On
Some of the
Aural Complications
of
Influenza

Thesis
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by
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Aural Complications of Influenza

The epidemics of Influenza that occurred in 1889 and some of the succeeding years have afforded abundant opportunities of study of the disease in its various manifestations, — in this paper an attempt is made to give some account of the various forms of aural affections that I observed then, which were directly due to the Influenzal process.

As regards their frequency there is no lack of statistics; but those of Gruber of Vienna and Sonniferre of Berne are specially interesting. In a paper in the Lancet of April 26th, 1890, the following statistics are given from Gruber’s Clinic, which shows the amazing increase in catarhal and purulent inflammations of the Middle Ear which occurred during the epidemics of Influenza.

— The comparison is made between the same months of the various years. —

In December 1888, there were 323 patients,
  of these 32 had catarhal inflam.
  + 360 had purulent inflam.

In December 1889, there 333 patients,
  but of these 115 had catarhal inflam.
  and 103 had purulent inflam.
In January 1889 there were 367 patients
+ 59 of these had catarrhal inflam. + 59 “ purulent."

In January 1890 there were 324 patients
138 had purulent inflam. 186 “ purulent."

In this month also there was more than twice the number of cases of double purulent inflam.
than in the same month in 1889.

The number of severe cases seems to have been greater than in former epidemics, & Sutton mentions 6 cases in which he had to open the mastoid cells.

Prof. Jougnière of Berne gives the following statistics of 41 cases in the British Medical Journ.
of Sep 20th '90,

Most of them had Acute Catarrhal inflammation of the Middle ear.

$\frac{1}{3}$ had Acute Suppurative inflam. of the middle ear.

$\frac{2}{3}$ of acute catarrh. of Eustachian tube only.

2 in 7 cases the Mastoid cells became affected.

McKenzie (Med. Chronicle Aug. '91) treated 250 cases of Influenza & of these 6 had

Central Complications
In the experience of some authors there was during the epidemics a larger percentage of Mastoid Complications than in ordinary acute inflams of non-influenzal origin. Other observers however did not think the type of Otitis worse than usual.

Signes of Buda Pesti (quoted by McBride in his last work on the Ear) out of 28 cases had 5 of Periostitis of Mastoid, and none required operation.

Many cases of Ear affection no doubt occur during or after an attack of Inflaun which cannot be said to differ specially from similar cases occurring Independently of such an exciting Cause, but I have been able to satisfy myself that the Influenzal process does give rise to special types of Ear disease; they may be classified as follows:

1. **Severe Catarhal Inflamn** of Eustachian Tube & Middle Ear.

   In this form the deafness is extreme, the tympanum severe & inflamation by Politzer’s bag or the Eustachian Cyst affords little benefit.

   I believe there is something more to the new Catarh account for the
Extreme deafness + severe lassitude; it may be a specially hyperacoustic condition of the middle + internal ears, which stops short of hemorrhagic inflammation.

We may speculate a form a theory that there may be in addition some peculiar condition of the Auditory nerves, when we recall the extreme depression mental as well as physical which often accompanies, succeeds the Influenzal attack: it being by no means an unlikely hypothesis.

II

Hemorrhagic Inflammation of the Middle Ear.

This form has been of frequent occurrence and is characterised by weakness of voice; pain, sometimes slight, often severe + wide-spreading, over the head + neck; bleeding from the ears, perforation of the membrane which frequently takes place at a very early period; in severe cases sometimes extension of the inflammation to the brain, + even cerebral symptoms. Some authors have described an intensely hyperacoustic condition of the membrane + bullae on its surface.
V.
in cases that were seen in the early stages before rupture took place, but I have never been fortunate enough to see this in any of my cases.

III. Acute purulent inflammation:

often more sudden and severe

than the ordinary form, giving rise to mastoid complication.

IV. A peculiar Neuralgic condition

unaccompanied by any inflammatory process or deafness.

I do not mean to convey the idea that the above classification includes all the forms of aural affection that are traceable to influenza, but it is an attempt to classify the cases that have been treated by myself, of which I will now give typical example.

Case of Severe Catarrhal Inflammation.

