CASES OF NERVOUS AND MENTAL SHOCK OBSERVED IN THE BASE HOSPITALS IN FRANCE.

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Cases of nervous and mental shock may be counted among the more interesting and uncommon clinical products of the present war. Cases of this character began to arrive in England shortly after the commencement of hostilities in which British troops were engaged, and have continued to be met with in our base hospitals at home with varying degrees of frequency up till the present time. It was soon recognized that one type of case was due to the explosion of big shells in the immediate vicinity of the patient, who did not himself receive any detectable physical injury or bodily wound. Intermingled with the cases of this nature, cases of a general neurasthenic character were found whose symptoms were attributable to exhaustion of the nervous system induced by physical strain, sleeplessness, and other stressful conditions associated with the campaign.

It has been my privilege to study the early symptoms of nervous and mental shock, from whatever cause, during a period of three months at the base hospitals in France. I have thought, therefore, that it would be of general interest if a short account were given of the various clinical manifestations of nervous shock observed in patients upon admission to these hospitals, before they were transferred to the special institutions at home, which have been provided for their reception and subsequent treatment.

In a general way the frequency of these “shock” cases depends upon the intensity and character of the fighting at the Front. The severe fighting in Flanders and around Ypres in the latter part of October resulted in a large number of such cases being sent down to the Base. The numbers of the cases subsequently diminished, and during the earlier months of this year were relatively small with occasional accessions, the outcome of such engagements as took place on January 25 and 26, and March 10 to 12. One of the features of the early fighting was the heavy shelling to which our troops were subjected, and which to a large extent accounted for the prevalence of nervous shock at that time. In addition to the “shock” cases, as such, other forms of functional nervous and mental disorders were observed and studied. These cases are of
general interest as showing the effects of "wear and tear" upon the nervous system under the conditions of the present campaign.

If one studies the cases of nervous and mental shock, it will be seen that the symptoms are widely distributed throughout the nervous system. In a first group, there is a definite type of mental shock in which the symptoms are essentially of a psychical character. In a second group, there is a spinal type characterized by a limitation of the symptoms to the extremities, and usually to the lower limbs. In a third group, the symptoms are referred more particularly to the special senses. In this class remarkable cases of blindness or amblyopia, deafness and deaf-mutism have been included. More specialized symptoms, such as stammering or hesitation of speech, local palsies and tick-like movements, have been included in a fourth group.

It should be borne in mind, that whatever the special symptoms may be, the patients have been subjected in most instances to prolonged and often serious general nervous strain.

**Psychical Shock—Mental Stupor.**

From time to time cases are sent down from the casualty clearing stations in a state of mental stupor. Some of these cases are unaccompanied by any history or statement which would throw light upon the cause or method of onset of the symptoms. Other cases of a similar, though less profound type of stupor, on recovery from the acuter phases, are able to give some account of the nature of the psychical shock through which they have passed.

The symptoms exhibited by these cases of stupor are interesting and create a clinical picture of a striking character. In the more severe class of case, the patient is entirely unconscious of his surroundings. All the usual tests applied with the object of arresting attention, such as throwing a bright light on to the eyes, pinching the skin, or clapping the hands close to the ears, fail to provoke a response. The deep reflexes, however, are normal or brisk, and the plantar response is of the flexor type. The pupillary light reflex is frequently impaired or lost. Urine is passed normally; swallowing is carried out usually without difficulty.

In some cases the patient would appear to be living again through an experience of the past, probably associated with the time of onset of the symptoms. In a very striking instance, the patient lay curled up under the bedclothes. From time to time he would look out, as if peering over the parapet of a trench, stare wildly around him, and then hide under the clothes. These actions were often repeated and lasted for several days with gradually
diminishing frequency. In another case of a somewhat similar character, the patient would suddenly start and sit up in bed and look around him, crying out, "He's gone, he's gone." It was subsequently ascertained that this patient's brother had been killed when fighting beside him in the trench. Many of these cases present a scared or startled appearance. When approached they shrink and hide under the bedclothes. Others are dull, lethargic, and apathetic, taking no interest in what is going on around them.

