EPITHELIOMA OF HAND AND GLANDS: REMOVAL OF TWO FINGERS AND THE GLANDS.

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It is a question how far the following case resembles those of soot, paraffin, and allied cancers. The man's occupation associates him with the distillation of coal, but the effect of the products, if any, in promoting the growth of epithelioma in his case is as mysterious and unexplained as that of soot in cases of chimney-sweep's cancer of the scrotum. Cases of this quality have often run a very mild course, and have enjoyed an immunity from return, after even repeated operations, that has rarely been equalled in epithelioma of the limbs unassociated with soot, paraffin, and coal.

A strong man, aged 54, caretaker and worker in the gas-works, Menai Bridge, North Wales, entered my ward at the Liverpool

Fig. 1.—May, 1903.

Royal Infirmary in May, 1903, for a painful ulcerated epithelioma of three years' duration on the back of his left hand, over the metacarpophalangeal joints of the fore and mid fingers (Fig. 1). It had started in the latter situation, had for months prevented him from working, and was found on probing to have eroded the bones and ligaments of that joint. The lymph glands at the elbow and in the axilla also were enlarged.

On May 27th the disease was removed by amputating the fore and middle fingers with half of each metacarpal bone. Pain ceased after the operation. Twelve days later the enlarged glands at the elbow and axilla were removed. All the wounds healed simply, and he went home after four weeks, resuming work, which continued for eight years.

In April, 1911, he came again to hospital for a rodent ulcer of the left temple near the eye. He was taken into Mr. Bickersteth's ward, where the growth was excised by Mr. F. Jeans on April 15th. After healing, x-ray treatment was applied to the scar

Fig. 2.—May, 1911.

Fig. 3.—May, 1911.

and neighbourhood for a few weeks. On my return after absence from home I was informed of his presence, and went to see him on May 15th. With the permission of my colleagues photographs were taken by Miss Irven at the Royal Infirmary on May 16th, (Figs. 2 and 3), and he went home on May 20th.

He is deeply grateful for the preservation of his thumb and two fingers, with which he can perfectly do all that is required of his left hand. He has not lost a day's work in the interval of nearly eight years.

A section of the later growth has been made in the University laboratory, and reported on by Mr. Mackarell, pathological assistant. It shows in perfection a rodent structure of the variety containing small cell-nests. I much regret that no microscopical preparation or report of the disease in the hand and glands can be found.

Sequel.

Some months after this man's return home I learnt that he had not been there a week before he had to take to his bed on account of pain in the mid-dorsal spine with gradual loss of power and sensation in his lower limbs. It seems that his pain began even before he left home in April, but he never told me of it, and when he returned home again in May he expressed himself as strong and well. The paraplegia increased and became complete, though the pain lessened. In June fresh growth appeared at the seat of the rodent ulcer, and he died of exhaustion on July 11th, 1911. The diagnosis was that of "malignant deposit affecting the spinal meninges and the cord itself."

These particulars, sent to me by Dr. John Roberts of Menai Bridge, were obtained from the patient's medical attendant, Dr. J. M. Thomas of the same place, to both of whom I am indebted for the information.

The eventual fatality does not detract from the success obtained with the hand and glands of the upper limb, and I regard it as a very encouraging example of conservative practice.

ON ACUTE POLIOMYELITIS (HEINE-MEDIN'S DISEASE).*

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I wish to record a couple of cases of acute poliomyelitis, or Heine-Medin's disease, which illustrate two separate forms of the disease, that is, the spinal and ataxic types. I have not had the advantage—a questionable one from the patient's point of view—of studying the morbid anatomy of this disease, but from the researches of others it appears that we must take it: (1) That the lesions should no longer be considered as limited to the anterior cornua but are diffused throughout the central nervous system; (2) that so far bacteria have not been demonstrated; (3) although the bacillus of acute poliomyelitis has not been isolated, Flexner has shown that the virus or infective agent can pass through a Berkefeld filter, and the filtrate has subsequently infected monkeys, though the incubation period of monkeys was longer with a filtered than with an unfiltered virus, varying from five to twelve days; (4) the disease has been communicated by means of an emulsion made from the spinal cord of an acute case; (5) this infective agent has been shown to retain its virulence for a long time outside the organisms of animals, to be fairly sensitive to heat (twenty minutes at 50° C. destroying the virus) and insensitive to cold (a virulent emulsion kept at freezing point for eleven days did not lose its activity to any marked extent).

