is presumed to be the spontaneous hydrophobia, alluded to by writers. If a person be bitten anterior to the attack of either of the above-named diseases, it is but natural to attribute the cause to the wound; and this alone is sufficient to produce some of the symptoms common to hydrophobia, and probably settle the fact upon the mind of both patient and physician of the dreaded complaint under consideration.
From, Hysteria. It may be distinguished, by the inconsistencies characterizing, Hysteria, the entire statement of all symptoms, tranquility of the patient, forgetfulness of his condition, sudden paroxysms, and absence of severe shaking sensations, also from all, in their great aversion to water.

It may be distinguished, from, Threnitis, and delirium tremens, by cerebral symptoms in the former, and absence of spasm, nervous excitement, & the pulse, in the latter.

Prognosis, as already intimated, is always in the last stage unfavorable; some authors declare that no case has ever recovered; whilst, others contend for the contrary: the latter view is doubted if not wholly unfounded for the following reasons: bi3, ii. It is certainly
impossible to say, when the disease is prevented, much more when cured. If all recoveries are only temporary, treatment anticipating the disease, is all that exerts any influence over it, and costly, the circumstances themselves forbid the positive conclusion that the disease existed or would supervene.

Treatment—This is divided into preventive and palliative; this introduction is at once sufficient to inform us that the cure of Hydrophobia is, at least, questionable if not impossible. It may be prevented by excision or amputation. There is some difficulty, however, here, which is frequently hard to overcome. Now, the proportion is so widely contrasted, between those subject and those actually taking the disease...
as to give rise to the query, in any particular case, if left alone might he not escape the disease and avoid the consequent loss of a limb, or, disfigurement by excision. Again—

others aware of the two evils and also of the fact that many escape who are suspect, might act upon this hypothesis, and refuse to submit to any preventive treatment.

The presumption is, that with a knowledge of the circumstances under which the wound was inflicted, to guide the physician, it would be better to attempt the preventive treatment, in three cases, unnecessarily, than to suffer one to die in consequence of its neglect.

The part bitten should be thoroughly washed and then a probe passed to the bottom of the wound. Then the incision made, so as—
to include the entire wound, in order that all the virus may be removed. The mode of making the incision should be modified according to circumstances. After the part has been removed, the wound should be freely cauterized, with Pattacea jawa, nitric acid, nitrate of silver do. The same treatment of cauterization must be practiced when the wound is so situated as to make amputation or excision impracticable.

The palliative treatment consists in keeping the patient quiet—removed as much as possible from the light and noise of any kind—from currents of air & water should be given, or even brought, in sight of the patient with great caution.

Ice should be applied along the spine on both sides, throughout its whole length.
The patient should be induced to swallow ice, as often as the state of his case will allow. Chloroform & sulphuric ether, should also be administered. In trying the last mentioned remedies, it is believed they are sufficient to accomplish all that could be expected, from any known remedies of the three kingdoms of nature, for the Materia Medica has been prized in vain, in search of a curative remedy. Therefore it is deemed unnecessary to add any more of the many of the futile remedies, recommended by authors.

Waiting for future and more successful efforts in search of a curative for this disease, it is only necessary to add that these remarks are closed, and all, respectfully submitted.