Acute Hydrocephalus
and the
Diseases which Simulate it.

A detailed account of the observed symptoms observed in the treatment.

Robert Baker.
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Acute Hydrocephalus
and the
Diseases which simulate it.

To find an appropriate theme on which to write a thesis is no light task. In looking over the themes of former graduates—the vast fields over which their minds have wandered in the search for a subject, to elucidate by careful thought and investigations—has added even more to the difficulty of choosing an appropriate subject to discuss in this paper.

Most of the former writers seem to have preferred a subject with which they had some practical experience, but others, placed in the same position as myself, not having practical experience to guide them, have taken the wise course of choosing some subject connected with the everyday duties of Professional Practice, the careful study of which would be of more service to them in after-life than the discussion of abstract Physiological or Pathological Theories.
In this Paper, I propose to follow the example of the latter class, by endeavouring to contrast the Symptoms and Treatment of Acute Hydrocephalus, with those, of the various Diseases which, more or less closely simulate it.

The many difficulties which are met with in the Treatment of Acute Hydrocephalus and its kindred maladies, can only be successfully surmounted by a careful study of their nature, cause, pathology, and by endeavouring to find out the respective characteristic points which distinguish them from each other. When clear ideas on these points have been attained, we may hope to see the application of sound principles of treatment (applied to each case according to its nature) take the place of blind adherence to arcanic practice.

In order to contrast systematically, Acute Hydrocephalus with the Diseases which simulate it, I propose to notice it under the following Heads.

I. To give a Short Sketch of the Pathology of Acute Hydrocephalus.
The symptoms of an ordinary case of Acute Hydrocephalus.

A classification of the diseases, which (especially in their earlier stages) simulate Acute Hydrocephalus, with the signs which are supposed to distinguish them from it.

To conclude with Remarks on the treatment of Acute Hydrocephalus and the cases which simulate it—with cases illustrating the success of stimulant treatment.

Pathology of Acute Hydrocephalus. This subject has proved a favorite theme for discussion by numerous writers—one class of Pathologists contending that the disease was inflammatory in its nature—the other class as truly bringing forward proofs that it was tubercular. It does not seem needful to discuss here, the arguments brought forward by the opponents of either theory—for it seems clear to be admitted by all that this disease is both the—
- inflammatory and tubercular. The pre-existing tubercular embolism or weakening the part as to render it susceptible of inflammation.

The true pathology of acute hydrocephalus is put in a clear form, by Dr. Nielson Bennett, who describes it "as vital changes in the brain, chiefly in the central white parts, of the character probably of tubercular degeneration i.e. that softening, effusion into the ventricles, and meningitis, are all consequences of amebicidal alterations of nutrition.

II. The symptoms of an ordinary case of acute hydrocephalus.

For convenience of description these symptoms are usually divided into three stages, but while still adhering to this plan it should be kept in mind, that often there are clear lines of demarcation between the end of one stage and the commencement of another.

According to Dr. Cheyne, the first stage of this disease, is that of increased irritability - the second, that of diminished sensibility - the third, that of convulsions or epilepsy.
The following sketch of a case of acute hydrocephalus, is principally abstracted from the masterly description of Dr. West.

The 1st or Premonitory Stage.

It marked by indications of muscular congestion feeble excitement. The child's spirits are extremely variable, but it is generally gloomy and fretful. The tongue is furred, the bowels are constipated and the breath offensive. The child complains of its head, and it is often giddy. The appetite is bad, any food or drink seems to cause a feeling of sickness - a greenish kind of phlegm being sometimes vomited. The vomiting is seldom oftener than two or three times a day. The evacuations are dark, coloured offensive. The child knits its brow - the pupil is contracted and eye glassed. The pulse seldom exceeds 120 in children above 12 years, but it is unequal or forceful in a few children. The little patient sleeps is short and uneasy - it grinds its teeth - awoke with a start or scream, and complains of any bright light.

