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WITH AUTOPSY.

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HISTORY OF A CASE OF SARCOMA OF THE GENU OF THE CORPUS CALLOSUM, PRESENTING SYMP- TOMS OF PROFOUND HYSTERIA: WITH AUTOPSY.

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ON the 18th of March, 1890, through the kindness of Dr. John H. Musser, the writer was permitted to study the ophthalmic symptoms of W. E. G. The patient was an extremely emotional woman, aged 43 years, who had complained of uterine disease (retroversion), dating from the birth of her last child, in March, 1886, the labor of which had been very trying and tedious.

She was small, emaciated, pale and anæmic; the mother of four living, apparently healthy children, the eldest of whom is an undeveloped girl of 17 years of age, who was conceived during much domestic trouble. The second child is 13 years of age and much smaller; she is also healthy, though very excitable. The third is a 10-year-old, healthy lad, who was born after a very difficult labor; whilst the youngest child is a fine, healthy boy of about 5 years of age. No family history of a similar trouble, insanity or blindness could be obtained; her ancestors being long-lived. Her father and mother, who were not blood relations, were married at about 40 years of age, raising a family of four children out of five births, the patient being the second born. Her mother curiously retained her maternal instincts for a much longer time than ordinary. Her father died at an advanced age, of chronic Bright's disease. On her husband's side, which has, however, no direct bearing on the case, there is a marked streak of insanity passing through a large, neurotic family.

In the early summer of 1887, whilst nursing her last child, symptoms of fatigue came on; the patient rose later in the morning, and, though active, it was difficult to make her promptly move about. No particular cause could be assigned for any of these peculiarities. In the hope of bettering her lassitude, she was taken to the country, where, though appearing quicker in motion when once aroused into activity, there were days in which she would remain in bed during the entire twenty-four hours. In the Fall she seemed much better. At this time, however, the sight of the left eye became primarily affected, compelling her to discontinue any fine applied near-work. In the spring of 1888, the sense of smell became disturbed, gradually failed at times altogether, and was lost one year later. The taste then grew erratic, all of her articles of diet requiring stronger and stronger seasoning to be considered palatable. No auditory symptoms were ever complained of during the whole course of her disease, although a manifest defect was recognized by clinical observation later in the history of the case.

Gradually she took more and more to her room, until in December, 1889, she remained almost always in bed. In January, 1890, it was found that the vision of her right eye had begun to fail. In February of the same year, following a severe attack of flooding, Dr. R. M. Girvin was called to see her. At this time her whole mental condition changed. One night, soon after visiting the Zoölogical Garden and seeing a number of reptiles, which apparently affected her very much, she dreamed that she was standing beside her father in his bar-yard alongside of a river, looking at a large pile of straw, when suddenly a great mass of large worms crawled from beneath, necessitating her utmost strength of body and courage of mind to build a fire around the rapidly increasing creatures and to throw them back into the fiery circle to keep them from spreading. She nursed this fire, watched it, worked at it

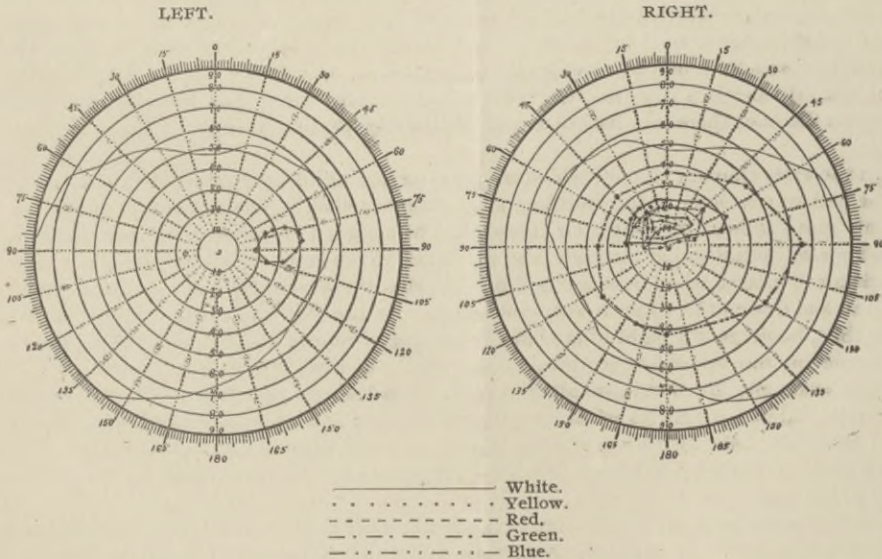


both by action and motion during the day and dreaming of it each night, until at last, in two weeks' time, during a dream, an opening appeared in the ground, from which an immense, alligator-like form came out and carried the reptiles off to the river, in which they were all drowned.