A closer examination reveals a marked degree of rigidity of the limbs in most of the cases. As a rule, all the extremities are affected; the thighs are tightly flexed upon the abdomen and the fingers clenched in the hands. In one case there was a decided tendency to catatonic rigidity. In another case of genuine shock the rigidity had a hemiplegic distribution affecting the left arm and leg. In this case the deep reflexes upon the left side were exaggerated and the plantar response abolished.

In the milder type of case the stupor is less profound. These patients may carry out simple actions, such as putting out the tongue when requested to do so, but in a slow, apathetic, and hesitating way. They present a dazed appearance, are readily startled when spoken to, and take little or no notice of what is going on around them. Even in the slightest cases some rigidity of the limbs may be detected, which gradually passes off as the mental condition improves.

A consideration of these cases shows that the patient is probably in a state comparable to what is observed in the "hysterical stupor" or hypnotoidal state of civil practice. The evidence would seem to show that he is living through some past experience of a terrifying kind. When information has been obtained upon the possible cause or origin of the symptoms it has been found to be of a psychical character, such as seeing a friend or relative killed by his side.

On the other hand, there were cases of a severe type in which no history was obtained. It is permissible to assume that they may have resulted from shell explosion, or from repeated and continuous shelling. These symptoms are found mainly in young soldiers; in no case has the patient been over twenty-eight years of age, the majority being about twenty-two or twenty-three.

The duration of the stupor varies. In some cases the intensity of the shock has passed off before admission to the base hospital. In those admitted in stupor the symptom persisted for several days and then suddenly passed away, the patient having no recollection
of what had taken place in the interval. In other cases a more gradual recovery ensued, the patient being sent home before complete recovery had taken place. The general outlook for recovery is decidedly favourable. Rest, quiet surroundings, and ample nourishment are the main points of treatment.

Loss of Memory.

Comparable in many ways to the cases of stupor just described are those cases of loss of memory, or transitory amnesia, which are admitted to the base hospitals for further observation. Prolonged fatigue and exhaustion, coupled with continuous shelling, seem to be the primary causes of these mental breakdowns. The history furnishes evidence that the patient had been found wandering and was unable to give a satisfactory account of his movements. On inquiry of the patient himself, as to what had happened to him, one is told that he had been under heavy shelling for a time just previous to his "losing consciousness," as he says. One such patient said that in the stress of the engagement he had "lost his head" and became unconscious.

The loss of memory may extend over a period of several days. The patient has no knowledge or recollection of what had happened to him during this interval. Attempts to bring back the memory by suggesting possible events or circumstances have not met with success. In one patient, however, the memory was partly restored by a striking association. When lying in hospital he saw a number of men being prepared for inoculation against enteric fever. This recalled to his mind that he himself had been inoculated a few days before the loss of memory came on. From this clue he was able to give some account of himself, although his memory for a period of three or four days had not returned by the time he was sent home. Attempts to recall the memory by the use of "word associations" were not tried.

In addition to the loss of memory the patients complain of headache, and sometimes of a feeling of strangeness and discomfort in the head; the head, they say, is muddled. Sleep is disturbed at first. The reflexes are normal, although the pupillary light reflex may be impaired. Recovery takes place satisfactorily with rest in bed and ample feeding.

Deafness and Deaf-mutism.

Deafness of a transient character is not an uncommon symptom resulting from the explosion of big shells in close proximity to the patient. In addition to the deafness the effects of the explosion are a
stunning or dazing of the mental faculties and sometimes temporary loss of consciousness. In other cases the patient is "blown away" or forcibly precipitated on to the ground by the violence of the explosion. On recovery from these immediate effects the patient discovers that he is deaf in either one or both ears. If all cases are eliminated in which the tympanic membrane has been ruptured, or in which signs of previous or old-standing middle-ear disease were observed, a number of cases remains in which an examination reveals a nervous type of deafness. The watch may not be heard except on contact, and Rinné's test is positive; in one-sided cases submitted to Weber's test, the tuning fork is lateralized to the hearing ear. This form of deafness is not of long duration. It may pass away in a few hours or at most in a few days. The general symptoms of neurasthenia may persist for a longer period.

