OBSERVATIONS

ON

SPINAL IRRITATION.

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I believe it is scarcely possible accurately to define *irritation*, it so closely approximates, and so often runs into inflammation. Mr. Lawrence says that "the term *irritation*, if used in contradistinction to inflammation, does not denote any definite state; that generally the term *irritation* is used to denote disturbance of the nervous system; but, if we adopt it in reference to the body generally, we shall, in most cases, analyse it into something like inflammation." And yet *irritation* is very different from inflammation, though in certain cases we have some difficulty in discriminating between them. With regard to the morbid appearances presented in this disease there is but little known, as patients so rarely die of it, and, therefore, the opportunity of obtaining a post-mortem inspection but seldom occurs; at the same time you would not expect to find any serious lesion, probably in most cases merely congestion of the blood-vessels of the affected part; but then, again, there are cases where the disease is induced, and kept up by morbid deposits within the theca, or else by actual disease, with distortion of the bones; the latter may generally be greatly relieved, the benefit in the former case depends much on the nature of the deposit.

The position which I intend attempting to prove is, that you will have different morbid actions produced according as different parts of the spinal cord are in a state of irritation; thus, when the cervical portion is engaged, you will have pains in the scalp, shoulders, arms, cramps in these regions, difficulty in deglutition, nervous cough, disordered digestion, hiccough, dyspnœa. When the dorsal portion is engaged, you will have nervous pains in the integuments of the thorax, and perhaps abdomen, more particularly the submammary and sternal pains, disordered digestion, lassitude and inaptitude for business, &c. When the lumbar portion is engaged, you will find the region of the loins, the genital organs, the lower limbs, more or less affected. When the sacral portion is engaged, you would expect to find the part supplied by the sciatic nerves the seats of pain. In most cases these symptoms are only occasionally present, but in severe cases some of them are never absent. The brevity of these observations prevents my going into a more detailed account of the arrangement of the symptoms.

It is well known that any severe injury to the *medulla oblongata* produces immediate death, by paralyzing those muscles by means of which respiration is carried on; the pneumogastric nerve, which plays such an important part in respiration, being injured, reflects the injury to the spinal nerves which supply the intercostal muscles and the diaphragm, and thus entire paralysis of the respiratory muscles is the consequence, producing suffocation and death. Should, however, the injury be of such a nature as only to

produce irritation of this portion of the spinal cord, we shall then only find symptoms of irritation, such as hiccough, resisting all ordinary remedies, but which in general readily yields to counter-irritation over the upper portion of the neck; in fact, spasmodic action as a result of irritation, paralysis when the injury is more severe.

With regard to the origin of spinal irritation, but little is known with any certainty; whether it originates in local causes affecting the spinal cord, not subsiding but keeping up the irritation once established—or whether it is induced in the nervous centre by disease of a distant organ, either functional or organic, by a reflex action, as is supposed by my old teacher Dr. Graves—I do not pretend to say; my own opinion is that it may originate in either cause, and that in very many cases the disease will not subside unless you act on the distant organ as well as the nervous centre. For instance, spinal irritation caused by neglect of the bowels, if of any standing, will not be cured merely by purgative medicines, nor by counter-irritation alone, but if the treatment is directed both to the bowels and spine, a cure will speedily result. I believe it often happens that a disease is established in the spinal cord by reflex action, that the distant organ may become healthy, and yet the irritation still remain in the nervous centre. The ordinary exciting causes of the disease under consideration are—cold, a disordered state of the bowels, and uterine irregularities of various kinds; excessive depletion, also, is very frequently followed by spinal irritation, the nervous system sympathizing largely with the general disturbance. In these cases it is impossible to be too cautious of the use of the lancet, or any other mode of depletion, although, to a casual observer, they may seem imperatively to demand it. We very generally find them complicated with more or less disorder of the bowels. The treatment of such cases is obvious.