Miss Chapman was taken ill with influenza in the end of March and had the usual symptoms. About the 4th or 5th day she had a slight sore throat
But that passed off soon. The week from
the commencement of her illness she
became deaf. On the 8th day I saw her
for the first time & found her so extremely
deaf that conversation in a loud tone
with the mouth close to her Meatus was
heard with difficulty.
In addition there was constant & distressing
tinnitus in both ears.
She could not hear the watch at the
Meatus, & the Tuning fork was heard
better on the Mastoids.
She had been treated by inhalation of
steam without any benefit.
I inflated the Eustachian with the Eustachian
Catheter with temporary improvement.
But the following day she was again
very deaf so the Catheter was again used
this time however with little good effect & she declined to have the operation
repeated. She remained exceedingly
deaf for a month, then the hearing broke
in her Right ear began slowly to improve.
On May 19 she could hear ordinary con
versation with the Right ear, the watch
at 5 inches distant. The tuning fork was
still heard better at the Mastoids, External
Meatus.
With the left ear she was quite deaf to
ordinary conversation. The watch was he
one inch off, & the tuning fork better on the Warblow.

She continued to improve very slowly, 

it was only after the lapse of some months 

that she quite recovered her hearing.

In this case I think it is permissible 

to suppose that there was something more 

than the mere catarrhal condition to 

account for the extreme deafness. 

In ordinary acute cases of Catarrh 

of non-Influenzal origin the improvement 

after inflation is as a rule more marked, 

+ also of longer duration, + the degree of 

deafness is not so extreme as in this 

case, (at least such is my experience) so 

I think we are justified in imagining 

what, for want of a better term, may 

be called a depressed or impaired 

condition of the function of the Auditory 

nerve. The improvement in hearing 

power that takes place in such cases 

after a course of tonics lends a certain 

amount of feasibility to this view. 

Cases of Haemorrhagic Influenza:*

As the name indicates of the chief 

characteristics of this class of cases
is the tendency to haemorrhage that exists, this may also take place even in slight cases as in the following patient—

Claud V—Aged 10. was suffering from his 3rd attack of Influenza.

On the evening of May 7th I saw him for the 1st time when he had been ill for 4 days. As far as the Influenzal attack was concerned he was much better but during the evening he had had several stings of pain in the left ear, there was tenderness to pressure over it.

During the night the ear bled and in the morning the pain was gone—immediately thereafter no perforation could be detected. The treatment adopted was the ordinary, keeping up to keep the parts clean and clean. The bloody discharge persisted for several days at the end of which he had quite recovered with normal hearing.

The sudden occurrence of bleeding in the bloody discharge which continued for several days marks this case of Influenzal origin as quite distinct from the ordinary Unies Media in which the character of the discharge is always more or less
Serous or sero-parotid.

In contrast to the above mild case here is the history of a case of severe haemorrhagic influenza followed by Periostitis of Mastoid process.

James Ross, aged 16, became ill with influenza on April 26th, 1891. He had the usual symptoms of feverishness, violent frontal headache and pains in the limbs. The following day his throat became painful, for which Sulphur was applied by his mother. The headache continued severely till April 29th. On May 1st he complained of a suddenly seized left ear pain in the left ear. Hot poultices, warm applications were used, but in the early morning the ear bled, and the pain was not relieved.

The following night the right ear became affected, fresh morning bleeding occurred as in the left ear, and by the evening the pain had spread all over the head, and then continued night and day. He was purged by order of his medical attendant, and in addition had 3 leeches applied to the right Mastoid, & below the ear, which was syringed with warm long fluid & water. Morphine solution dropped into the meatus, & fr. Soda painted over the Mastoids, & in front of the Tragus.
on both sides. Internally, he was ordered Bromide of Potassium.
On May 4, I saw him for the first time. He was then lying with his mouth open and was very deep and stupid looking. The tongue was foul, pulse 68 per minute slow & thrumming in character. Temp. 99.6 Respiration 20 per minute. The tuning fork was heard better on the mastoid & the watch only ½ inch from each mastoid. The condition of the membranes could not be made out owing to the swelling of the mastoid. Over both mastoids there was tenderness but no pitting or pressure; there was tenderness also in front of the trigus & extending down the neck from the top of the mastoid.
The treatment above mentioned was ordered to be continued.