Deaf-mutism is another effect of the explosion of big shells and provides one of the clinical surprises of the war. In all the cases observed this cause was given by the patient in explanation of his symptoms, although in one case the patient appears to have been buried as well. As the patient is able to write an account of the incidents which led to the onset of his symptoms, the following statements are given as characteristic of all the cases: "We had been in the trenches for thirty-two hours and we were being shelled. The front of the trench was blown down in three places. One shell exploded right over my head and buried me. I do not remember anything until about a quarter of an hour later, when I found I could not speak or hear, and I was shaking all over. In about twenty-eight hours my hearing came back, but I have not been able to speak since." Another patient wrote: "I was coming out of a ditch to go to the store for ammunition when a shell burst right over my head and knocked me down. When I recovered consciousness I was lying in a reserve trench occupied by some of our men, two of whom had come along the ditch and found me lying there. One of them spoke to me and it was then that I discovered that I could not hear or speak." The examination of the sense of hearing reveals deafness of the nervous type. The distance at which the watch can be heard is either nil or very greatly reduced, and the Rinné reactions are positive. Should the ears not be equally affected the tuning fork when placed on the forehead is lateralized to the better ear. Tinnitus, giddiness, and staggering gait are not present. I have never observed nystagmus. The mutism may be complete, though in less profound cases the patient
may speak in a whispered voice. Attempts at phonation may be accompanied by movements of the lips and facial muscles.

In the early stages deaf-mutism may be accompanied by general symptoms of shock, such as headache, tremors, twitching movements of the limbs, and insomnia. In the later stages it is the only symptom present, the patients being frequently bright and very sensitive of their disabilities. The deep reflexes are normal, but I have found the palatal reflex abolished and the plantar responses often difficult to elicit. The cases of deaf-mutism would appear to be more persistent than those of simple deafness. One case which was examined three weeks after the onset was still completely deaf and dumb.

**Blindness and Impairment of Vision.**

In comparison with the cases of deaf-mutism just described, blindness, or impairment of vision, following the explosion of shells is relatively infrequent. There would appear to be two types of case in which blindness is complained of in consequence of shell explosions. In the first class quite a number of soldiers suffering from the symptoms of a general mild neurasthenia following prolonged fatigue complain of being blind.

An examination of these cases shows that they are not really blind, but are suffering from photophobia and tonic spasm of the eyelids (blepharospasm). Further investigation into the origin of the symptoms reveals that at the time of the explosion sand, dust, or mud was blown into the eyes and has given rise to conjunctivitis, hypersensitiveness to light, and spasm of the eyelids. Recovery takes place quickly under suitable local applications and rest.

In the second class the patients suffer from a temporary blindness or impairment of vision. In the cases of this character which were examined, consciousness was stated to have been abolished temporarily at the outset. In addition to the loss of vision the eyeballs are tender to pressure in the early stages. The pupillary light reflex is normal. An ophtalmoscopic examination shows no structural change in the media, retina, or optic discs. In one case in which the blindness was unilateral, an associated partial ptosis of the upper lid on the same side was present. In another case the examination revealed a large patch of opaque nerve fibres. In a third case Colonel Lister found a slight peripheral contraction of the visual fields. Most cases show some error of refraction. Recovery is said to be complete eventually, although I have myself not been able to observe a case sufficiently long to ascertain the duration of visual impairment.
STAMMERING.