It is astonishing to what an extent some women allow constipation of the bowels to go without adopting any mode of relief, and this I believe to be one of the most frequent causes of reflex spinal irritation, and perhaps one of the causes which gives the great preponderance of cases of this disease to the female sex—probably 97 or 98 per cent. Even in temporary derangements of the bowels and liver you will frequently find spinal irritation to exist, manifested by muscular pains in the thorax, arms, neck, &c., along with tenderness on pressure over the spine. This form, however, requires nothing more than attention to the bowels to effect a cure, as the irritation has not existed sufficiently long to become established as a separate disease. In these cases it usually disappears as rapidly as it arose on the action of a smart purgative.

In many cases I have been able, on ascertaining the seat of pain, to lay my finger on the diseased portion of the spine immediately. Of course, in this, as well as in most diseases, anomalous symptoms will occasionally present themselves which it may be difficult to locate; but this would be no argument against the soundness of any general proposition. All the symptoms I have enumerated have usually been referred to spinal irritation generally, as if irritation of any portion of the spinal cord would produce each

and every one of them, and this extreme vagueness has led many to abandon the examination of the spine altogether, perhaps thinking it impossible that disease of any one organ could produce so many and such varied results, forgetting the numerous organs that are supplied by different portions of the spinal system, and its immense importance in the animal economy.

A feeling of pain in the affected portion of the spine I do not believe to be, in general, at least, indicative of this disease; the prominent symptom is mostly pain in some distant organ, and which is frequently greatly aggravated by pressing on the spine over the origin of the nerves supplying the part. The patient now complains of acute pain being excited in the spine by pressure, where before she was quite unconscious that any morbid action existed. Occasionally, however, the patient will complain of severe pain in the spine; but may not this arise from an acute inflammatory condition, rather than from irritation? In many cases, too, we find irritation of the spinal cord complicated with an inflammatory condition of its membranes; under such circumstances you will find both pain on pressure and a sensation of pain, acute or dull, according to the tissue engaged.

Spinal irritation does not, however, necessarily cause pain in the organ supplied, but may be manifested by functional disorder only. This is particularly the case when the bowels are the site of disorder.

I believe that in cases of spinal irritation we shall find tenderness on pressure over the vertebrae, in that part of the spine where the disease exists, always present—an invariable symptom.

Local spasmodic affections occasionally, but rarely, depend on local disease of the nerves of the part; in general they will be found to be produced by distant irritation, sometimes of the spinal cord at the origin of the nerves supplying the part, and sometimes by intestinal irritation, acting, of course, through the spinal cord as the medium of communication. In a case of tonic contraction of the fingers and toes of a child about a year and a half old, to which I was called in, it appeared to me to have been caused by a large quantity of calomel which the child had previously taken for some other affection, and readily yielded to a few doses of castor oil and warm baths, along with slight counter-irritation to the spine, both dorsal and lumbar, which was evidently very tender on pressure.

A case is mentioned by Dr. Alison, of Edinburgh, of extreme spinal disease, as probably arising from the effects of mercury; but this is denied by Mr. Bradford, of London, who had mercurialised the man for syphilis, and who says the disease existed previously. One patient, in whom, at one time, hiccough was a very prominent and distressing symptom, which was not removed by ordinary counter-irritants, I found instantly relieved by applying a small cupping-glass at the upper part of the cervical spine, which was very tender on pressure. I believe that this symptom will generally be found whenever the irritation affects the origin of the pneumogastric nerves.

A case of hiccough, removed by a seton over the origin of the phrenic nerves, is mentioned by Dr. Watmough, of Pocklington; but in this case the irritation at the origin of these nerves is not very

distinctly marked, unless it were from sympathy with the injury which the inferior dorsal and upper lumbar medulla spinalis had received, which is quite possible. Hiccough is also sometimes produced by irritation of the dorsal portion of the spinal cord; but I am inclined to think it much more rare than that arising from disease affecting the medulla oblongata.

