Thesis for degree of M. D.

Subject:
Cerebral Cysts.

by
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Cerebral Cysts.

Deeper knowledge of physiology and of the laws which determine the healing of wounds has in recent years justified increasing boldness in surgical practice. This confidence is based largely on the foundations of anaesthesia and antisepsis, or asepsis, the two great factors in modern surgery. The advance has been a general one, along the well-beaten track much has been improved and simplified, while many untrodden paths have been entered upon.

In describing the nature of these fresh impulses, it may be said that attention to detail characterizes modern methods. Regard for biological truth, the modern spirit: an attitude so full of promise that we cannot assign limits to future progress, though in certain directions we are apt to think...
that finality has been reached. The light of scientific knowledge, however, is only breaking on a region which now absorbs much interest viz. that of the cranial cavity. This region is still shrouded in purely vanishing mists arising from the complex of the brain itself, and from the difficulty of differentiating structural from functional and nutritive lesions. The accurate diagnosis indeed of anatomical lesions is not a simple matter, and it is by no means infrequent to see conclusions based on experimental, clinicopathological, or pathohistological grounds rejected by post-mortem examinations, and to observe after death gross cerebral changes which were attended by few or unsuspected symptoms during life. This is not surprising when we consider the intricate relations of distant parts of the brain, and the
power of local lesions despite pre-

must also be remembered that

authorities are yet—yet entirely

agreed as to the exact delimitation

of the functional areas.

Clinical surgery has much to

observe and teach regarding these

points, while practically its duty

is to determine the tolerance of

tissues towards active interference,

and the possibilities of operative

measures.

Accurate observation and detailed records

of more or less important work

are necessary to give precision to surgery in this direction.

A case of considerable rarity

brought under my notice follows

as follows: briefly in review, to

describe the special case with the

treatment employed, and to

enter into some points of

interest suggested by it.
The varieties of cysts met with in this region are numerous, but from their nature and anatomical position all are not of equal surgical importance. The large and pathologically interesting group of "cysts of degeneration," the product of resolving tubercular Carcinomas and syphilitic infiltrations, and of degenerated gliomatous, myxomatous, and other tumours, belongs to an advanced stage of these constitutional and local disorders. In the future, after therapeutic measures have been tried, surgery will probably anticipate cystic development, by interposing while these deposits are yet in a solid state, when operation seems advisable. The dangers of delay make it imperative that surgery should endeavor to afford speedy relief, for while it is true that cystic involution may be attended by amelioration of symptoms, on the other hand haemorrhage into and around the cyst, or in consequence of diminished
pressure often renders the symptoms more urgent. Recently saw an illustration of this—Correligion, paralysis, death following haemorrhage into and around a softening gliomatous tumour situated under the right fissure of Rolando and involving the prefrontal region, which for months had caused occipital headache, emaciation, signs of progressive mental disorder. Such cases are the late manifestations of cerebral changes, and a study of their etiology is chiefly valuable in so far as it enables us to control or modify the existing causes.
All cerebral cysts, however, are not so amenable to preventive treatment. Analysis of reported cases shows, firstly, that a large number are congenital, and secondly that a considerable proportion is of traumatic origin. Many include in the latter group are in a manner
congenital, arising from excessive pressure on the skull during parturition, attended by laceration of cerebral vessels and occasionally by fracture of cranial bones. The remainder originate in falls or blows on the head in infancy or later life.

It is obvious that such causes can be altogether avoided, while the remarkable lateness of symptoms in many cases of cerebral trauma renders impossible that early recognition of a lesion necessary for its prevention of secondary changes.

Thirdly, we meet with cysts of the pituitary body and thyroid gland, either congenital or cystic during their whole life history, and partly in some countries from the nature of the environment; parasites are a not infrequent cause of cystic growths.

Let us consider each group somewhat more in detail.
I first—Congenital cysts.

We may dismiss in a word any further reference to their etiology:—they are abnormalities of evolution or development.

With certain exceptions the above mentioned these cysts being obvious tumours need no further discussion for recognition and analysis of symptoms, but demanding for differential diagnosis careful attention to certain features appreciable by the senses of sight and touch.