May 5. His general condition was somewhat better. He could hear the watch 1 inch from both ears, the tuning fork still was heard better on the mastoid. Pressure on the front of trigus still painful.
The same evening he was seen again as he was now worse than in the morning. The pain had extended all over the vertex & occiput—though his hearing was improving, & leeches were again applied, hot mustard
May 6. This treatment produced a fairly good night's sleep, and today the hearing is better and the pain seems to have concentrated itself round & below the right ear. Lecithin was again ordered in the Chlorodyne repeated.

There was no discharge of blood from the ears today & he gradually improved, in a comparatively short time he was well enough to do without medical attendance.

After being as we all thought well for a few weeks, he had a relapse on June 22, & on June 26, I saw him again & after he had been suffering pain for 14 days. The pain was severe & there was great swelling over the left mastoid & extending backwards towards the occiput, & upwards over the Parotid region. As he had been leeched before I saw him, I immediately made a free incision, down to the bone over the mastoid. The relief was at once great; although no pus was obtained, just that he had a good night, the following day pus began to ooze from the wound.

The tympanic membranes were torn.
to be quite normal.
From this time he continued to
improve slowly & ultimately completely
recovered with good hearing.

I have mentioned this case fully
because it seemed to run a very peculiar
course. The first time I saw the boy
he looked as if he had some cerebral
condition. The pulse was slow, laboured,
&thumping; he was very dull & stupid
looking, could only with difficulty
be pounced to answer questions.
There was practically recovery from
the haemorrhagic form of influenza;
but after a period of well being
the attack of acute Periostitis of
the Mastoid developed.

The tympanic membrane, the latter
attack was quite healthy looking,
& it may be that this is a peculiar
feature of this form of influenza
occurring either during or after an
attack of Influenza, as I have never
seen Periostitis of the Mastoid with
perforation occurring subsequent
to Acute Tympanitis without the
membrane suffering damage.
It may be here mentioned as a
notable feature that when perforation,
occurred in this haemorrhagic form of Influenza; it took place much earlier (often within the first 12 hours) than in the Catarhal form in which it was sometimes as long as 5 days in happening.

An instance of this is afforded by the case of Emily Doyle aged 2 years 5 months.

She began to ail on Feb. 17th she complained of pain in the chest & cough.
Feb. 18th she was still complaining but unable to be dressed.
Feb. 19th the doctor was called in & diagnosed Influenza.
Feb. 20th. Up to this time there did not seem to be anything the matter with the child's head, but at 2.30 PM she suddenly began to cry, to roll the head about, and keep her hands to her head. She continued crying in great pain all afternoon, & kept putting her hand to her cheek & neck on the left side. There was no difficulty in swallowing, nothing to make us suppose the throat was at all affected.
At 6 PM, she fell asleep & slept till 10.30 PM when she wakened up, & then noticed a discharge from the left ear. She remained awake for hours but fell asleep again till 4 AM when she...
she awoke much better. The discharge was coffee-coloured, it is worth noting as it always resembles to the haemorrhagic discharge, sometimes even pure blood, which was present in many of the cases during the effusions.

The next day Feb. 21st there was still discharge, but no pain, she was much more lively.

The following day Feb. 22 she was altogether better. No discharge. No tenderness to pressure or temperature normal. There seems to be in this family a tendency to influenzal attacks.

The mother has had it three times, very severely, and at the present time is recovering from a 4th attack — a mild one. Another member of the family has also had it, the child Emily had suffered severely from it when 7 months old, at the time the mother had it.

The most marked feature in this case is the great rapidity with which this ear affection was developed.

From Feb. 17 to Feb. 20 there was no indication that anything was wrong with the ear. On the latter day, within a length of 32 hours the local affection seems to have begun.
from its course, terminating by rupture of the membrane, bloody discharge.