I must not be supposed to state that hiccough has no other origin than disease of the spinal cord; every one is well aware that ordinary hiccough may arise from various matters offending the stomach, and is easily removed; but even in these cases the impression is first conveyed to the spine by the incident excitator nerves, and from thence to the muscles engaged in hiccough by the reflex motor branches. It will also arise almost constantly from excessive loss of blood, and is a very bad symptom when occurring in puerperal women after flooding, as denoting great nervous derangement and depression.

When the disease exists lower down in the medulla spinalis, other symptoms arise, one of which I believe to be frequently confounded with cardialgia and angina pectoris, from both of which, however, it is entirely distinct. The symptom to which I allude is pain, mostly of a persistent character, referred generally to about the junction of the seventh or eighth rib with its cartilage, but sometimes to other sites. Usually the seat of this pain may be covered with the finger, but occasionally, in cases of long standing, and of an aggravated character, it may extend to a considerable distance round this spot, which will, however, still be referred to as the point where it is most severe. In a case of spinal irritation about the middle of the dorsal region, which was under my care a few months ago, the pain extended from the extremity of the seventh rib over the whole abdomen, and round to the spine; all this was removed for a time by a small blister over the seventh vertebra, and afterwards cured by keeping up counter-irritation for a considerable period, along with gentle aperients. The origin of this case was distinctly referable to cold.

In another case, of four months' standing, the only complaint made was of pain in three spots, one in each sub-mammary region, the other about the centre of the sternum. I found tenderness on pressure over the third and seventh dorsal vertebrae; I have noted "all the functions regular." I only ordered, in this case, counter-irritation to the spine, which entirely removed the pain from the three points in a few days. I subsequently ordered very gentle laxatives, as the bowels seemed to be rather inclined to be torpid; I was, probably, not sufficiently minute in my inquiries on this head in the first instance. Pressure on the tender portions of the spine caused intense pain in the distant points. This case is interesting, as being one in which spinal irritation existed, which was not distinctly traceable to irritation or disease of any distant organ, and which readily yielded to topical treatment.

Irritation of the cervical and dorsal spinal cord will frequently cause a nervous cough, exceedingly difficult to remove, unless counter-irritation over the affected part is had recourse to, when it generally is easily removed.

Dr. Ducros, of Marseilles, has given nine cases of nervous asthma, relieved by applying ammonia over the cervical vertebrae over the origin of the pharyngeal

plexus. In these cases the benefit was of course derived from its acting as a counter-irritant, and removing, at least for a time, the congestive state of the spinal blood-vessels causing the distant irritation. Dr. Laycock refers spinal tenderness to a neuralgic condition of the spinal cord itself. I confess that I cannot see much similitude between an ordinary neuralgic nerve, where a paroxysm of pain is the prominent symptom, and spinal tenderness which is only made manifest when pressure is applied. I do not consider those cases where pain is a prominent symptom to be referable to spinal irritation, which I believe always manifests itself either in pain or functional disorder of the organ or organs to which its ultimate branches are distributed. May not Dr. Laycock have confounded spinal inflammation, a very obscure disease, with spinal irritation, as he mentions as one of its symptoms slight tumefaction of the affected part, generally indicative of deep-seated inflammation? Spinal irritation must be common in all diseases of organs supplied by its ultimate branches, generally induced by reflexive irritation, and therefore its presence in a great many diseases is no reason for denying its existence idiopathically, or its importance remedially.

Ordinary *tic douloureux* may, and very probably does, owe its origin to irritation at the roots of the engaged nerves, and hence the difficulty of its cure. This irritation may be induced by tumors or bony deposits pressing on some portion of the nerve, and I have no doubt that this is a very frequent cause of this disease.

In inflammation of the spinal cord itself, I believe you would seldom find pain a prominent symptom; indeed I think the facts we are in possession of with regard to this most obscure disease, tend to show that it has no sensibility, properly so called; but should its membranes be involved or primarily engaged, pain in the back will be urgent, but not I believe on pressure. In fact, under the head of spinal irritation, both inflammation of the cord itself, inflammation of its membranes, inflammation of its bony coverings, and true spinal irritation have been confounded together, and this has led to the unsatisfactory conclusions usually formed with regard to this disease.