This stage, in about four or five days usually passes into the second stage.
The Second Stage

A masked by the face assuming a permanent expression of anxiety - the eyes are half-closed, dull and heavy. The skin becomes dry and the face drops helplessly on one side. The child lies in a state approaching to stupor and is very averse to being disturbed, but if sufficiently aroused answers questions in a rational manner.

And now it is that the "shock lancinable" or hysterical-aphalique, which by many is considered as pathy.

Pneumonie of the disease begins to be heard. The symptoms of the disease are increased at night. Then, the child often becomes very delirious and incoherently talks at its nose. The pulse is less frequent but any slight movement increases its rapidity. vomiting is now seldom continued but the bowels are even more constipated & the abdomen acquires that shrivelled form, which some think is characteristic of Hydrocephalus.

The Third Stage

Characterized by a gradual deepening of the stupor by the appearance of attacks of convulsions. One side may be more affected than
The other, by the Convulsions, and the side affected is usually most painful afterwards. The extremities become cold, but different parts of the body are often bathed in perspiration. The pulse becomes smaller and more rapid — the eyelids only partially close. There is usually, marked plethora. The pupils are motionless. Light is now no longer unpleasant. Automatic movements of the mouth are noticed, but the power of deglutition remains to the last. Death may now occur with an attack of convulsions — but it may be that the occurrence of death is deferred for some time, until cold clammy sweat, laboured breathing, difficult deglutition show that the end is approaching. From this point the power of life gradually sinks — death closes the painful scene.
III.

The diseases, which (especially in their stages) Simulate Acute Hydrocephalus.

These diseases are so numerous, and varied in their characters, that, in order to avoid confusion, I propose to discuss them as follows:

1st. Those diseases which are not Tuberculous but are due to Exhaustion - as the Hydrocephalic disease, Water-Motor etc. under which head may be included those cases following after severe surgical operations.

2nd. Those following on other Acute Diseases as Diphtheria, Cough, Measles etc.

3rd. Those in which Head symptoms are accompanied with Fever - at Encephalitis.

4th. Those cases of Fever which are accompanied with Head symptoms.

5th. Those supervening on account of "..."
The Diseases which are due to Exhaustion

Hydrocephalic Disease of Dr. Marshall Hall.

This disease was first described by Dr. Marshall Hall in 1825, and soon after attracted the attention of Dr. Abercorn and Crock.

This common infantile malady, in most of its symptoms so closely resembles Acute Hydrocephalus that the diagnosis is often difficult, and chiefly rests on the history of the patient, all cases of this affection having ensued after consequent upon, some cause of debility. This cause is, in the majority of cases, Diarrhoea; but in other cases arises from an inadequate supply of the proper quantity & quality of food.

Dr. Marshall Hall describes this disease, as consisting of two stages: 1st, the stage of Irritability; the 2nd, the stage of Apathy.

In the first stage the infant becomes irritable, restless & feverish; the face flushed; the skin hot; the pulse frequent; there is an undue tenseness of the more of feeling; & the little Patient starts on being touched or from
any sudden noise: these are sighings, groanings during the sleep and dreaming. The Brows are flattened, loose, and the evacuations are sucrose and discordant.

The cause of exhaustion not being removed, the second stage sets in, which is marked by the pale countenance, the cheeks cool or cold; the eyelids are half-closed; the eyes are impeded from being attracted by any object placed before them; the pupils narrowed by the approach of light; the breathing from being quick becomes irregular and affected by sighs; the voice becomes husky; there is sometimes a husky breathing cough; and eventually if the strength of the little patient continue to decline, there is a coughing or rattling in the breathing; the evacuations are usually green and the feet are apt to be cold.