Meningoceles and a variety of encephaloceles will at once suggest themselves as belonging to this group, while we may further observe that though usually presenting externally some dermoid cysts and a few metamorphosed encephaloid growths may be only recognised by the symptoms of intra-ocular mischief which they give rise to.

So far as the meningoceles are concerned their recognition is of greater negative than positive value, since,
Should spontaneous cure not take place, treatment, though successful in one or two instances, has usually led up fatal meningitis. This fact emphasizes the feature in their nature of interest as they are at present, which is that these abnormalities are cysts communicating with the subdural space by disintegrating greater or smaller dimensions. They sometimes cover a shell of brain substance, and when complicated they closely resemble subcutaneous xæri. Should this complication lead to error in diagnosis simple operative procedures might be followed by unfortunate consequences.

The argyronata indeed must be handled with some caution on account of their occasional connection with intra-cranial xæri or even with intra-cranial cysts formed from structurally altered xæri.

The rarity of this last condition as a rule affords the surgeon sufficient protection, but such cases do occur.
Several instances are recorded of confusion arising between meningoceles and dermoid cysts.

The developmental origin of these cysts is now fully established.

They are usually first felt in the cranial line of the body, but in the skull they may occur at any point where lines of union take place between ossific centres, and where the lines are deficient in early life.

In the majority of cases they closely adhered to, deeply excavates the cranial bones, its others it communicates with the cranial cavity, and in a few it lies entirely within the skull.

Although the greater number of these dermoids lie along a line drawn from the root of the nose to the external auditory meatus, many examples of the intra-cranial variety, with which in an chief concerned, are found in the region of the squama occipitalis.

Instances abound of the discovery
If such lesions after death, but so far as Dean discovered, no truly intra-cranial cases have been diagnosed and successfully treated during life. The published cases show that these cystic tumours vary greatly in size so that they are not incompatible with prolonged life, unless some accidental circumstance, or intercurrent complication, should induce morbid action in a predisposed brain.

Though the occurrence of intra-cranial dermoid cysts is comparatively rare, it is clear that this variety of cyst should always be kept in view when presented with obscure symptoms of central irritation in early life. Professional opinion will no doubt sanction exploratory operations in obscure brain disease; but even if diagnosed and deemed upon removal of such growths, owing to their occasional intimate connection with the cerebral sinuses, might be an operation attended by as little risk or impossible of performance.
II. Mixed forms congenital, or cystic new growths.

We may at this stage draw attention to some rare forms of cysts which are not necessarily though occasionally congenital, and which while pathologically distinct clinically may be conveniently grouped together.

I allude to a class of cases in which cystic growths, congenital or new formation, may, if of sufficient size, produce a series of symptoms and appearances included under the term "chronic hydrocephalus."

If small they are of little surgical interest since they do not give rise to any characteristic symptoms.

I am aware that the term "chronic hydrocephalus" has a precise meaning, but it is capable of extremely loose application—perhaps necessarily so in the absence of post-mortem examination—viz. it is, I believe, often employed to denote not definite intra-cranial changes, but their remote effects of cerebral
enlargement, dilatation of fontanelles, and separation of sutures.

Such changes are gross and are attended by symptoms of a general nature arising from abnormal intra-cranial pressure, viz. petechialness (in children) wasting, prostrating, convulsions, and sometimes such disturbance of special senses as enables one to locate the primary lesion.

Among the leading causes of these conditions connected with our subject may be mentioned drowsy of the septum lucidum, disseaseal effusion between the layers of the dura mater, cystic degeneration of the wall of the choroid plexus, cystic occlusion of the posterior cornu of the lateral ventricle, also cystic neoplasms of the pineal gland and pituitary body.

A remarkable case is described by Dr. Zinker in Virchow's Archiv of 1839 which illustrates my meaning.

Marasmus convulsions ended in death in a child of six years old, the supposed
subject of hydrocephalus. Subsequent
examination showed that the cause
of death was a cystic growth of
the pituitary body which had invaded
the third lateral ventricles through the
canter pierced space greatly dis-
tended their cavities thinned the
brain substance and produced
enlargement of the skull.