This was followed by indefinite multiplication of definite objects, as, for instance, one man would increase to several, each as clearly defined as his fellow; these in turn would multiply by hundreds until the street would appear crowded with similarly shaped and acting, life-sized figures. This multiplicity of single brain-images, each projected into a separate and non-conflicting space, lasted more than a fortnight. Immense animal-like forms such as "elephants" now came slowly and silently flowing in large, semiliquid-like masses over the neighboring houses, and forced their untouchable, long, sinuous, soft-like bodies into her room through the crevices and chinks of the windows. Whole rows of dwellings would noiselessly topple down, only to be mentally rebuilt by slow and deliberate determination.

The sensory illusions and hallucinations now began to increase; tactile disturbances became superadded to the visual peculiarities. Snakes and small reptiles became entangled in the hair on both sides of her head; caterpillars, lice, minute insects and fleas were both seen and felt crawling and hopping over her entire person; these leaving her in a little while, only to have the larger vermin control her body and reason.

In March, during Dr. Girvin's absence from the city, Dr. Musser attended her; at this time the writer first saw her. He found that central vision for form for the right eye, which could not be optically improved, equalled but $\frac{1}{30}$ ($\frac{1}{300}$), whilst that of the left eye was reduced to the perception of light in a small area to the nasal side of the visual field. No accommodation could be obtained. The pupil of the left eye, which was round like its fellow, was much the larger, whilst its iris was absolutely immobile to the strongest light stimulus



which could be projected from any meridian except in a small area to the nasal side, which probably corresponded with the field remnant. In the right eye, the pupillary reflex to light was sluggishly obtained to ordinary gas-light stimulus projected from a concave mirror, from both the nasal and temporal sides, this being more pronounced when the point of stimulus was situated in the lower meridian. Extra-ocular muscle motion, both in associated and disassociated action was normal. The fields of vision for the right eye, as shown in the accompanying sheet, which were carefully taken for green, red, blue, yellow and

white, showed the characteristic early fatigue of a badly-working visual apparatus, so symptomatic of hysteria.¹

The eye-grounds, which, upon account of the wide dilatation of the pupil, were plainly seen over a great extent and area, gave the following conditions: In the right eye, the media were clear: the disc, which was vertically oval, was seven by eight diameters in apparent magnitude; its substance appearing somewhat grayed in the lower layers: a small errant vessel could be seen to the temporal side: the scleral ring could be discerned around the entire border of the disc, the temporal edge being tipped with a trace of pigment, and the nasal border being bounded by a crescent of blackish massing: whilst the vessels of the retina were normal in size, and seemingly carried properly tinted blood; the larger veins appearing rather tortuous. In the left eye, the fundus changes were more characteristic of intracranial disturbance: the disc was oval, seven by eight diameters, with its long axis at 105°: the scleral ring could be seen all around, it being more sharply cut to the temporal side of the nerve: a fine retinal striation existed, which veiled, but did not hide, the edges of the nerve-head: the entire retina was slightly puffed and swollen, giving it an œdematous appearance: while both the retinal arteries and veins were similar to those which were seen in the other eye. No other coarse changes could be seen in either fundus, and the refraction-error amounted to but one-half of a diopre of hypermetropia in each eye.

She was again seen on the 15th of April, the ocular findings being the same as at the last visit, except that the vision of the right eye for form was momentarily increased to $\frac{1}{2}$ (double that of the first visit), but immediately falling to its old point. At this time, study was made of the condition of the sense of hearing, which showed that that of the right side was twice as strong as that of the left, the usual tests seeming to indicate intracranial mischief. The Gräfe tapping test failed to reveal any points of cranial tenderness. No evidences of word-blindness or word-deafness, so far as could be studied with the amount of sensory imperfection present, could be obtained. The patient failed to show any evidences of amnesia, or loss of faculty of language, in any of its forms. By careful examination, no disturbances of the functions of any portions of the motor apparatus could be obtained: neither were there any evidences of perversion of the muscular temperature or pain senses. Smell was lost, and taste had almost gone.

