Acute Hydrocephalus.

Introductory. It may be thought that in choosing a subject for a thesis, I have not been very fortunate for Acute Hydrocephalus is a disease which has engaged the attention of very many writers, consequently its pathology has been well sifted.

It is not then with the view of offering any original remarks that I chose it as my subject, but because some time ago having lost a dear little relative by Acute Hydrocephalus and having witnessed the course of the disease from beginning to end, I was struck by its insidious approach, its painful characters to witness and its fatality.

After this I directed my attention to it particularly and I determined to write my thesis on it, not as I mentioned before because I had anything new to offer, but merely if possible to draw attention to so
deadly a malady, for I think that all those diseases which are the most deadly, deserve the greatest thought, and this may be obtained by repeatedly bringing the subject to the surface until by frequent lifting a better understanding is arrived at.

I propose to begin by first describing the symptoms, from beginning to end, next to consider the Pathology, and lastly the proper treatment.

Symptoms. And firstly prescriptive symptoms. These I think are very important, for if rightly understood, I believe many little lives may be saved, unfortunately they are not noticed, by the child's nurse, or relatives, or they look upon them as being trifling, and not sufficiently alarming, so that much valuable time is lost. However, I hold it to be the duty of every family practitioner, to enquire into these little matters. I am sure it is hereditary,
and that it runs in families, thus it will generally be found on enquiry that either the father, or mother, will remember, that their little sister, or brother, died, of water in the brain; further the first child, is more apt to suffer, than the subsequent. The child is very intelligent, and lovable, with bright clear eyes, and a pensive expression of countenance, indicative of some lurking evil.

At times mirthful, at times dejected, he may be apparently robust, and healthy, or be of a Strumous Diathesis, a tender scalp, so that the child dislikes, being combed, or brushed with hard brushes, and a variable time, before becoming ill, complains of bells ringing in his ears, a dry state of the nares, and he talks a little through his nose.

The next symptoms, are generally noticed, either by the child himself, or by his relatives; they are principally connected with,
disorders of nutrition, and here the question comes. Do these symptoms precede, or are they consequent on the graver evil? My answer is. They may precede, and act as the exciting cause, or they may follow as a symptom, this leads me to speak here of the causes not primary but secondary or exciting.

In children having a Strumous Diathesis, Disorders of nutrition, Dentition, Worms, Falls or Blows on the head, Fevers, Hooping-cough, or anything tending to weaken may act as exciting causes.

On the other hand, children evidently cachectic, may require, no exciting cause, the predisposing cause, being so strong, as to require nothing, to call it into action. From these remarks, it will be seen that under Acute Hydrocephalus, I include the Hydrocephaloid disease of Marshall Hall, which is essentially the same disease. These symptoms I say are
generally noticed by the relatives; the
medical man is called in, and he
finds, that the child has been ailing
of late, not sleeping so well, grinding
his teeth, or awakening now and again,
with a cry, as if frightened, his tongue
is foul, and his breath pours, bowels
generally constipated, and he may or
may not, complain of slight headache,
which the child refers to the base of the
brain, by pointing with his finger, to
the upper and back part of his mouth.
The Doctor, prescribes a dose,
of Gregory's mixture, and goes away
quite satisfied, but he is soon recalled,
and this time, the mother tells him, she
notices a peculiar look, in her child's
eyes, he is worse at night, feverish
and restless, he does not play as usual,
but lies on her lap, he sighs, and says
he is weary, he complains of pain in
his head, and sickness or giddiness, his
bowels are very costive, his evacuation
dark and unnatural, his urine like
dark sherry, he cannot bear light or
voice, and his pulse is quick. This stage which lasts two or three days, or the early part of it, closely simulates the remittent fever of childhood. Some hold they cannot be separated, or at least, that you cannot be positive of the nature of the disease, until the head symptoms supervene. Others believe, they can be distinguished, saying, that Acute Hydrocephalus rarely happens after five years of age, while remittent fever rarely happens before that age; that thirst is very urgent, stools are watery, and of a lighter colour, tongue dry and red at tip and edges, and that the remissions, and exacerbations, are distinct, and definite, in remittent fever not so in Acute Hydrocephalus. I am inclined to believe, that they can be distinguished though with difficulty, at any rate these symptoms, occuring in a child below five years of age, should always be looked upon, with great suspicion. The next stage of the disease
lasts about seven days or longer, it is very painful to witness that peculiar look in the eyes, I before-mentioned, goes on increasing, till they become fixed, and staring, pupils dilated, insensible to light. The little sufferer, on losing his sight, calls his mama to him, and with a tremulous hand, feels her face all over, or picks the bed clothes, or pushes his fingers into his nose, or he may lie in a sort of stupor, moaning or giving vent to his suffering by expressions such as this. “I’m sure I don’t know what to do.” Now and again he raises himself from bed, in a spasmodic manner, and moves in a curiously oblique direction.

I have not as yet had an opportunity of seeing those violent convulsions and screams, and those temporary signs of improvement, which are said to occur in this stage.