Now how does the virus penetrate? Flexner and Leiner¹ point out the probability of the naso-pharynx being the point of entry. They produced paralysis in monkeys by scarifying and then rubbing the nasal mucosa with the active virus, the disease appearing in from five to eleven days; but the faculty of penetration does not appear pronounced, as Levaditi² was unable to infect his monkeys either by painting the naso-pharynx or by placing plugs soaked in the virus in the nasal fossae. In cases of Heine-Medin's disease the nasal mucosa has been shown to contain a virus capable of transmitting the infection to animals. The virus has not been found in the urine, faeces, kidney, or intestinal mucosa.

Although epidemics were noted in Scandinavia as far back as 1881, Medin of Stockholm was the first to give precise information on the subject. He was followed by many other observers from many lands. The analysis of these epidemics shows: (1) They occur at the end of the summer and in the autumn. (2) Neither defective hygienic conditions, poverty, nor overcrowding favor the extension of the disease.

* Read before the Isle of Wight Division of the British Medical Association.

Medin adopted the following classification of the disease: (1) Spinal; (2) ascending or descending paralysis (simulating Landry's paralysis); (3) bulbar; (4) cerebral; (5) ataxic; (6) polyneuritis; (7) meningeal.

My experience is limited to the spinal and ataxic forms—three cases of the former and one of the latter. Of the former, two followed the classical description of infantile paralysis in the early Nineties. The paralyzes were limited to groups of muscles—in one case of both legs and in the other of arm and leg on the same side, but in neither case was there complete paralysis of arm or leg. One case has completely recovered (after four months); the other has still considerable loss of power in the arm. The third case presented some unusual features.

The patient, a girl, aged 12, and, as in each of my four cases, with fair hair and complexion, was of active habits and of more than average intelligence. I was called to her on September 25th, and found her with temperature 102.4°, pulse 110, complaining of headache and pains in the back; in fact, presenting a picture usually seen in influenza cases. She said that on September 22nd she did not feel well and her "right arm felt limp." This passed off, but on September 24th she felt "achy all over, most in her back." There were no throat symptoms. On September 26th, temperature 102.6°, with condition unchanged. September 27th, temperature 99.8°; right arm found completely paralysed. September 28th, temperature 98.6°; left arm partially paralysed. September 29th, paralysis of left arm increased and both legs affected.

October 1st, temperature and pulse normal. Both arms completely paralysed except movement of fingers of left hand. Extensor paralysis of both legs. Knee reflexes absent. Marked ptosis of left eyelid. Constipated. No bladder symptoms. Acute paroxysms of pain occurring regularly every two hours day and night. Pain referred to first and second lumbar vertebrae. These paroxysms continued with little variation for three weeks, being, apart from paralysis, the prominent feature of the case. Drugs at first gave no relief, morphine gr. $\frac{1}{4}$ giving about a three-hour interval with sleep. I then put her on phenalgin gr. $\frac{2}{3}$ every two hours. This seemed to have immediate result; the paroxysms became less severe, with longer intervals between, being four and then six hourly. Finally, in the middle of the fourth week the pains stopped altogether. I started massage during the eighth week, and electricity the week following. The patient has made steady improvement up to date, the left side progressing more favourably than the right. She has good use of the left arm and hand, and can walk a considerable distance, though slowly. Knee reflexes still absent.

Since writing these notes on January 20th the case progressed favourably with massage daily and electricity twice a week, generally in form of Schnee baths with a current up to 45 milliampères for twenty minutes. On February 12th, while having one of these baths, the current being 17 milliampères and duration three minutes, the patient gave a scream and had a typical epileptic fit lasting about four to five minutes, recovering in the usual manner. She was in her usual state that afternoon and there has been no recurrence (February 24th). The improvement in the paralysed muscles has continued and the patient is in good health. There was no history of epilepsy in the family. While attending to the fit the electric current was not shut off, so I tested it myself and found nothing wrong; the makers also tested the instrument (a Davon table) with the same result. I can find no record of epilepsy associated with Heine-Medin's disease, and so consider this case worth noting.