Hesitation of speech has been observed in several cases in consequence of shell explosions. As in the previous cases of shock, the impediment may or may not be preceded by a temporary loss of consciousness. The onset of the symptoms is favoured by previous conditions of fatigue, sleeplessness, and exposure. Most of the patients were suffering from an associated neurasthenia. The symptom itself corresponds in every way with that seen in civil life. The organs and muscles of articulation are of normal character and development, but co-ordination in their movements is defective. The outlook for recovery is good, although the symptom may persist for several weeks.

LOCAL PALSY AND SPASMS.

These cases are not common and the symptoms are confined to the eyelids. Those examined have been ptosis and spasm of the orbicularis palpebrarum. The ptosis may be unilateral or bilateral, and present all the features of a functional palsy. The spasm is associated usually with local irritation and conjunctivitis. There was one case of “blinking tic” seen in consultation with Colonel Lister. The case was not a true one of nervous shock, as the symptoms had commenced when the patient was at his work before joining the Army. The onset was attributed to some chips of iron being forced into his eyes. A fall upon his forehead when on service had greatly increased the blinking.

SPINAL SHOCK—PARAPLEGIA.

The outstanding symptom of spinal shock is loss of power in the legs. This is brought about by shell or mine explosion in the immediate vicinity of the patient, with or without an accompanying burial of the patient in the trench or resulting débris. It has been found also as a result of a fall, the patient being knocked over and striking his pack against the wall or parapet of the trench and injuring his back indirectly in this way.

In a characteristic case the symptoms and signs are somewhat as follows: The paralysis comes on suddenly, the onset being accompanied by a temporary stunning or dazing of the mental faculties. In other cases temporary loss of consciousness follows the shock and on recovery from this the patient finds that he is unable to move his legs. In those cases which have been buried with or without an associated loss of consciousness, the paraplegia is discovered as soon as the patient is dug out. There may or may not be a transient retention of urine. If it is present it lasts for
about twenty-four hours and requires the use of the catheter; this retention is succeeded by a difficulty in passing urine for two or three days. An examination of the legs reveals a more or less complete motor paralysis, the muscle in some cases showing a slight degree of spasticity or hypertonus. The deep reflexes are either brisk or of normal intensity. The plantar responses are in all cases of the flexor type, although one or both may be lost or impaired if the case is seen in a very early stage. The abdominal reflexes are present. An examination of the sensory functions reveals a complete or partial sensory loss both to painful and tactile sensibilities of the "stocking" type. The joint sense of the feet and toes may or may not be impaired. An examination of the back fails to show outward or visible evidence of bruising or injury. Percussion of the spinal column may be accompanied by some degree of localized tenderness, and the patient experiences difficulty in turning in bed owing to the pain or discomfort which accompanies this movement. In this class of case the outlook for recovery is good, movements begin to return in the legs within a short period, and the patient is able to walk about in three or four weeks or less.

There would appear, however, to be a graver type of paraplegia in which the symptoms suggest an organic disturbance of the spinal cord or its nerve roots. Dr. T. R. Elliott has described cases of transient paraplegia following shell explosions, especially in those who have been buried in the trench. The symptoms of this form are complete paralysis of the legs characterized by a lowering of the muscle tone or hypotonus, and a depressed state of the reflexes. There is generally a band of hyperalgesia at the upper limit of the area of numbness, and the spine is acutely tender over a localized area. The sphincters are rarely affected except in the severer forms. The plantar reflexes never show an extensor response.

Taking into consideration the fact that the cause and method of onset is similar in both types of case, the relatively slight clinical differences scarcely warrant the assumption that the first type of paraplegia is "functional" and the second organic. Moreover, it is clear that the men who have been buried under a mass of clay or who have received a definite injury to the lower dorsal or lumbar portion of the vertebral column have been submitted to a local trauma of the spine which the shell explosion cases have escaped. In the only case of Dr. Elliott's, in which subsequent

examination was made, it was noted that the spinal cord was normal, although the muscles of the back were bruised and infiltrated with blood as far down as the sacral spines. It is conceivable therefore that the slight difference in symptomatology may merely indicate a different degree of general and of spinal shock. The duration of the symptoms in the latter type is stated to be longer than in the former, but the outlook for recovery is good, the patient being able to walk about within a few weeks.