The following case taken from Dr. Gough's essay "Of some symptoms in Children erroneously attributed to Confusion on the Brain" is a very fair example of this malady,

Case I: A little girl, about 2 years old, small of her age, very delicate was taken ill with the symptoms of this exhausting disease.
The lay dozing, languid, with a cold skin, and a pulse rather weak but not much quicker than natural. She had no disposition to take nourishment. Leeches were applied, but soon after that, the aspect of the case altered for the worse: the child became deadly pale; it had scarcely any pulse, its skin was cold. The pupils were dilated and motionless when light was allowed to fall on them. When a watch was held to the eyes, she seemed unaware of its presence: there was no squinting. The next day she vomited her food several times: now, the child craved her food. Her features grew sharp and every now and then the clothes fell from her, and uttered a faint squawking cry. The eyeballs became sunken in their sockets, like those of a corpse that had been dead a month; the skin continued cold and stiff cold, the pulse weak, tremulous and sometimes scarcely to be felt. Thus she continued a while, at times recovery a little, but in a week died, with the symptoms of hemorrhage, not with those of oppressed brain.

On examination of the Head after Death, nothing was found abnormal except a little more serum in the Ventricles than is usual.
The guide to a correct diagnosis are thus expressed by Dr. West. "When head symptoms come on in a child, do not judge of their importance solely by the present condition of the child, but ascertain its previous history. Learn whether any other members of the family have had hydrocephalus, or been consumptive. Enquire whether the infant has thriven at the breast, or whether it has been for some time declining; if already weaned, ascertain on what it is now fed. Whether signs of declining health soon followed on the change of diet, while it thrived so long as it was suckled. Ask what signs of disorder of the bowels there has been, and observe at what times the vomiting comes on — whether only after suckling or taking food, or whether efforts to vomit occur when the stomach is quite empty.

Dr. Watson, in his lectures, lays considerable stress on the aid in determining between congestion and exhaustion, by taking notice of the enclosed fontanelles, in very young children. It will be common to perceive in the one indicating congestion, plethora, or inflammation; but of the symptoms originate from insufficiency and want of support.
the surface of the fontanelle will be concave, + depressed.

Even though all these points be minutely considered — the pale, cool cheek, regardless of sense of the pupil — the interrupted, sighing breathing, the low temperature of the body — the Diarrhoea, anecedent history of debility — yet in almost every case, in actual practice, the diagnosis will be encumbered with many difficulties, often so numerous that only a guarded opinion of the case can be expressed, until the case has been watched for some time with great care and attention.
Three cases resembling Acute Hydrocephalus which supervene on other Acute Diseases.

as Hooping Cough. Measles &c.

The frequency with which these cases are met with in every day practice, renders their correct diagnosis of great importance. I propose to illustrate this class of diseases by detailing two cases—one of Hooping Cough, the other of Measles—giving the treatment followed in each case.


C. E. a little girl about 3 years old—previously healthy. When the child was first seen she had had a mild attack of Measles from which she was just making a good recovery—she was droopy & quiet: the Bresils were constipated and there was a constant working of the bands about the Throat: she was ordered a Cold Mercureal purge, the head to be shaved. The next day there was marked Strabismus & she was almost somnolent—her pupils were sensitive to light & then occasionally uttered a sharp cry. Cotton oil
was then applied to the Scalp — the little Patient was ordered some aperient powders & put upon the outside of Placenta. Treatment. As next day the Patient was still convalesce the Bronchial ointment was again applied. On calling the next day there was found to be sensible. The whole of the outside of the Head was infiltrated with Pus — and from this time the gradually improved. There was no return of Head symptoms. The Scalp came off almost entire but healed up readily under water dressing.

Case II.

Hooping Cough complicated with Head symptoms — the disease of three months standing. — Terminal in Recovery.

Mary C. aged nine months — a strong healthy child was attacked in February 1862 with Hooping Cough. On the first went the Mother stated that the cough had existed three weeks, but the child seemed to be getting worse — it was restless and sneezing & the Bowels Constipated. The child was ordered

Dr. Chlorodine m.xp.