III. Parasitic Cysts

The chief central parasites in man
are echinococcus haevinia and
cysticercus celluloseae.

They usually form cysts in highly
vascular parts such as the ventricles,
the ganglia, pia mater and cortex
of the brain, where they cause sensory
disturbance and mental disturbance
according to their size and site.

This is a class of cases of considerable
importance in certain parts of the
world, notably in Australia. When
the possibility of hydatids must be
considered and excluded in every
tumours or collection of fluid occurring in any of the cavities of the body. Diagnosis is based largely on the previous health and mode of life of the patient. Evacuation by tapping or drainage or some situations dilatation seem helpful methods of treatment.

It may be asked is it possible to distinguish during life a cystic from a solid growth, and is the distinction of any practical importance? When we look the aid which age, traumatism, and exposure to parasitic infections afford us we pass into a region in which the Constitutional condition and the selective affinity of special structures in certain growths mainly guide us in diagnosis. In other words seldom certain cerebral symptoms we must by an analysis of these locate the lesion and then predict its probable nature from the
known pathology of the region affected. Such a study renders it evident that, compared with vascular lesions and solid growths, cysts need hardly—until the exceptions already mentioned—enter into our calculations.

Practically, should say that the differentiation of a cyst from a tumour was of little moment. Extirpation is the only through method of cure for either, while tapping and drainage, palliative measures applicable to cysts only, are apt to prove futile from refilling of the cyst and from the haemorrhage which may follow their employment. This outline, which leaves many points untouched brings us to the last and most important division of our subject.

IV. Traumatic Cysts.
It has been abundantly proved that structural diseases may owe their origin to long antecedent injuries, and that a local lesion may progress
unobserved till, at a late period after the date of accident, it gives rise to symptoms or appearances of a striking character.

The conditions which commonly give rise to late symptoms in cases of head injury are: 1. Depression of inner table of skull. 2. Cleavage of outer, dura, or of the cerebral membranes.

3. Posthypertensive growths. 4. Cysts, with which we are at present concerned. These manifest their presence by symptoms pointing to local compression or irritation, while the history of injury, the tender percussion area and the occasional deficiency of the cranial bones in their neighbourhood indicate the probable nature of the injured condition. The following cases illustrate these various points.

The patient was a woman aged 27. In full, the subject of epileptic attacks since the age of thirteen. Her family history was excellent, and in infancy she enjoyed perfect health.
When two years old she fell out of a high bed on to a stone floor and sustained a severe injury on the right side of the head, the exact nature of which is unknown. After this accident the shape of the head changed, the right side becoming prominent and it is certain that this deformity was on the increase at the age of 54 years.

Health and intelligence remained unimpaired till the fit began at the age of thirteen, if we except a certain nervousness and irritability unusual in her family. Sense hallucinations, it is true, gave evidence of cerebral disturbance at a still earlier period, as she frequently imagined she was being chased by invisible animals. The onset of these symptoms cannot be dated, and no attention was paid to it, but later it was observed to precede an epileptie seizure.

The onset of unmistakable convulsions dates from puberty. They occurred at irregular intervals, sometimes three...
The poem begins:


...
the condition was as follows.
Patient well nourished, muscularly strong, organic functions normal.
Highly self-conscious, irritable, at times irascible then opposed.
The fits were of almost daily occurrence, though sometimes represented by transient giddiness or mental confusion only.
No definite aura preceded the convulsive seizures, but she was conscious of the encephalopathy of head region to the left side which invariably ushered in an attack. The seizures above became general, the muscular phenomena being rather more marked on the left side, they lasted about two minutes. Micturition occasionally occurred during a fit; tongue never bitter. Consciousness entirely abolished but she was usually up active immediately after a fit.

Nervous System: Subjective phenomena.
The patient complained much of the annoyance by fits caused her of occipital headache and of a sense of weight.
cold-throbbing in the right parietal region.

Objective phenomena. Reflexes, coordination, sensation, temperature sense, and special senses normal.

Ocular movements: peripheral as well as central vision, perfect; gross optic neuritis, nor hemiplegia for light-pom.