At this time, the mutability of the ocular symptoms; the characteristic fields; the absence of any expressive motor changes; the condition of the fundus oculi, in association with the mental derangements; the abrogation of the senses of smell and taste, which the patient's husband avowed had always become more pronounced just previous to the menstrual epochs; the ovarian tenderness; the large quantity of limpid urine without any abnormal excreta; the absence of cephalalgia, vomiting, vertigo, or any of the gross general symptoms of cerebral growth, and the constantly highly emotional condition of the patient, all tended a tentative diagnosis of profound hysteria, with the possibility of a gross intracranial lesion situated in the anterior base, to be given.

Upon the former supposition, the patient was estranged from her friends for a period of several weeks, after which conspicuous changes for the better appeared. She became more tractable and quiet, the illusions and hallucinations had almost gone, and she took daily walks instead of cuddling all day long on her couch or bed, and giving vent to piteous moans and lamentations. This betterment continued during the summer, until her return to the city in the first week in September, when, after seven days' time, she became weaker, refused to go out, and became more and more helpless, until at last, on the 14th of December, she suddenly sank into a state of coma, to abruptly rally on the 16th, and as quickly resume her comatose condition, never to recover—dying on the 21st.

The *post-mortem examination*, which was made forty-eight hours after death, by Dr. Henry W. Cattell and the writer, showed a body having the apparent height of 5 feet 5 inches, and weighing about 115 pounds. The face exhibited well-marked signs of recent illness,

¹ Any order of fields desired, though always occupying the same relative positions, could be obtained by commencing with some definite color, and continuing the examination in different sequences; the last color tried, if no proper interval had been given, generally giving the smallest and least certain area.

the features appearing pinched and anxious. As the autopsy was granted on the stipulation that the calvarium alone should be opened, the condition of the thorax and abdomen cannot, unfortunately, be described.

The skull cap was found to be of medium thickness. There were no adhesions of the dura mater to it. The longitudinal sinus was nearly empty. On removing the dura, the membranes were seen to be slightly congested, but showed nothing of especial interest. On attempting to detach the dura mater from the crista galli, it was found to be tense and strongly adherent. On introducing the finger, a roundish mass could be felt on both sides, which extended to the corpus callosum: this was worked loose without much difficulty, except from the body of the sphenoid bone, at which point it seemed to be quite firmly attached. Both the brain and the tumor mass were now removed without any damage being done to either of them.

The shape of the tumor is that of a half sphere hollowed in the centre, and having its greatest diameter of six centimetres in the lateral direction. The antero-posterior diameter measures five and a half centimetres. The depth at right angles from a line drawn from the highest point of the mass to the vertex is three and a half centimetres, whilst the greatest vertical depth is about one and a quarter centimetres less than this. In its anterior and inferior portions it is incompletely divided by a fissure into two nearly equal parts, and turns in upon itself like the rudiment of the knee of the corpus callosum. To the left of the median line, extending posteriorly, and lying beneath the optic chiasm, there is a small rounded projection. The optic nerves rounding this projection follow the convexity of the tumor to their entrance into the optic foramina.

The growth, which had its greatest bulk to the left of the median line, sprang from the knee of the corpus callosum and pushed the uncinata gyri far apart, causing great pressure upon the temporal lobes. It rested on the body and the lesser wings of the sphenoid, the orbital plate of the frontal and the ethmoid bones. Underlying the mass, the crista galli projected into the fissure found on the inferior aspect of the neoplasm. Both olfactory lobes were intact. Careful dissection of the entire cerebral mass failed to reveal any multiplicity of growth or any gross disturbance.

The posterior thirds of the ocular globes, both optic nerves, the optic chiasm, and a portion of the optic tracts, were removed for purposes of further study. Careful examination of over fifty sections, prepared for the microscope by Dr. Mary Morey, failed to reveal any gross changes except a slightly cedematous condition of the left opticus, the left intraocular nerve-head, and a small area of surrounding retinal tissue.