The fourth case was of the ataxic type, the prominent feature being very irregular high temperature.

I was called to the patient, a bright girl 8 years of age, on November 20th, and found her presenting the same condition as I described in Case III, temperature being 102.4°, pulse 120. Her throat was red and inflamed. I was informed that for the previous fortnight she had looked "peaky and liverish," and during the last week seemed disinclined to run or play and complained that her dancing lesson made her feel sick and giddy. On the 16th she went out to tea, but drove home feeling sick and giddy. On the 20th she complained that she could not get warm, and after tea burst out crying and was carried to bed as she could not walk. She cried when lifted or turned in bed. Her condition remained about the same for the next four or five days; when I observed on getting her out of bed a distinct ataxic gait especially noticeable in the left leg. Knee-jerks rather active. No nystagmus, paralysis, loss of sensation, or inco-ordination in arms or hands. Throughout the illness constipation was a particularly troublesome feature. This ataxia increased until the patient became too weak to test her, and the temperature took on a higher range, varying from 99° to 104°, often in less than two hours. Antipyretic drugs and sponging had a very temporary effect. On November 29th a punctate erythematous eruption appeared, fairly general in distribution but most marked over pressure points. This rash I took to be merely another expression of general toxæmia rather than specifically associated with the disease, and it is noteworthy that I have thus far met with no case of herpes, but at Penryn in Cornwall Dr. Hopper observed 16 cases of herpes zoster during the epidemic of poliomyelitis, and points out that in no

other space of time have so many cases occurred together in the district, and queries the relationship between the two diseases. The heart began to fail about this date, with symptoms of dilatation, intermitting at times as often as 1 in 4. The tongue remained wonderfully clean, but the breath was most offensive. With the exception of a trial of urotropin, the treatment was purely symptomatic. The urotropin, two doses of 10 grains with eight hours between, was followed by delirium and motor restlessness. This yielded immediately to a 5 minim dose of liq. morphinae and a withdrawal of the drug. The following day I again gave two doses of urotropin with a similar result, after which I discontinued its use. During the latter stages the heart gave me most trouble, but a Nativelle's digitoxin pilule, $\frac{3}{15}$ grain once a day, aided by a good deal of stimulant, tided the case over. She had an uninterrupted convalescence, but at present (January 20th) the ataxia is still marked, and there is some loss of power in the muscles of the leg. She has been massaged for the past three weeks.

The Source of Infection.

I went carefully into the possibilities in each case, and there appeared to be no evidence of contact, direct or indirect, between these four cases, and I came to the conclusion that the disease arose from a common origin. Whether this was (1) a dust infection or (2) fly-borne it is difficult to say. All the cases occurred in families living amongst good surroundings and in every possible comfort—no overcrowding, faulty sanitation, hermetically-sealed windows, or other aids to disease could be noted. Personally I am inclined to consider the dust infection theory the more probable. The year 1911 was exceptionally dry and hot, and possibly the increased throat infections which some of us have noted may be due to the increased dissemination of dust infections by the ubiquitous motor car. In each of my cases brothers or sisters, or both, were in direct contact with the patient up to the diagnosis of the disease without contracting the same, but I notice that in the epidemic at Stowmarket³ there were three cases in one house, and in two other houses two cases. Three of my cases began during the hot dry weather, the other immediately after a heavy rainfall, followed by a drying wind. In no case was any increase of the house-fly pest observed.

Does the disease come from a common cause, or is it directly communicated from an antecedent case? Is it carried by a third person or by infected objects as in scarlet fever? I submit that the evidence in favour of contact transmission is slight. It is not common to find more than one case in a family. It has not been found to spread in hospitals, although isolation precautions were not taken. On the other hand, Levaditi⁴ records a case of a lady taking some drawings of a convalescent patient and herself being attacked shortly afterwards with similar symptoms. Wickman⁵ records cases where the disease has been for two or three years in succession in the same house; Krause,⁶ cases of people coming to live in a contaminated house and contracting the disease themselves.

Prognosis.

(a) Mortality is variously estimated from 12 to 20 per cent., and has a direct ratio to the age of the patient, the older the more fatal. Most deaths occur during the first week, mostly about the fourth or fifth day, the bulbar and Landry types being the most fatal.