Inspection of the head showed that it was distorted towards the right side, the pre- and temporal regions being pushed outwards. On further inspection it was found that a considerable area of pulsation, visible and palpable, existed on the right side that round this area of depression could be traced an elevated long outline. This hollow measured 4 3/4 inches in length by 1 3/4 in width at its widest part, 1 1/2 in length at its long axis forwards, was irregularly rounded posteriorly and anteriorly, tapered to an acute angle.
Its superior margin was 2½ inches from the medial plane of the body, almost parallel to it throughout its entire length, while the inferior joined the superior at a point a short distance behind the position of the coronal suture 4½ inches above the level of the external auditory meatus. It sloped obliquely downwards backwards from this point passing two inches above the external auditory meatus terminating at the posterior inferior angle of the parietal bone. One inch behind this point of the hollow, a fine transverse ridge divided it into an anterior triangular and a posterior roughly quadrilateral space. The floor of this hollow punctated in synchrony with the heartbeat, but in deep pressure, resistance as if bone was lit. Countered and pulsation ceased to feel. The question then arose was this hollow due to a depression or a deficiency of a portion of the parietal bone. The pulsation pointed to a deficiency but this was extraordinary resistance to pressure, and the presence of the anterior bridge left the matter undecided.
The convulsive headache, giddiness all pointed to intra-cranial tumour, but the duration of the symptoms, the absence of any paralytic and of optic neuritis made it unlikely that such was the case.

This peculiar condition of the skull therefore was believed to be the result of injury in early life, and to afford an explanation of the epileptic seizures.

To aid diagnosis and to decide the presence or absence of bone aspiration with proper antiseptic precautions was tried in the posterior space. A fine needle was used which soon passed into a space cavity in which it was freely movable: the source of clear fluid was drawn off, which was followed by a falling in of the scalp over the space. While pulsation became much more obvious showing the greatness of the previously existing tension.

The presence of a superficial encapsulated collection of clear fluid was thus established.
This fluid was neutral in reaction, contained no albumin and under the microscope only a few leucocytes, cells resembling squamous epithelium were seen. In four days time, the floor of the hollow space had again become tense, and the patient complained of increased tenderness on pressure: it was therefore decided to make an exploratory incision.

Operation Aug. 29th, 1888.

During the administration of the anaesthetic in the stage of violence reciemement, the entire depression became a protrusion, divided into deep furrows by numerous transverse bands. This proves the absence of a cold roof, and shows that in similar cases chloroform might prove of service in diagnosis.

A superficial incision two inches in length was made along the middle of the hollow in the direction of its long axis, and the scalp was divided layer by layer on a sterile director till a smooth, thin membrane, supposed to be cyst wall was reached. On making a small opening into this tense bulging membrane, a large quantity
A clear fluid welled rapidly up. The opening was enlarged by the forefinger inserted. The incision prolonged with a probe pointed bistoury throughout the entire length of the osseous space.

There was then exposes a large somewhat wedge-shaped cavity with a broader base than the osseous space, since it arched on either side beneath the parietal and temporal bones, supported by short trabeculae which divided the cavity into deep but imperfect bony cells. (To avoid confusion we may note that the base corresponds to the floor of the cavity and apex to the wedge.)

The cavity measured 3/4 inches in width, 2 inches in depth, nearly five in length. The cerebral convolutions were flattened and pushed inwards, while the brain substance forming the floor of the cavity of apex of the wedge, seemed at points to be covered by a thin membrane, and at others perfectly bare. The antero-posterior axis of the cavity corresponded with that of the osseous space, while its vertical axis was directed towards the middle line at an angle of about 45°.
Its base arched boldly off the frontal and temporal bones on to the strong upper sulcal surfaces, which merge gradually on to the base floor.

The walls showed no tendency to bleed, and the cavity was quite empty of fluid. It was then apparent that the best course of treatment was not as easily decided. Even assuming that a complete capsule existed, the connexion between the dura mater and wall was so intimate, not easily interrupted, that it was decided not to attempt a prolonged dissection, but to rely on free drainage. Accordingly, no portion of the wall was removed, a large drainage tube was inserted, the scalp accurately stitched, the sutures being carried through the entire thickness of scalp.