Microscopic section of a sliver of the intracranial neoplastic mass, by the late Dr. Charles Walter, of the Philadelphia Hospital, showed the adventitious growth to be a sarcoma of the spindle-cell variety.

REMARKS: This case is interesting, not only on account of its great rarity, and by reason of the grouping of the ocular symptoms being seemingly limited to those which are so eminently recognized as the ones found in some of the graver types of hysteria, but is valuable because of the want of the ordinary general symptomatic data which are exhibited by tumor-masses situated in other intracranial positions.

Springing from the anterior and inferior portion of the knee of the corpus callosum, and necessarily extending in the direction of the least pressure, it naturally, assisted by gravity, pushed downward to the bottom of the longitudinal fissure, where it at last involved the left opticus, causing want of proper conduction in that nerve trunk. At this time the growth had probably sufficiently disturbed the commissural fibres between the two frontal lobes as to give the first clinical evidences of mental sluggishness. The frequent exacerbations of gradually increasing anosmia, which first appeared six months later,

to become entire in one year's time, is most probably explained by downward and lateral pressures upon the cortex of the uncinate gyri. The peculiar and erratic attacks of gustatory anæsthesia which now ensued, and which persistently increased, offer some additional evidence at least to strengthen the belief of the existence of centres for taste situated in the meso-basal portions of the temporal lobes, just beneath the olfactory centres, upon which portions of the central cortex the tumor mass was found to have pressed. The want of voluntary subjective acknowledgment of auditory defect, which was only elicited—more particularly on the left side—by clinical demonstration late in the history of the case, can be well understood when the great distance of the acoustic centres from the seat of lesion is taken into consideration.

Curious and most interesting are the psychic groupings which now follow. Beginning after a great and sudden drain upon the vascular system, and precipitated by an intense emotional excitement, the entire mental condition changed during a sleep in which an active though irregular series of automatic impressions seemed to have been so pronounced that even after the return of the governing though impaired senses to consciousness, her mentality continued to persistently believe for more than a fortnight in its new and unreal world: this hallucination at last conquered, a most peculiar visual allusion appeared, where a single brain-image multiplied itself indefinitely without interference with the visual perception present at the time: new fantastic forms, commingled with another variety of visual illusion which could be slowly corrected by deliberation and will-power, now appeared; all of these latter, as can be seen by the clinical history, being limited to one avenue of sensory impressions alone—vision. To give answer to these aberrations of sight, two causative factors should probably be combined: one the stretching and consequent irritation of the optic nerves just before reaching the chiasm, by the neoplasm itself, which although, by reason of localized pathological changes, caused a loss of light perception in the left eye everywhere except in a small peripheral area, yet was not sufficient to disturb the entire visual field of the right eye, in which both the hallucinations and illusions were constantly projected: the other, which possibly consisted of a series of disordered concrete visual memory pictures or primary imperfect sensory impressions, wrongly interpreted by the disturbed mental centres.

The later superaddition of the universal paræsthesiæ to the visual phenomena, without any discoverable gross lesions of the temperature, pain and muscular senses, is most certainly of some consequence in the localization of the tactile centres.

The want of any gross generalizing pressure symptom at the times of examination, which can now be readily understood by the comparatively free position of the tumor mass; the many mental indications of functional neurosis which markedly lessened after proper environment; the changeableness of vision for form and color, and the peculiar psychical condition, all pointed toward some probable temporary changes in the cerebral cortex characterized by peculiar mental symptoms and sensory changes (hysteria); whilst the one completely obtunded sense (smell), the two more or less so (taste and hearing), the

fourth (sight), both weakened and irritated, and the last (touch), which continued paræsthetic almost to the end, gave additional evidence, though allowing the possibility of permanent gross intracranial lesion situated in the anterior base of the brain, to be properly judged by the losses of smell and sight from supposed trunkal pressure on the first and second nerves with involvement of frontal lobes.

The isolation of the case with the consequent betterment showed most conclusively the hysteroid nature of many of the symptoms, whilst the persistence of others strongly indicated permanent lesion; this latter belief being strengthened by the gradual mental hebetude and the death by coma which took place some three months later. Fortunately, through the kindness of Dr. Girvin, an autopsy was permitted, resulting in the finding of a single malignant growth in this most unusual situation.