Eucrizine 5iv  Sept. 30 to six in the

Aqua Zif.
also R. Hydraz. 3 Grs per
Pulvis Phæ. 8 Grs

Signs: One Porter night morning.
At rest the child seemed much weaker
and one tone of voice audible on the Chest.
So the Patient was ordered a mixture of Carbonate
of Ammonia, Squills + Lepa.
From this time head symptoms set in - there
was constant restlessness & rolling of the head
and a gradual appearance of Hydrocephalic
symptoms, including, Squinting, vomiting, Constipation,
convulsions of the whole body - these symptoms
passing into coma. The Pupils varied, but she
could not bear attracted by any object held up
before the eyes, nor did she seem sensible even
of the presence of a strong light. For days she
would cry constantly & kept continually working
with her right hand about her head and mouth.
During the time she remained in this condition
she cut two teeth - but they came easily and
did not seem to increase her disease. The Cough
continued very troublesome & the 'hoo' very
distinct - but with the aid of expectorants the
chest was kept pretty free. The confined State
of the Bowels was relieved by appropriate aperients. Thus the only favorable sign was that notwithstanding her comatose condition, she was always able to take the Breast—the was also given milk, whey, Brandy, & Beef Tea, but often for days together she would take nothing by the spoon. The head symptoms were combated by the use of Counter-irritants to the Scalp (Ole Gunnson) & by the administration of Soda & Potassium. But from the apparently hopeless nature of the case—no signs of amendment appearing—the Medical Attendant discontinued active treatment with the exception of advising the administration of Stimulants. The Child soon being full and plump became emaciated and anemic—the Skin over the Abdomen lying in folds and wrinkles. In this condition the Child remained for nearly two months its death being daily expected. The head seemed during this time to have enlarged somewhat but as no measurements had been taken when the patient was first seen, this point could not be verified. The anterior Fontanelle, which was partially open was full & elevated. Dr. B...... was now called in for consultation when it was
decided, again to try the effect of Laudanum in larger doses - to have the head well rubbed with castor oil lotion. A very copious eruption over the scalp was produced in the course of a few days - then the child began to manifest signs of improvement. She was able to take more food - acted better - clearly consciousness returned. This improvement continued steadily progressing - the body became less anaæsthetic and then the 'drop' disappeared, leaving however for a time a slight cough. The little Patient was now moved to the country - good health was then quickly established. With restored health the fears, which had been entertained, of impaired mental power, were shown to be unfounded - for in December 1863 the child was not only quite healthy but also lively and intelligent.

I have described these two cases at some length because I think that it is by studying such cases as these - noticing the relation which the acute symptoms bear to the Acute Diseases - that we shall be enabled to apply successfully our Principles of Treatment.
These cases resembling acute hydrocephalus in which the head symptoms are accompanied with fever as in: Encephalitis.

Under the previous division we have seen that whooping cough, measles and many acute diseases often give rise to serious head symptoms, but we now come to another class of cases in which the head symptoms precede and are the cause of the accompanying state of fever. This is well shown in the following case extracted from Dr. Bennett's Principles and Practice of Medicine:

Janet Reid, age 12 - admitted June 12th, 1839. About three weeks ago she fell down and struck the back of her head violently, but soon recovered, and remained well until ten days ago, when febrile symptoms, with headache, occurred. The following morning these continued, vomiting came on, with great weakness and crying at night. Symptoms on admission: She is very drowsy and starts occasionally on her sleep. Then ensued...
She is fretful and irritable and complains of headache. The pupils are dilated, but contractible on exposure to strong light. Pulse 144, of good strength.

Skin hot; tongue covered with a white fur + dry.

No appetite, great thirst. Locomotives open for two days.

Dr. Calomel 30 gr. 10.30 with phosphoric acid

Dr. Colomel 60 gr. 32.30 with phosphoric acid

Dr. Colomel 30 gr. 10.30 with phosphoric acid

She had a skin rash, after first two days.

Applied. Straminium 1 On capitis.

The leeches did well. Both lumps G were touched and injected with oil of a dark greenish colour.

Still complains of pain in the head and general uneasiness.

Since last report, there has been no more vomiting & there is no intolerance of light. Pupils natural; pulse 130, rather sharp.

Skin still hot but dry.

Sometimes hot and fretful. Tongue white and moist.