The pulse is very irregular, now very fast, then slower, and curious cold and hot fits occur, sometimes even the breathing becoming cold. The little
sufferer is evidently sinking, even as yet however he can be roused by causing him to swallow a little liquid, but soon all suffering ends, urine and stools are passed involuntarily, mucus accumulates in the larynx, breathing gradually becomes slower till it ceases and death closes the scene.

In the only case I had the opportunity of seeing to the close, I found that the heart continued to beat, some time after breathing had ceased, and that the body was quite hot.

Death does not always occur in the way above described but sometimes takes place during a convulsion.

Having now finished the description of the symptoms, I shall proceed to the Pathology. I have seen the post-mortem appearances of this disease, once only in a case of Dr. Arch. Inglio who kindly took me with him, so that in describing these appearances, I shall draw from competent authorities. The greatest changes noticeable in the membranes, occur in the Arachnoid,
and Pia Mater. The Dura Mater is sometimes found, firmly attached, to the skull cap. The Arachnoid is dry, cloudy and sticky to the touch, sometimes there are extensive adhesions, between its parietal and visceral layer, at the convex surface of the brain, but more frequently these adhesions occur at the base, in the longitudinal fissure, and fissure of Sylvius, between opposite surfaces, of the visceral layer, joining them firmly together; these adhesions seem to be connected, by a sort of sticky, gelatinous matter, which is also found in great abundance, about the olfactory nerves, near the Pons Varolii, and about the optic nerves, sometimes hiding the 9th and 10th nerves entirely. This matter does not seem to extend beyond the Medulla Oblongata inferiorly as will be seen from a case recorded by Dr. Hughes Bennett.

On removing the brain from the the cranium, the pons varolii, medulla oblongata, and corpora albicantia, were seen to be covered, with a layer, of pale gelatinous
lymph, one-eighth of an inch in thickness. This layer only extended to the medulla oblongata inferiorly, as was proved, by careful examination of the spinal cord, which was healthy throughout.

The pia mater is pale, and in some places opaque, and thickened, and also granular, owing to the presence, of minute white hard points, having the appearance of tubercle, they are more numerous, about the pons, optic nerves, and membranes covering the medulla oblongata.

These appearances are all seen on the exterior of the brain, now I have yet to describe, those seen in the central parts. The ventricles are filled with fluid, varying in quantity, from two to six ounces, sometimes this fluid, is quite clear, at other times turbid, with floating shreds of lymph. The walls of the ventricles, fornix, and parts in the vicinity.
of the ventricles are in a soft and pulpy state, or quite broken up, and the septum is often perforated by a ragged hole. I shall here consider the pathology of all these appearances, and the probable order in which they occur.

Many writers on this disease, have thought it of importance, to point out, that Acute Hydrocephalus, is an inflammatory, of course they cannot mean, that all these changes, are due only to inflammatory action, that they are, in fact, due to cerebral meningitis, but that inflammation has something to do with it, and follows as a consequence. Again it has been discussed, whether it be a tubercular disease—that associated with this disease, white hard spots, very like tubercle, are found in the pia mater,
and in the sub-arachnoid tissue, also in the gelatinous matter, found in connection with the
Arachnoid, and that their nature is tubercular, there can be no doubt. Dr. West gives the following reasons
for believing them to be tubercular:
1st. That they are always associated
with tubercle elsewhere.
2nd. That their abundance is not
in proportion to the amount of
inflammatory action.
3rd. That they are sometimes met
with, in cases, where no head symp-
toms were observed, during life,
and unconnected with any
signs of inflammation, observed.
4th. That their chemical compo-
sition, and their microscopic
structure, are identical with those of
tubercle, in other organs of the body.
From this it would appear, that no doubt can exist
as to their being tubercles, but
then these tubercles have been
found after death, though unconnected with any head symptoms, or signs of inflammation during life, so that they evidently may exist, without causing disease, or at least, we may infer that sometimes they excite, at other times predispose, the membranes to inflammatory action.

From the fact that the greatest changes are seen in the arachnoid, especially at the base of the brain, and in the general ventricular cavity; the lining membrane of which is often found thickened, opaque, and vascular. I have been led to think, that the disease may sometimes commence first in the arachnoid, by a sort of gelatinous degeneration, similar to what takes place in the synovial membranes of joints, in strimous children, and that this degeneration may be going
on, for a very long time, previous to the occurrence of any severe symptoms. This diseased condition, may terminate by the matter being absorbed, or inflammation supervening, then inflammation extends by contiguity, to the sub-arachnoid space. This space communicates, or is supposed to, with the general ventricular cavity, by means of an opening, in the inferior boundary of the fourth ventricle, thus the lining membrane of the ventricles becomes involved, giving rise to the watery effusion, found in the ventricles after death.