(b) It is certainly a fact that if a muscle reacts to faradism it will recover, but the contrary is by no means certain. If the motor cells in the anterior cornua are destroyed, then—apart from nerve transplantation which may benefit—the muscles must become useless. But as long as the cells are not actually destroyed, although the muscles may not react to faradic or galvanic currents, the prognosis is more hopeful. In the spinal case cited above I got no reaction in the muscles of the right index finger and thumb after a lapse of over thirteen weeks. There is still no reaction in the extensors of the wrist, and this after two months' massage and electricity, the latter in varying forms, faradism, combined current, and Schnee baths, but there has been steady progress and so far no period at which the patient was at a standstill. A point of treatment in this respect is the necessity of avoiding over-stretching of paralysed muscles. In this case I have applied a curved splint to over-extend the wrist and so avoid stretching of the extensors and shortening of the flexors, the splint being frequently removed for massage and adjustment, and the wrist supported when the splint is taken off and not allowed to drop, for any stretching of

these paralysed muscles which are tending to recover dis-
able them again. An excellent article by Dr. Wittek
(Graz) deals with this matter in detail.

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ACUTE ANTERIOR POLIOMYELITIS IN SOUTH- WEST NORFOLK.

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As several outbreaks of acute anterior poliomyelitis have
occurred during the past year in various parts of the
country, a short account of ten cases that occurred in this
district may possibly be of some interest.

Locality of Outbreak.

The outbreak occurred at the end of September in the
Downham Rural District, which is situated in South-West
Norfolk, and embraces both upland and cultivated fen
land, and the part of the district affected borders on the
county of Cambridge. All the cases occurred within a
radius of six miles of Downham Market.

During the months of July and August several cases of
this disease were noted in the adjacent parish of Little-
port, in the Rural District of Ely.

Age Incidence.

The ages of those attacked, and the districts in which
the cases occurred were as follows:

Group I (Southery)—

Case I	...	...	...	6 years
Case II	...	...	...	11 months
Case III	...	...	...	1 year
Case IV	...	...	...	8 years

Group II (Barroway Drove)—

Case V	...	...	...	2½ years
Case VI	...	...	...	3 years
Case VII	...	...	...	1½ years
Case VIII	...	...	...	1½ years

Group III (Crimplesham)—

Case IX	...	...	...	2½ years
Case X	...	...	...	1½ years

Mortality.

Of the above 10 cases 2 died, the second child dying
some two months after the acute stage of broncho-
pneumonia.

Previous to this outbreak another child had died of
pneumonia, in the neighbourhood of Southery, with sus-
picious symptoms of acute anterior poliomyelitis, but
which I was unable to verify.

Transmission of the Disease.

I think the following facts will aid in showing the
infectivity of the disease. Although there seems to have
been no connexion between the three groups, there is
distinct evidence of contact in several of the cases.

GROUP I.—All the cases lived in that part of the district
which is in close proximity to a part of Littleport parish
where there had been cases of a similar nature. In Case I
the father had attended Littleport market. The mother
of Case II had been helping to nurse Case III for ten days
before her own child was taken ill. Case IV attended the
school in Littleport parish, and had visited on more than
one occasion a house in this parish where there had been
3 cases with 1 death.

GROUP II.—These cases lived in Barroway Drove, which
is some eight or nine miles from Southery. There is little
or no intercommunication between the parishes. All the
cases attended the same school. Cases VI and VII were in
the same house, and Case VII was taken ill a week after
Case VI.

GROUP III.—These cases lived at Crimplesham. This
village is in a different direction about nine miles from
Southery and five from Barroway Drove. Case IX lived
next door to Case X. The parents were relatives and
were constantly in each other's houses.

Cerebro-spinal Fluid.

From Case V I took some cerebro-spinal fluid, and the
result of the bacteriological examination was as follows:

The fluid is fairly alkaline and fairly albuminous; it gives a
normal reduction with Fehling's solution. The centrifugalized
deposit is small in amount and contains a few blood discs and
leucocytes, the latter practically all of the lymphocyte type, and
but little in excess of the normal. Neither tubercle bacilli nor
pyogenic micrococci are detected in the centrifugalized deposit.
The media inoculated with this specimen only show a few
baccillary organisms which do not conform to any of the known
pathogenic types, and are most probably of extraneous origin.