Dr. Henry Mc Cormac, in his *methodus medendi*, seems much to doubt the existence of the disease in question at all, on the ground that he has found spinal tenderness on pressure, without any existing neuralgic affection of the chest, &c. This appears to me to be very bad logic. It is probable that in the cases alluded to by him, the symptoms were indicative of an irritated state of the corresponding portion of the sympathetic nerve, caused perhaps by the state of the bowels, or some other exciting cause.

Dr. Addison, in his work on the "Disorders of Females from Uterine Irritation," mentions the pain under the left mamma, or some part of the abdomen, which he vaguely refers to irritation of the cardiac orifice of the stomach; some cases, however, he looks on as neuralgic. The pain of the abdomen, he says, he has more than once mistaken for peritonitis, but of course the nature of the pulse, and the other symptoms, should be sufficient to guard us against this error. He recommends cold and astringent injections to the uterus, and anodynes to the seat of pain, with

attention to the bowels. This treatment must, I should think, however, have often disappointed him, though I do not deny that the uterine affection may have been the first exciting cause of the spinal disease producing the pain.

Mr. Tate, who has published a small work on Hysteria, looks upon its symptoms as produced by irritation of the spine, induced perhaps by uterine disease. He believes the spinal cord in hysteria to be always in a state of inflammation or irritation, and that by removing this state the constitutional disease is also cured.

Dr. Marshall mentions one case of diabetes mellitus, as cured by counter-irritants to the spine. He thinks that diabetes depends on irritation of the nerves supplying the stomach and kidneys, and hence his treatment. The spine is not mentioned as being tender on pressure. I have had no opportunity lately of putting this theory to the test; but it is quite possible that it may have some foundation in reality, and, of course, the amount of importance to be attached to it will entirely depend on its being borne out by farther observations.

Mr. Teale, in his excellent treatise, refers those irregular pains often called rheumatic, fixed pain in the shoulders, occiput, pleurodynia, constriction across the epigastrium, cramps, &c., to irritation of the spinal cord. In almost every case he has found tenderness of the spine over the points where the nerves supplying the painful part pass out; and even when it exists with deformity the pain may be cured, though the curvature remains. Of this I had, about a year ago, two very good examples in two girls, aged nine and fifteen, in whom the only prominent symptom was pain under the left mamma, existing with considerable distortion—one lateral, the other posterior. There was much tenderness on pressure in the distorted portion of the spine in each case, which was removed, along with the induced distant pain, in a few days, by counter-irritation alone. Mr. Teale believes that irritation of the sympathetic nerve may be detected by its general connection with irritation of the spinal cord corresponding to its diseased portion, induced through its communicating branches.

With regard to the treatment of spinal irritation, it will be inferred, from my preceding observations, that I should not recommend any one line of conduct in all cases, to the exclusion of every other. I do not recommend counter-irritation to the spine, or purgatives, or both, as a specific in this disease; no, where the bowels are in fault primarily, or as a sequence to the nervous derangement, I should place full confidence in aperients and liniments to the spine, followed up, if necessary, by tonics. Where it is complicated with any uterine affection, the appropriate treatment should be directed to the uterus, and combined with counter-irritants to the spine. Where it exists with anemia, counter-irritants and mineral tonics are indicated; in fact, wherever functional disorder exists, either as the cause or consequence of spinal irritation, measures must be taken to remove it, as well as the spinal disease; but when the nervous disease is manifested merely functional nervous derangement, it will be easily subdued and removed by local treatment applied to the spine. I do not deny that some cases of spinal irritation will occasionally yield without