Having now described the pathology, it would be interesting here to connect the pathology with the symptoms, in the relation of cause and effect. Thus I believe that it is the gradual gelatinous degeneration, of the arachnoid, that gives rise to those symptoms which I described as premonitory.
Dizziness, tinnitus, bells in the ears, vertigo, and that afterwards, when this degeneration has reached such a height, that inflammation begins to supervene, those symptoms simulating remittent fever set in. It is a very curious fact, that inflammation of the membranes of the brain, gives rise to remissions; for example, inflammation of the dura mater, in Otitis, often begins with them. We know that hectic fever is also characterized by remissions, and it might be supposed, that the formation of pus occurring so near to an organ, as delicate as the brain, might give rise at once, to hectic fever. I think however, that the true explanation of these remissions is to be found in the irritation caused to the system, by a membrane, degenerated to such an extent, that it is really succumbing to inflammatory action.
After inflammation has set in, the symptoms may be divided into those of excitement and those of collapse. The stage of excitement, does not require any notice, except in those cases, where convulsions come on early, this may be explained by inflammation, quickly spreading to the peritoneum. The stage of collapse is characterized by effusion and softening, and it is quite possible that inflammation and effusion to go on together.

In those cases where during this stage, the pulse is very quick, and the child continually rolls his head, moans, waves his hands in the air, or where one side of the body is convulsed, the other paralyzed, one part hot, another cold, it is probable, that inflammation has overstretched the membranes, and is going on in brain proper, causing irritation at one part, and complete paralysis at another.
Death is invariably the result of pressure, by the effused fluid, on the brain, medulla oblongata, and on the origin of the pneumogastric nerves producing coma.

Lastly we come to the treatment, and in the same way, as I connected the pathology, with the symptoms, I propose connecting the treatment, with the symptoms, proceeding in the same order.

First then I shall begin with the treatment of the premonitory symptoms. The duty of a medical practitioner, is not only to try to cure disease, when actually existing or to aid nature in throwing off a disease, but his duty is evidently also, of a prophylactic nature.

For this reason a medical practitioner, should, if possible, be acquainted with the diatheses of the family, he is in the habit of attending, and he should enquire, without giving offence, from what
diseases, the families on either side, have sustained loss. For example, it is said, that Acute Hydrocephalus occurs in strumous children, but I think this may lead to error, for I have seen a case, and heard of more, where the parents were apparently robust, and healthy, the child a very picture of health and beauty, who never had suffered illness once, till in his fourth year, he suddenly became unwell, and died rapidly of this disease, on enquiring I found that on the father's side, a little sister had died of this disease.

If the child be strumous, he ought to take cod liver oil, iodide of iron, &c. and in all cases great attention, should be paid to the diet, and prime vice. He ought always to be allowed plenty of exercise in the open air, if he is old enough; change of air especially to the sea side is very beneficial. His brain should not be exercised at all, the
child should be taught nothing until he is of sufficient age and strength. He should be protected from exposure to cold and damp, and he should be clothed with flannel next his skin.

When the symptoms proper commence, I think it is bad practice, to try and overcome the obstinate constipation by powerful purgatives, such as Calomel and jalap, or some tarry for I think they only irritate, and hurry on the evil in the head; and further incapacity, the stomach and intestines for their work. Constipation is only a symptom, therefore I do not see the necessity of fighting vigorously against it. I would trust more to castor oil, say half an ounce, every third day, and to enema of warm water alone or mixed with castor oil. I would also give a diuretic and diaphoretic. Simple hot water, taken as
a drink acts capitably in both ways. The head should be well raised with pillows.

If the head symptoms go on increasing, and the pulse is high, then the head ought to be shaved, and then thin linen cloths, previously laid on a lump of ice, should be applied, and changed as soon as they begin to get warm. At the same time heat should be applied to the feet, and I also think down the spine and mustard plasters may be put to the calves of the leg. The iodide of potassium may be given internally in half grain doses, three times a day, but care should be taken not to push this medicine too far, as it may do harm instead of good. Food should consist of beef tea, milk, or milk with sherry. White wine only.

If the symptoms get worse a blister applied to the nape of the neck or over the scalp may do
good, and the ulcerated surface, may be kept open, by cantharides or Iverin ointment, but generally by the time it is thought useful to apply a blister, the disease has progressed too far, to warrant any hope of recovery. Opiates may, or may not be given, in the last stage, sometimes the physician is compelled to give opiates, by the urgent request of the relatives, who implore the doctor to give something to soothe the child. For my own part I would not give opium, as it does no good, and may do harm.

These then are the remedies in which I would trust, in the treatment of Acute Hydrocephalus, mild purgatives, and enemata, cold to the head, and warmth to the feet, Soda of potash internally, and perhaps a blister, nourishing food, with a little wine. Many more remedies have been proposed, but as I do not value them, I will not
enumerate them.

In conclusion, as gently
in contradistinction to severe treat-
ment, is more consonant with the
present ideas on the subject; I
would venture to hope, that this
my first attempt in medical
literature, may undergo a very
mild course of treatment.

William P. Henderson.