In considering this peculiar form of the affection we are struck by the similitude of the symptoms in cases described by various writers, not only in this country but abroad. Eitelberg of Vienna in the British Medical Journal of July 19th, 1890 gives an account of 100 cases of aural complications, with a characteristic in many of them was the hyperaemic condition of the membrane and tympanic cavity, and frequently severe haemorrhages from the ear occurred. His experience coincides with McBride's that the pain in the tympoanitis of influenza is more severe than in the ordinary variety, and also that the course of the disease is as a rule unfavorable. My own experience confirms this. According to Urbantschitsch, tenderness over the mastoid process was observed in nearly every case.

McBride points out a difference in the position of the pain in cases of aural tinnitus of influenza, and true mastoid inflammation. The former is usually complained of at some point behind the mastoid, corresponding nearly to the
point of junction between the temporal + occipital bones, + "in true mastoid inflam: the pain + tenderness are most marked over the process itself, usually at the tip or base."

I have not been able to satisfy myself on this point from my own experience as in most of my cases the pain was pretty generally diffused, + in some of them I had not an opportunity of examining till some days after the commencement of the illness.

It has also been recorded by McBride that when perforation of the membrane occurs in this "Influenzal Otitis Media" it does not give such relief as we are accustomed to find in the ordinary variety, + this persistence of the pain is not of such grave import as it is when occurring in cases of "Acute Inflam: of the Middle Ear."

When we reflect on the uncertainty in the descriptions of the disease by the various writers we naturally try to find an explanation, + to my mind that advanced by McBride is very likely to be correct. He thinks that during
the process of diastasis. A previously existing Eustachian obstruction causes
diminished air pressure within the
Eustachian tube, consequently rupture of
the eburnated vessels.

This theory does not however account
for those cases of Otitis Media with
haemorrhage occurring during the
Influenzal attack, in which no pre-
existing Eustachian obstruction has
been present.

While considering this subject it may
not be out of place to mention a paper
by Dr Mispeloff (Nouvelles Archives de
Gynecologie, August 1890) in which he
cites 6 cases of Influenza in which
Ventricular haemorrhage occurred.
Muller of Munich, & Planten of London
have also recorded similar cases.

Dr Mispeloff advances a theory to
explain this ventricular haemorrhage. "The
germ which enters through the Respirat
ory deflection tract may cause Vaso-
motor disturbance through reflex action, & so set up haemorrhage in
the uterus as well as in other
organs." This theory is certainly
comprehensive enough to include the "accouch配送 infiam of the ear!!

Case of Acute Purulent Inflam."n

Jas. Young aged 70, was admitted under my care July 31st 1891. The history was a very sad one. His household was seized with Influenza. He had to leave work on June 15th ill with the disease and pain in the ear. His wife died on June 4th. His sister-in-law on June 7th. His son and daughter also had the complaint but recovered. He himself took to bed on June 30th on that date was hearing well but the next morning was quite deaf.

As soon as the discharge appeared the pain abated, so he had a fever when I saw him the first time it might be fairly assumed that it occurred when the discharge appeared.

---This statement of pain is contrary to the observation of Dr. Browner to which reference will be made later.

July 3. Recent condition. On cleaning the ears both membranes were red, swollen, and inflamed.
With no appearance of the Walls of either side. On the anterior wall of the Right Meatus, close to the vegetation which was perforated, was a small polypoid growth.

The tuning fork on the Right side was heard better at the External Meatus. On the Left side it was heard better in the Meatus, & the results of testing with the watch was absolutely nil.

Conversation was heard only when the mouth was put close to the Ear.

The treatment adopted was syringing with warm Boracic solution, & instillation of warm Landanum, which gave relief.

July 6th. Today has pain over the Parietal region. The membranes are much paler in colour, the ear hears ordinary conversation 12 inches from the Ear.

July 9th. Otosclerosis considerably less in both ears, but towards running the pricking pain in both ears came on (His symptom is specially referred to by D. Brunner in Lancet March 8th, 1890) but this was relieved by syringing.

The Eustachian tubes are spongy on both sides. He hears conversation better but cannot hear the watch on either side.
July 13. The discharge is much the same in amount as it was on the 9th.

Hearing distance with Right side 3 feet distant, Left side 2 feet.