Although the legs bear the brunt of the shock, paralysis is not invariably confined to the lower extremities. Cases were observed in which one or both arms may be similarly affected, although to a less degree, and others have been seen in which deafness or even impairment of vision have been accompaniments of the paraplegia.

Neurasthenia.

The cases of neurasthenia which are met with in the base hospitals resemble in essential features those seen in civil practice. A common history, as given by the patient, is that after he has been abroad for several weeks or months, he begins to sleep badly, loses appetite and feels "run down." Often the breakdown goes no further, and a short rest relieves the symptoms and the patient is able to return to duty. On the other hand, to these symptoms may be added feelings that he is incapable of doing his duty properly, he loses confidence in himself, and begins to worry about his health. In more severe cases the patient loses weight and complains of flatulence, constipation and dyspeptic symptoms.

In this type of case the cause is found usually in the exacting conditions under which the patient is living. In many instances he may persevere with his work, until a severe psychical shock, such as seeing one of his friends killed beside him, severe shelling, an upsetting experience, or bad news from home, unsteadies him and precipitates a definite attack of neurasthenia requiring rest and treatment at home.

An inquiry into the history of these cases will reveal usually either a previous attack of neurasthenia or occasional sleeplessness.

On the other hand, there is observed a form of temporary "nervous breakdown" scarcely justifying the name of neurasthenia, which would seem to be characteristic of the present war. This occurs in those who have been strong and well and is ascribed to a sudden or alarming psychical cause, such as witnessing a ghastly sight or undergoing a harassing experience. As the result of such a shock the patient becomes "nervy," unduly emotional and shaky, and, most typical of all, his sleep is disturbed by bad dreams. The
dreams are of experiences through which he has passed, of shells bursting, of duels between aeroplanes, or of the many harassing sights of the war in the trenches. Even the waking hours may be distressful from the acute recollection of these events revolving in his memory. Headache, slight mental depression and fine tremor may be accompaniments of these symptoms. There is usually an entire absence of objective signs; the deep reflexes are normal, the pupils respond to light, the tongue is clean and the pulse of normal frequency. Recovery is satisfactory, especially if the patient is sent home for a complete rest.

Various modifications of the usual type of neurasthenia as just described are observed. For example, there is a type characterized by anxiety as the main feature. This may take the form of fear or apprehension as to his ability to do his duty, or fear of being left alone, or of having made a serious mistake in his work. In one case the patient conceived the idea that he was unable to hold his rifle. Should the anxiety be concentrated upon his health the patient develops symptoms of a definitely hypochondriacal character.

Other cases again are accompanied by excessive motor agitation, in which tremulousness of the face, tongue and limbs is associated with a nervous and agitated manner. Cases of generalized tremor are found also, although they are less common and more persistent than the types already described. In the cases of this sort which were examined the tremor was mainly in the head and neck, although the limbs did not entirely escape.

Passing from the comparatively simple types of neurasthenia, we meet next with those of a more aggravated kind. Acute insomnia may be included under this heading. This symptom would seem to be more common in those whose duty confines them to an office, especially where responsibility weighs heavily upon the individual. It has been found also in consequence of prolonged strain and continuous shelling. Other forms assume a more depressed character and merge into melancholia. Other aggravated forms have the features of the exhaustion psychoses and develop symptoms of mental confusion and maniacal excitement.

In conclusion, it may be stated, that a form of neurasthenic breakdown may be found in cases admitted for medical disorders, especially of the gastro-intestinal tract, such as gastritis, enteritis, and colitis. It happens occasionally also, that patients suffering from surgical wounds of the head show acute neurasthenic or psychical symptoms which may persist after the wound has healed; these cases do not come within the scope of this paper.