Temper Est. Somnolent, but agit. et repetit. post hera quaeque si opus erit. Done 15th. No headache and not so dry. Done 22nd.

Since last report has been gradually improving. The febrile symptoms have ceased and she was dismissed quite well.
These cases of Fever, which are accompanied with Head Symptoms.

It seems to be pretty generally admitted that cases of Fever are often met with, which possess many of the symptoms of Aseptic Encephalitis. This is shown in the following case, for the particulars of which I am indebted to Dr. Linton.

Case I. Typhoid Fever, complicated with Head Symptoms, terminating in Recovery.

A. B., a little boy aged about 8 years. The patient, a thin pale, nearly broncho larynx, was seized with a "Rigor" January 2nd, 1868. The patient became hot and dry; the tongue coated with white fur. Peter 120. He had a slight cough, but the chest was found to be quite healthy. Rickets constipated. The face presenting a very peculiar vacant appearance, clearly indicating some central affection. On the 7th day of the fever diarrhoea set in, but was kept under control by means of Ipecacuanha. At the beginning of the second week a few pin-colored spots appeared on the abdomen. The tongue became dry and cracked and sores appeared on the teeth. The case altogether
Presenting the symptoms of a well-marked case of enteric fever. But now the symptoms of the cerebral affection became more marked—the boy became partially unconscious, he continuously rolled his head from side to side. Every now and then raising his hand to his head—marked pareticus now appeared. the Pupils became dilated but remained partially contractible under the stimulus of strong light. On the 14th day he became wildly delirious—with loud and frequently repeated paroxysms of screaming. The crises occurred on the 16th day with a slight amount of sweating—which was followed by a reduction in the frequency of the crises. The paroxysms of screaming suddenly ceased on the 18th day and then the boy regained some degree of consciousness and was able to give utterance to a few simple, easy words. But for some days he remained unable to grasp anything in his hands and afterwards when trying to cause anything to his mouth seemed unable to steer his hand in the proper direction. These symptoms however gradually disappeared the appetite became voracious and the boy made a good recovery—only the exception that the pareticus still continues.

But though many forms of fever are known...
In Guy's Hospital Reports vol. 71.

"Two points of distinction between Tubercular Meningitis and cases of Fever with Heart symptoms are indicated which are not very often referred to. One is the condition of the Abdomen, which in Tubercular Meningitis is contracted, and in Fever usually dilated & tympanic. Again on the attempt being made to raise the Patient right-ways to examine for Puffin, if the case be Fever, the Patient assists in drawing up the clothes. But in central disease resistance is made, and there are indications that any movement is annoying."

more or less closely, to simulate Acute Hydrocephalus, it is in the Remittent Fever of Children that the greatest difficulty in diagnosis is met with. But we shall in most cases be able to arrive at a correct opinion by bearing in mind the following diagnostic symptoms:

That Remittent Fever is rare in children before the 5th year and hardly ever seen with in those under 3
That vomiting is often absent or never present in cases that the Bowels are generally relaxed - that from the accumulation of wind in the Intestines and from the tenderness of the Abdomen our diagnosis is assisted:
That the Tongue is usually dry - Patient is thirsty - the temperature greater than in Hydrocephalus - the delirium early - and lastly there are distinct Remissions.

But in Hydrocephalus only half the cases occur under the 5th year - the vomiting is persistent and there is often continued nausea - the Bowels are constipated. The tongue is moist there is often delirium of thirst - the temperature is not greatly increased - the delirium is usually late and there are no definite Remissions.
Three cases resembling Acute Hydrocephalus which are caused bysome irritation as in Gastric Irritation.

Most of the writers on Acute Hydrocephalus have alluded to the difficulties met with in distinguishing between the symptoms of that disease, in its Early Stage, and the symptoms arising from some cerebral irritation. Thus in both Acute Hydrocephalus and Gastric disorder, we have, Constipation, vomiting, headache, head symptoms & Convulsions. In order then to arrive at a correct diagnosis of Gastric Irritation one must bear in mind:

1st. That in Gastric disorder there is less fever
2nd. The face has not the anxious Hydrocephalic appearance.
3rd. The tongue shows more appearance of Gastric disorder than in the Early Stage of Acute Hydrocephalus.
4th. That in Gastric disorder, the administration of remedies is quickly followed by relief.