No bad symptoms followed the operation. Very special feature was marked absence of cerebral fluid, merely found from the cavity, saturating large dressing.
This was a mistake. A flap operation presents many advantages.
The roof remained collapsed, nevertheless till the fourth day, when pulsation reappeared through the drain was acting freely. But now the difficult of maintaining antisepsis owing to the patient's unmanageable ways, shall have at this stage again laid the cavity freely open.

From this date onwards the pernicious discharge decreased in quantity and on the 14th day the tube with stitches were removed, when the patient's condition was satisfactory, general health excellent, no headache and no pito. On the 20th day all dressings were removed. A month after this improvement continued, when suddenly an epileptic attack occurred as before. After some weeks of observation one or two ind糬 outbursts, it was decided to attempt complete removal of the cyst.

Second Operation Jan. 19th 1888 almost twelve weeks after the first.

An incision was made along the line of operation, instead of finding the cavity empty, obliterated or filled with clear攀登 fluid as before, it was startling
to see that it had undergone considerable change.

At first it seemed as though the brain had refilled the space since, when the real parenchyma & dura mater were divided, a thin vascular membrane was exposed with greatly increased heat in the wound was carefully enlarged on a director & the thin membrane preserved intact.

Having come to the conclusion that this was a grossly cystic-endeavoured to remove it entirely by dissecting off the old cyst wall. On this was only partially successful for on passing from the cyst on to the luminal surface of the membranous layer that was stripping the new cyst from its outer attachments. This separation was attended by free oozing by the breaking down of what appeared to be hair tissue. Night traction then ruptured the fresh cyst & caused profuse hemorrhage.

After the collapse a special septum was seen dividing the cavity into two distinct portions, bulging on
the crural side, either on the posterior of the newly formed cyst, or tumor substance which had pressed outwards on the relief of tension following the first operation. Uncertainty on this point and the free haemorrhage caused the radical operation to be abandoned. The collapsed portion was cut away all bleeding arrested by a drainage tube inserted. Owing to the patient's maniacal violence on recovering from the anaesthesia restraint was necessary which had to be continued till the wound healed. Free purulent discharge occurred as before. But blood stained less plentiful. Drainage tube removed on 8th day. By the 10th the wound was soundly healed. Three weeks after the operation the patient had a slight attack of giddiness, but the local pain headache were completely gone. She expressed herself better than she had felt for years. She continued in capital health free from all symptoms till Jan 12th 1889 when the temperament of temper and epileptic attacks again returned.
April 25th 1889. Into still frequent but rather less violent.

Unfortunately this result leaves it undecided whether the gliomata due to collapse is better or worse from the operation.

Such is the summary of the main facts, let us now consider some aspects of the case capable of general application.

Measurements to do not convey a clear idea of the shape of the head. On the contrary, the bulging which began immediately above the mastoid incisure, but they enabled me to determine with some precision the brain area compressed by this cyst.

The convolutions compressed flattened include, besides, a small portion of the ascending frontal, a large part of the ascending parietal, the angular gyri, a small portion of the superior, mediales, temporal, opercular, and convolutional area. Interference with the motor area there was
no impairment of muscular power, neither of the facial nor brachial muscles. Similar cases might be multiplied. In the Journal of Anatomy and Physiology Professor Cunningham reports a case, which as far as the area implicated is concerned, presented some striking resemblance to the one under consideration. In his case the cyst had pressed the corporaifications into their laminae in which neither nerve cells nor nerve fibres could be detected. Dr. Benjamin Bramwell has also recorded a case of sarcoma of the duodenum in which as far as one could judge with the naked eye, the whole of the motor centres for the face, upper extremity and centres for the face and upper extremity were destroyed. On microscopic examination the grey matter in this region seemed to have completely disappeared. And yet there was absolutely no trace of paralysis." (British Journal, June 1878.)

These two cases satisfy the demand of Dr. Ferrier that destruction of the grey matter should be proved in the
absence of paralytic phenomena. Since we know that tumours may press aside without destroying the tissue in which they rest. (Honke, Localization of Cerebral Disease.)