The following are the notes of the cases, kindly supplied
me by the doctor in attendance:

GROUP I.

CASE I (Dr. E. G. Wales).

J. J., aged 6, Hilgay Fen. Had been ailing three days with a
"cold." On October 7th was noticed to be helpless in arms
and legs. This was complete on October 8th. When I saw him
the child was lying on his back in bed quite helpless, colour
natural, breathing natural, no pain, no vomiting, no retraction
of head. He could not raise his head from the pillow or move a
limb. Knee-jerks abolished, pupils contract moderately, no
movement on tickling soles of feet, no anaesthesia, no *tache*
cérébrale or Kernig's sign, no rash. He could swallow liquids.
Temperature 100°, pulse 86, regular. Back tender all along spine.
On October 9th he began to breathe with difficulty, turned
cyanosed and died at 10 a.m.

There were several other children in the house, but none were
affected. No connexion with Littleport except that the father
had been going to Littleport Town at intervals. A week previous
a child on Ten Mile Bank died from acute pneumonia which
might have been secondary to acute poliomyelitis. He was
helpless and moribund when seen, with both lungs intensely
congested. Father a travelling baker who visits all the houses
in the neighbourhood.

CASE II (Dr. Glenfield Martin).

V. L., aged 11 months, Southery Ferry. For a fortnight pre-
vious the mother had frequently visited the house of Case III and
had nursed the child. Taken ill on September 18th with fever
and bronchitis. The mother noticed some paralysis and that the
stools were very offensive. Seen by Dr. Martin on October 2nd.
Signs typical of acute anterior poliomyelitis. Paralysis of left
leg. The offensive stools could not be affected by medicine.

Later in December he reports: "Tibial muscles of left ankle
are paralysed and wasted. If foot were not kept in a splint it
would become deformed (nature of valgus). Three other
children in house all well. Prognosis is fair but hardly as good
as two months ago."

CASE III (Dr. Hutt).

A. L., aged 12 months, Southery Ferry. I first attended the
child on September 12th. The mother thought the right
shoulder had been damaged by undressing the child. Tempera-
ture 102°, neck somewhat swollen, and did not seem to be able
to keep the head in any position long. Deltoid (right) paralysed
and perhaps other muscles. September 14th, temperature
normal, paralysis right upper arm and both legs, adductors
most marked. Present condition, January, 1912: Right leg much
improved and arm very fair movement, left leg some slight
shortening and foot in marked talipes and equinus position.
Adductors (thigh) and peronei still useless.

CASE IV (Dr. Martin).

B. J., aged 8 years, near Southery Ferry. Previous to being
taken ill had visited a house in Black Horse Drove, where there
had been three cases of illness (one fatal). Was first taken ill
on October 5th, with fever and bronchitis. On October 11th,
when first seen, had pyrexia and headache. On October 15th
slight paralysis, well marked the following day. Tenderness of
affected limbs (both legs), muscles of trunk also affected, tender-
ness and pain at back of neck. Stools highly offensive. At first
apparently no progress, but lately the progress has been good.
Weakness of the flexor muscles of both thighs, no deformity
although some rigidity. This case was subsequently notified
for tuberculosis.

GROUP II.

CASE V (Dr. Wales).

F. B., aged 2½ years, Barroway Drove. Brought to surgery
with symptoms of meningitis on October 22nd. Had a convul-
sion on night of 20th. No vomiting, fretful, sleepless. Tempera-
ture 104°, pulse 130, regular. Pupils equal and react. No
paralysis of limbs. Slight retraction of head, cannot sit up
cries when touched. Rapid improvement under treatment.
Temperature normal on 24th, when slight internal strabismus
of left eye was noticed. By 30th was much better, taking good
food, sleeping well. Internal strabismus (paralysis left external
rectus—third cranial nerve) more marked. Several other
children in house all well.

CASES VI AND VII (Dr. Wales).

A. W., aged 3 years, Hooten's Row, Barroway Drove. Seen
on October 24th. Had been ailing two or three days, became
paralysed in all limbs and back. Temperature normal,
pulse 120, breathing normal, no pain, can move feet if soles are
tickled, but not legs. November 1st, Dr. Cross visited with me