If we have continued vomiting the diagnosis is very difficult, the case must be closely watched & we should ever bear in mind the suspicious nature of the case & guard our Prognosis accordingly.
IV.

Remarks on the Treatment

of

Acute Hydrocephalus.

The practice of the Perfusion in the Treatment of these Cases—though still definitely in a transition state—has undergone many marked improvements in the last few years. But without entering deeply into the endless discussions on this subject, it will be sufficient here to state the facts and statements derived from the most reliable authorities which seem most likely to guide our treatment of this disease.

Let us take as our leading point the following statement of M. Guérard of Paris: "Tubercular meningitis may sometimes terminate by recovery in the 1st Stage. His the nature of such cases is always more or less doubtful: in the second stage I have not seen one child escape out of a hundred & even those who seemed to have recovered have either come afterwards under a return of the malady, or have died of Tubercles. As to Patients who have reached the third stage, I have never seen them improve even for a moment." The application of this last statement is not always found
Correct for there are some cases recorded in which recovery has occurred even in the third stage; but then again many authors discredit these being true cases of Acute Hydrocephalus.

It thus seems evident that in order to have much chance of success our treatment must be Prophylactic.

Now if we give due weight to the more recent Pathology of this disease, we must conclude, that our remedies must be essentially of an antitubercular nature. This is still more clearly indicated when we take into consideration, the unadmitted fact of the predisposition to this disease in these children who have an hereditary tendency to Tubercular Deposits — especially Pulmonary.

If then we meet with a case where we can apply Prophylactic Treatment let us look well to the means of warding off the threatened attacks. Provide a healthy nurse for the child of the Mother or tubercular let it have plenty of fresh air, the healthy child its diet simple but nutritious, let us see that it avoid any over exertion: pay strict attention to the prone bed. If the Roids are Normally constituted there is need of heat & the child out grunts a purgative of Epsom Salts or Sulphate of Magnesia will have beneficial effect.
But if new symptoms occur frequently we should follow Dr. Sydenes plan of inserting an acine at the base of the neck, or we should also do well to strengthen the child with Sonic Medicine. We shall often find a beneficid effect follow the administration of Cod-liver oil, Soda of Potassium and other anti-tubercular medicines.

But if, as is usually the case, the child is not seen, until the time for hemolytic treatment has passed away, we must then be ready to apply our remedies with promptness and judicious selection. Let us first inquire of we are to expect any beneficial result from the abstraction of Blood.

In the last published letter of the Principles of Medicine (Dr. Cattleyo) the following somewhat startling statement is met with: "There is perhaps no class of cases in which the sanative powers of judicious blood-letting become so apparent as in children on whom this disease has been observed Early and Carefully watched."

Dr. West says that in a healthy child 2 years old 4 oz of Blood may be taken from a vein in the arm; but then it may be asked whether we can meet with Acute Hydrophobia (a tubercular disease) in a healthy child. It is evident that the former
practice of General Depilation was founded on an in-
correct idea of the pathology of the disease. Then
we should also bear in mind the serious effect which
loss of Blood Causes in a Debilious Constitution.

But nevertheless we are bound to pay great de-
fidence to the opinions of such high authorities, as Dr. West
and Dr. Watson. The former gentleman is of opinion that
the application of Leeches to the Face sometimes relieves
the symptoms of congestion of the Brain: but he
considers that cases in which they ought to be applied
more than once, as very exceptional. The following extract
from Dr. West's book is to say the least ominous. "If
you do not see the child until the second stage of
the disease is advanced - till general convulsions have
occurred; or twitchings of the limbs or of the muscles of
the face, an appearance of extreme alarm or a state
of alternate contraction or dilatation of the Pupil - then
them to be impending - you must be exceedingly
careful in abstracting Blood. Under such circumstances
I have seen convulsions, to all appearance induced
and the fatal cause of the disease accelerated, by
a rather free, though by no means moderate loss
of Blood."