I am unfortunately unable to demonstrate absence of pain cells but appearances analogous indicated at least greatly altered structure. My present aim however is not to question in the slightest the delimitation of importance of the motor areas, but to direct attention to a lesion which in my opinion throws some light on the functional connection of the opposite side of the brain.

With regard to the special senses it is now held that, in either hemisphere of the brain both sides of the body are functionally represented. The opposite side of the body is represented in the greatest extent respectively. That should any Centre fail from injury or disease these other can wholly or in part supply the deficiency. Recent investigations have also shown that muscles which habitually act together may be thrown into activity from either hemisphere.
The fact of non-impairment of motor power in this, and other like instances, remains, and at first sight it seems to indicate that compensation by the opposite hemisphere can maintain specialized independently executed movements. All the conditions essential for the establishment of compensation were present in this instance, but proof is wanting. The case only adds one among 65 other exceptions which suggest three possible well-known explanations—(1) Prolapse of compensation (2) non-complete destruction of grey matter (3) overlapping of cortical centres or existence of residue of embryonic tissue which is gradually educated so as to replace the part injured or diseased. This most interesting question of injury compensation can only be settled by elaborate experimental investigation, or by a remarkable series of clinical-pathological cases.
Etiology. In 1834 Dr. Bailleul pointed out the connection between blood extravasation, certain central cystic formations, loosely described as subdural subarachnoid, and inter-arachnoid. Regarding the mode of origin of these cysts, however, opinions differ. Some hold that meningitis with lymph hydration and organization as in pleurisy, pericarditis, united together the dura mater, subarachnoid lining forming a cyst. Others that lymph was poured out, became organized round an already exposed blood clot, others that organization took place in the extravasated blood without the intervention of any inflammatory action.

Sir Percivall Pott (Trans. Med. Chir., vol. 3, p. 28) strongly advocated paraphrased tis last view, and infuses his opinions from analogy. He postulates a demonstration of various stages of membranous formation in recent haemorrhages.

He describes four conditions in which the extravasation may be found:
1. Effused blood, liquid or coagulated.
2. Formed into a false membrane red.
in colour, or reduced to a thin threepenny.
4. Enclosed in a complete cyst which may be removed unbroken from the cavity of the dural membrane.

The progress of the case which I have described has been independently of the belief in the haemorrhagic origin of these cystic cysts, in which there is a distinct history of cranial injury. This is my apology for writing on the subject.

The rarity of the case consists in the enormous cranial deficiency, the sharp anterior angle of which, probably continued into an imperceptible fissure confirmed the view that cranial fracture with subdural haemorrhage was the primary lesion. These traumatic cranial deficiencies have not received much attention though they are probably of more frequent occurrence than is sometimes imagined.

They seem to invariably associated with fracture of the shell—usually in the right—parietal region.
arising from injury received during parturition, or from fairly labour in infancy. The pressure as found have increased in size from the protrusion through them of "splendid meningocoeles", which occur when the process is attended by such rupture of central membranes strain substance that cerebral spinal fluid escapes from the cranial cavity becomes obliged above the bone relieves the scalp. Such constant pressure from within without causes alteration of form.

It appears that the pressure of the brain interferes with callus formation but it seems that the injury itself is sufficient to interfere with the nutrition of the part. It presents that deposition of fluid calls necessary to keep pace with the growth of the skull.

According to this view the deficiency means arrested development relatively to the other parts of the head, not caused by increased by absorption or atrophic changes when complicated by the presence of an intra-cranial ex-...
Pursuing the same line of thought, it seems reasonable, that the abnormal bulging of the head should be regarded as a perpetuation, by continued growth, of a distortion acquired at the time of injury. Though believing that the occipital diploe afford sufficient relief to intra- cranial tension, I was unable to satisfy myself that interference with the exit of blood through the right lateral sinus by pressure of the clot was not a factor in producing the distortion.

Let us consider shortly the changes in the interior of the skull.

The case illustrates on the living subject all the changes enumerated by Dr. Prentice Hewett as occurring in intra-cranial subdural haemorrhages.