local treatment; and I more particularly allude to those cases where it is temporarily induced by temporary derangements of distant organs, though I would not entirely limit it even to these cases; yet of this I am convinced, that in every case of any standing, you will greatly accelerate the cure by counter-irritation to the spine, and some cases you will find entirely unmanageable till you have recourse to it; and in all cases it is a perfectly safe remedy, if not carried too far. The form of liniment which I find most effective is twenty drops of croton oil, a scruple of tartar emetic, a drachm of liquor potassæ, and seven drachms of water. It brings out a small rash, which is easily kept up. As an aperient and tonic, pills of sulphate of iron, aloes, ipecacuanha, and capsicum, will be found to answer well in most cases; but of course the details of the treatment must be altered to suit the peculiarities of individual cases. In these cases, perhaps more than in most others, change of air, sea bathing, and occupation, are of the greatest use in preventing a recurrence of the disease, by inducing a more natural and healthy performance of the functions of the body without the aid of medicine, which frequently leaves the patient without disease perhaps, but still in a very favorable state for its re-development, on the slightest exciting cause presenting itself.

I have now given a very short outline of spinal irritation, its causes, symptoms, and treatment on rational principles; very much, however, still remains to be done before we can determine the exact amount of importance to be attached to it; but I think I have brought forward sufficient facts to prove that much may be done by directing some of our treatment to the spine, even when its irritation does not exist idiosyncratically, but merely as a symptom of distant derangement. The great mistake has been that very generally the treatment of these affections has been entirely directed either to the spine alone, the bowels alone, or the uterus alone, and so on; and this narrow view of the subject has of course given to these cases a character for greater obstinacy than I believe them to possess. I shall now close these remarks, with the hope that you will kindly excuse the imperfect manner in which I have fulfilled my task of illustrating a subject, perhaps more difficult to unravel than most others on account of the great latitude in which authors on the subject have indulged, in designating every disease they did not understand by the title of spinal irritation.

GASTRALGIA.

M. Rougier, of Lyons, speaks highly of the endermic use of morphia in neuralgic affections of the stomach. He commences with the dose of half a grain, and says that the remedy thus employed speedily removes the distressing pain and vomiting. In cases where gastralgia is accompanied by symptoms of depression, he employs tonics internally, and when the tone of the stomach seems to require assistance small doses of strychnine may be added with advantage.

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"If an arrogant pretender, or a benevolent enthusiast, were to call upon a manufacturer or millowner, and to tell him that his cloth was not good nor well-finished, or that his damask was not perfect, the pattern not clear, and the fabric of a bad sort—and add, that he had a certain oil or spirit, which being mixed with the wool, or rubbed on the machinery, would put all right, and make his cloth or damask the very best that could be produced—that it made no matter whether the machinery was bad in kind, or broken, or worn out, or out of repair—or whether the engine man neglected his duties—or whether the workmen were in disorder—or whether the governing and directing head of the establishment was incompetent—or whether the wool with which the machinery was fed was of a uniform bad quality—no matter what was the cause of the cloth or the damask being imperfect—only rub the crown of the head of the engine with this wonderful oil or spirit, and pour two tablespoonfuls of it every morning into the wool, when it was put to the slubbing machine, and that would cure all defects—would not the proposal be laughed at, by every workman about the premises, as outrageously absurd? And why? Because the workmen *understand* the machinery and business in which they are employed."

The preceding observations are taken from an interesting lecture recently delivered before the Wakefield Mechanics' Institution, by Dr. T. G. Wright, on the subject of quack medicines. A similar sentiment has been expressed by Dr. Marshall Hall in his Gullstonian lectures. "There are no quacks amongst the engineers, because every one knows that an engine must be understood by him who would repair it. When this truth obtains in regard to medicine, then, and not till then, will that most complicated of machines, the human frame, cease to be confided, in the derangement of its functions, or the diseases of its structure, to any one who is ignorant of the many springs of its action and principles of its composition."

Ignorance and quackery are so intimately allied, that the one is rarely found without the other, and the only effectual method of restraining the practice of empiricism is by so far enlightening the community as to place them above receiving the delusion. Health and disease, the sense of pain, and the pressure of sickness and suffering, are the concern of everybody; engineering, on the other hand, is the special occupation of a few. It admits, therefore, of question how far it is practicable, in the present state of society, and amid the multifarious calls upon the time of individuals connected with their special occupation, to infuse into the whole community such an amount of