The next remedial agent that claims our consideration is
Mercury.

In acute Hydrocephalus, as in many other so-called inflammatory diseases - Mercury long held its place with medical men as the sheet-anchor on which they must rely.

T. Water ton writing on this subject says, that in very desperate cases of A. H. have got well - the improvement having commenced at the time when the mercurial influence on the system was becoming apparent: but that in many cases Salivation has produced no amelioration of the symptoms.

During later years a salutary change has taken place in the profession - I suppose there are very few who now would attempt to advocate the production of the Physiological effect of Mercury even in a case of Hydrocephalus. It is to be hoped that the plan of administering 350 grains of calomel in 9 days to a child 20 months old, is now obsolete.

Injunctions:

We have seen that in acute Hydrocephalus that is usually accompanied of the Borex, combined with rapidity of the Liver. Thus the
remedial effects of Purgatives in the treatment of this disease, are by all, held in the highest estimation. They are considered by some to exercise a three-fold beneficial, curative effect in acute nephritis.

1st. They correct depraved actions.
2nd. Remove the irritating contents of the
    Alimentary Canal.
3rd. They produce a discharge of the eroded
    portions of the Blood.

Purgatives should be administered early - a free
 evacuation should be obtained by the administration
 of a dose of Calomel; or Calomel combined with
 Sulphate of Magnesia or Saltp or Salmomery or
 then by combining Calomel with Nitrate of Bismuth
 the kidneys are excited to greater activity and
 the free action of the Bowels sustained.

The application of Cold:

This is often found beneficial in subduing
the symptoms of Nephritis; but its application requires
judicious and judicious care and caution. It is of no use in the
later stages of the malady as then the Cord is the
result of the presence of fluid in the Central Substance,
causing disorganization of structure.
Counter-irritation:

When the stage of excitement is passing into that of approaching coma, the application of blisters to the back of the neck, is invariably admitted to be beneficial — and one may suppose they act in the same way as when they come from the stumps following a severe case of continued fevers.

Dr. Melt does not seem to have a very high opinion, or reputation of a beneficial results, from the application of irritating ointments to the scalp; but, they seem now to have come into very general use, and it is believed now, that decided benefit often accrues from their application.

Narcotics:

This class of Remedies is not generally accorded to in the treatment of acute hydrocephalus: but by some, they are said to have a beneficial effect. Yet when the excitement continues in spite of Remedies, Morphine will often cause the patient to fall asleep from which he will awakon a refreshed and less excited state, and when the excitement and consciousness of pain are much increased at night.

But most care watchfulness will in every case be required.
Diet:

In the earlier stage of Acute Hydrocephalus
if the inflammatory signs are well marked, we should
give a mild emulsulatory diet - but we should
remember that in a febrile child we may do
much harm by adhering in every case, to the usual
routine Antiphlogistic regimen. We should always allow
ourselves to be guided by the particular circumstances
of each individual case. In most cases we shall
do well to support as much as possible the Patient's
strength and in some cases we must not hesitate to
administer stimulants.
Indications for Treatment in these Diseases which Simulate Acute Hydrocephalus.

Having entered thus fully into the indications for treatment in Acute Hydrocephalus, it now remains for us to take into careful consideration the indications for treatment in the Simulating class of diseases.

In the previous description of these, I have classified them under five heads — so that it will be more methodical now to notice the principles of treatment under each head.

1st. Those diseases which are due to Exhaustion.

Marshall Hall’s plan of treatment of the Hydrocephalic disease is based on such clear rational principles, that it seems to be universally adopted by all parties in the Profession.

1st. That Stimulants are indicated to support the strength of the Patient. M. Hall appears to have ordered Brandy & Sal.Vidica & to have trusted principally to the effects which they produced.