On this first operation the difficulty lay in determining the nature of the collection of the relations of the walls which bounded the collection of fluid. I now think that one has to deal with an imperfect clot or not class 3. It is difficult.
to explain why the floor of the cavity should have been covered only by a thin membranous thicker than the pia matter, which at points was greatly thinned or altogether absent. The extravasated blood had of course undergone disintegrative changes. The trabeculae can be accounted for in two ways. Either the so-called cyst was multilocular from the first, and the septa became ruptured by its increasing size, or the trabeculae represented attachments of the membrane of the brain (or rather pia matter) which became stretched and eventually separated as the cyst enlarged from crystallization of fluid or renewed meningohypophyseal

The second operation afforded examples of the remaining forms. A complete newly formed cyst was found, while the excised portion was covered by uneven essentially illustrated different stages of membranous organisation. The excised portion was composed of strata of different consistency and age.

Eventually was a dense white layer, within
it a thick red layer, internally there was a delicate membrane with filamentous processes extending into what has been the cavity of the cyst. The yellow colour shining through these thin membrane was undoubtedly due to the formation of albumen or similar substance proceeding in the contained blood.

Microscopically the separation of former cyst-walls from the dense matter could not be distinguished. Several sections only showed different stages in the organisation of fibrous tissue, with at points a clearly defined line separating the old cyst-walls from the new. There was also in the recently formed fibrous tissue an organisation of vessels showing how readily fresh haemorrhage into the cavity of the cyst could occur.

The points of greatest interest to determine are - when did the cavity become filled with blood, what caused the haemorrhage. It is not credible that bleeding could have occurred shortly after the first operation and have escaped through a large splinter drainage tube, without staining the cerebrospinal fluid.
One did not anticipate haemorrhage from the decidedly non-vascular walls of the old cavity, and the wound-refilling with serous fluid was expected.

The explanation of the phenomena (most in accord with the changes observed) is as follows:

1. The irritation of the chronicity of the interior generally caused inflammatory changes formation of embryonic vessels in the staphyloma among the recesses of the cavity. A layer of vascular tissue was thus formed which easily led from cerebral congestion due either to tension or pressure. The early tension of the post which followed operation is also in favour of this view. Haemorrhage probably occurred more than once during the patient’s post-operative struggle, but became unable to diagnose reliable dates.

The mesial septum was partially due to special pronounced activity along the line of the defect.

Conclusions. Such changes give rise to certain questions regarding the nature of the operation.
It is now an axiom in cerebral surgery that an operation must not be quick to give rise to formidable symptoms, but further caution is necessary. For the period of danger includes the healing process, and we must be able to foresee all possible structural changes in order to avoid them.

The irritative effects of large quantities of adhesions between brain and skull have been fully pointed out; as they have been frequently observed to cause such dropping, displacement, convolutions, cerebral vibrations, as to produce disorders function ofmeningeal pain.

Larsch must aware that the risks attending the production of unoccupied spaces in the cranial cavity have received much attention.

I may presume to base conclusions upon an isolated case, but I think its teaching indicates that without question, between the walls of artificial produced cavities liability to hemorhage septic formation is less present.
Its influence on treatment is suggested that in similar cases the eye should be opened and left open well drained. The relief of tension is slight. Irritation of antiseptics produces arrest of all transudative vesicle activity from collapse of its walls.

This true that free division of all resisting structures recession of a thin layer of cerebral cortex were first tried because was deemed applicable, but before concluding that vault of operative thoroughness accounts for failure, an alternative should be considered. That is the suitability of the case for operation at all.

Many now hold that too much has been expected of craniotomy surgery, that too much after all is limited.

Dr. this new Leeland concurs, but believes with Mr. Bergmann that wisdom consists in never lightly undertaking exploratory operations on account of their comparative safety.

He strongly advocates careful selection of cases maintains that operation for relief of traumatic epilepsy.
is only applicable to those cases in which spastic tetralogy commence in the same group of muscles, spread between in an ordered sequence, or in which temporary or permanent paralysis remains in muscles previously implicated in the condition.

According to this standard operation in the present case was a mistake of the result may be looked upon as strengthening of confirming this view of its real utility.