The left ear is still painful.

Ihalations of Mr. Bouchard Co were ordered. He much have gradually improved under this treatment, as he did not attend again till Sept 4th when he had a relapse, came back looking very ill, complaining of pain & discharge.

He was placed in front of a reed, a steam up the ear was ordered.

In one week he got worse, then he attended on Sept 11th on which day I made a free incision down to the bone over the mastoid, removed a quantity of pus, inserted a drainage tube. The next 2 days Bouchard's lotion was again applied, with good results, the tube was kept in till Oct 2nd. When it was removed, he continued to attend at intervals till Nov 3rd. When he wrote "I am now completely cured."
IV. Neuralgia following Influenza.

Various neuralgic conditions were frequently met with as sequelae of Influenzal attacks, sometimes the cases of Neural neuralgia were peculiarly intractable.

In an interesting article in the Lancet (March 1890) Dr. Brönner points out the peculiar neuralgic nature of the pain in cases of Otitis Media caused by Influenza. The cases however that I would include under the above heading are those cases of post-influenzal neuralgia which affected the Ear alone, which were sometimes accompanied by deafness, at times sometimes not.

Why the Ear should be the seat of election of the neuralgia in such diverse forms consequent upon the Influenzal attack I know not; but the fact that it is so makes as turn to the consideration of the Malarial Otitis that is familiar to foreign Curists, & the evidence
that is produced of the distinctly malarial nature of the Ear affection, and the similarity of many of the symptoms to those of hemorrhagic post-influenzal conditions makes me inclined to think that there may be more than at first sight appears in the theory of the malarial nature of Epidemic Influenza.

In the descriptions of the Malarial Otitis Media that are given by foreign authors (a good account is given by Turnbull in the Transactions of the American Med. Assoc. for 1881) one has a picture of an ordinary malarial attack accompanied with Tinnitus, fullness in the ear, or sometimes vertigo, pain & deafness. This combination of the symptoms of Malarial fever & Ear insufficiency continues, the fever is generally of the tertian type, but the Ear symptoms ultimately tend to become more marked, & other complications such as...
Mastoid implication may occur. The ordinary treatment that is employed for auricular complications not of malarial origin does not give relief, and benefit is only obtained when the malarial condition is treated by quinine.

The close connection between the ear condition and malarial fever is further shown by the enlargement of the spleen that is found in these cases. The administration of quinine alone gives relief. Weber-Diel employs it in large doses at once, 4 Valtilini in small doses 1 or 2 grains every second hour until the acute symptoms have been relieved. It may be here stated as a curious fact, according to Weber-Diel that cases of suspected malarial fever are relieved by quinine, whereas the same symptoms in ordinary cases are aggravated by it. In support of this statement Buck says that quinine administered to children sometimes
gives rise to acute or sub-acute inflammation of middle ear.

Turnbull on the other hand says, "We are perfectly prepared to state that we have never seen or known of a case of ear disease that was developed from Quinine either in large or small doses, nor that all cases that have been reported as such had, prior to the use of the Quinine, some form of disease which may have been temporarily aggravated by the stimulation of the Quinine as an antiepiphlebitic or tonic." — This statement does not however accord with my own experience. One of the most marked cases that I have had which was undoubtedly due to the effects of long continued doses of Quinine was that of an old soldier who came under my care in 1886.

He was exceedingly deaf to conversation, and the hearing fork was not heard at all. The Tinnitus was constant. The history was that he

with his regiment in India they
were quartered for several months in the Peshawar valley, + as a prophylax
against the fever + ague that was very prevalent every man in the
regiment was dosed with Quinine Daily; + my patient further states
that many of the men got more
than their own allowance owing to the fact that others to whom the
Quinine was very distasteful used to bribe them to take it for them.
This dosing with the drug extended over a long period, + I regret to say
that in spite of all treatment I was unable to cure the patient,
although he obtained some
measure of relief

In concluding this paper I need only refer to the fact that it is a
record of the cases that have been
under my own actual observation, that it does not pretend to be an
Experimental account of very acute
complication that could possibly
be useful during the attacks
of Epidemic Catarrh during the
last few years.