2nd. That the strength should be supported by Means of nutritious Regimen.

3rd. That Blending Mercury & active Purgatives and
any reducency or antiphlogistic treatment is contra-indicated.

Here follow the sequelae of acute disease.

1. To treat end endeavour to subjugate the primary disease.

2. To treat the head complications with stimulants and nutritious diet.

3. That counter-irritation has often a beneficial effect in the head symptoms as shown in the case of Horner-Burk previously quoted.

4. That the administration of salicylate of Potassium has often been attended with beneficial results. When given in sufficiently large doses.

III. These cases in which the head symptoms are accompanied with fever.

1. Endeavour to remove the cause of the head symptoms.
2nd. Ameliorate the Central Symptoms:
   By the local abstraction of Blood where necessary:
   administer purgatives - apply counter irritants
   cool or according to the particular circumstances
   of each case.

IV. Those cases of fever with standardized symptoms:
   1st. Apply treatment to the Fever according to
       its nature chiefly. IfRemittent with calms
       and with Quinine 30.
   2nd. Ameliorate in every possible way the Central
       symptoms: by means of cold or counter-
       irritation.

V. Those arising from some Irritation:
   1st. Remove the Irritating Cause.
       By lancing the Gums or of due to the
       irritation of Syphing - 2 by administration
       of vermifuge medicines or purgatives of due
       to abdominal irritation 30.
   2nd. Pay strict attention to the forms via.
This sketch of the indications for treatment would be incomplete without some notice of the power of chloroform: having consulted various authorities—the general opinion seems to be, that chloroform, has the power above all other remedies of allaying the symptoms of acute hydrocephalus: that although it has not the power usually to arrest an attack of convulsions yet its administration ameliorates the symptoms and relieves the patient's sufferings. But, in most of these diseases which arise from extra-cerebral irritation, not only is it of use in ameliorating the symptoms, but also in warding off the recurrence of future attacks of convulsions.

Iodide of Potassium.

As the administration of this remedy has been frequently referred to, in this paper, it will not be out of place to remark, that it is now considered by many, to exercise the same therapeutic effects on the constitution as were formerly attributed to mercury, without being followed by the serious results which so generally resulted from the administration of mercurial remedies. Iodide of Potassium is said to possess the power of stimulating the absent parts of the body into activity, the secretory and excreting functions of the body.
The following extract from the British & Foreign Medical & Surgical Review, for January 1882, shows that in acute Hydrocephalus, the administration of the solute of Potassium, should not be neglected.

Dr. Bourrouelle de Laffere has administered solute of Potassium in large doses in acute Hydrocephalus. This treatment has been attended with success. Eight cases are recorded in which the symptoms were well marked, and which were all cured. The effects of the solute were the more quickly developed in proportion to the more early stage of the disease. Thus in three slight cases the improvement was manifested almost immediately after the administration of the medicine, while in five other cases, in which the disease was more advanced and much more severe, the beneficial effects were not observed before the expiration of 48 hours. This difference in the results appears to demonstrate that the tuberculous granulations of the meninges, resist the action of the solute to a proportion as these granulations are more highly developed. He therefore concludes that in order to control the disease, there is a positive advantage in administering the solute as soon as possible.

The editors of the Bulletin General de Therapeutique remark that whatever may be the theoretical explanation of the facts adduced by Dr. B. de Laffere, the facts them-
Selsor are of great importance: and if his observations should be confirmed by those of other practitioners, a very great service would be rendered to Medical Science in bringing within the reach of medicine a disease which has hitherto been considered almost always incurable.

In this paper we have endeavoured to point out the true nature of Acute Hydrocephalus, and of those varied combinations of causes, which give rise to the symptoms, that betray mischief on the head. The same difficulties which led us to select so subject complicated with many obscurities, have met us throughout the paper but we have endeavoured to combat with all the information we could obtain, those difficult points in our subject. Though we may have failed in removing some of them, we shall by the information we have thus gained, be the better able to grapple with them in the active duties of our Profession.