CASES
OF
PARAPLEGIA
ASSOCIATED WITH
GONORRHŒA AND STRICTURE OF THE URETHRA.
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IN the year 1833 Mr. Stanley read before the Society some cases of paraplegia arising from primary disease of the urinary organs.

According to the views expressed by him, disease of the kidneys may produce a morbid impression upon the cord through sentient nerves, which being reflected outwards to the extremities, may occasion an impairment of both motion and sensation, and paraplegia result without organic lesion of the cord itself.

It would require a more minute examination of the cord than was made in the cases given in the paper referred to before the important negative assumed in their explanation could be regarded as established, since it is known that the structure of the cord may be extensively disorganized, where an experienced observer, without the aid of the microscope, may fail to discover the traces of disease. In proof of

this I may quote the following case, which was under the care of my friend and colleague, Mr. Hilton, who has kindly placed it at my disposal.

Paraplegia following gonorrhœa and syphilis. Inflammation of the substance of the cord. No traces of lesion discoverable without the microscope.

James L—, æt. 20, admitted into Guy's Hospital, March 14th, 1855 ; a gentleman's servant, unmarried. Always had good health until he contracted gonorrhœa and had a chancre eight months ago. He was under treatment for three months. After the chancre had healed, he again became infected, and ulceration followed at the seat of the old cicatrix. For this he was again under treatment until the beginning of the year 1855. At that time (January 18th), having occasion to go from home, he slept, as he thinks, in a damp bed, and three days afterwards began to have pains and weakness in the legs and about the neck and occiput.

On the 26th he had a rigor, and the weakness of the legs was rather suddenly increased, with loss of sensation above the ankles and formication in the feet. Incontinence of urine came on at the same time.

On the 28th he managed to get down stairs with the help of his mother and the use of a crutch ; but at night he had lost all power in the legs, and was carried to bed. During the next fortnight the loss of sensation gradually extended upwards to a line corresponding to the distribution of the ninth dorsal nerve. The sphincters were paralysed. The susceptibility to the excito-motor movements continued to increase, and the cord at length became so irritable as to occasion the patient great distress ; the least agitation or the slightest touch bringing on violent spasmodic contractions of the legs, though the irritation was quite unfelt. There was a painful sense of constriction across the chest. Bed-sores formed and rapidly extended.

There was no important change in his symptoms until April 18th. The urine was ammoniacal and continually

dribbled from him, excoriating the scrotum and inner parts of the thighs. The bed-sores sloughed. There were frequent involuntary spasms of both legs ; but especially of the left. At this date he began to have cough, headache, and more frequent rigors. Tongue became furred. Pulse accelerated.

He died rather suddenly May 16th (four months from the beginning of his symptoms), having during the last month become much exhausted from frequent rigors and hectic.

On a *sectio cadaveris*, the vertebral canal was healthy. On opening the dura mater the two layers of arachnoid were found united, as usual, on the posterior surface of the cord by delicate adhesions. There were some osseous plates on the visceral layer of the membrane. No traces of vascular injection or of inflammatory exudation. *The cord had the normal size and appearance, and neither to the touch nor on section presented any obvious softening.* With a lens of an inch focus the surface of the columns at and below the origin of the sixth nerve had a mottled appearance, some portions being opaque and yellowish ; and a more minute microscopical examination discovered extensive disorganization of the nervous structure, the focus of the morbid change being at the middle of the dorsal region and principally in the anterior columns. The fibrous structure was loose, and amongst it, and apparently resulting from its disorganization, were numerous oily granules, together with a great number of the characteristic mulberry masses (granule-cells). Sections of the cord at the lower part of the dorsal and in the cervical region gave the same results, but in a less degree.

This proves that we ought to look with great mistrust upon the evidence which the unassisted eye supplies in the examination of nervous structures, where but slight lesions produce such decided and striking symptoms.

The following cases seem to show that, instead of regarding the nerves as the channels through which the cord is

secondarily affected in disease of the urinary organs, we ought rather to look to the *veins* or *the blood itself* as the means by which the lesion is propagated, and, instead of attributing the paraplegia to functional depression of the nervous energies, to refer it to inflammatory changes.

In the following case this pathological relation certainly existed. For the particulars of it I am indebted to my friend, Dr. Habershon.

Paraplegia. Acute spinal arachnitis and softening of the cord following retention of urine from stricture.

William W—, æt. 29, a cabman, admitted into Guy's Hospital on Sunday morning, September 19th, 1847, for retention of urine and stricture, to which he had been subject for several years. After a warm bath, and with some difficulty, the smallest catheter was passed and the urine drawn off. On the following day he had again difficulty in emptying the bladder, and twenty leeches were applied to the perinæum. From this date until the 28th the stricture was dilated daily, and he was going on favorably, being a considerable part of the day up and about the ward, apparently in his usual health. On the 28th he complained of a fixed and constant pain near the angle of the tenth rib on the right side, for which a blister was applied, with relief. Three days after (October 1st) he was free from pain, but feverish. He dressed himself as usual and sat by the fire; but, on attempting to return to his bed in the afternoon, he suddenly found his legs weak and numb. Pulse 120. Tongue thickly furred. He was freely purged without benefit. On the 3d the loss of sensation and motion was complete in both legs, and sensation was imperfect on the surface of the abdomen as high as the umbilicus. He had no pain in the spine, nor any convulsive movements of the legs. The bladder was emptied morning and evening by the catheter. In the intervals it dribbled away, highly ammoniacal and purulent. Mr. Key, under whose care the patient had been admitted,

saw him on the 5th, and considered the paralysis to depend upon thickening of the posterior common ligament.

He gradually became more prostrate. A large slough formed over the sacrum. The evacuations passed involuntarily. He expired on the 27th, one month from the commencement of the spinal symptoms. There was no affection of the brain throughout.

Sectio cadaveris.—Head not examined. On removing the cord with its membranes from the canal a small quantity of pus was found lying on the outside of the sheath, opposite the bodies of the sixth, seventh, eighth, and ninth dorsal vertebræ, and one of the vertebral veins in the lumbar region was full of well-formed pus. The spinal fluid was densely coagulable. The arachnoid was thickened and presented traces of recent inflammatory exudation. The dorsal portion of the cord was very distinctly and generally softened. Lungs healthy. Pericardium contained a small quantity of fluid, with a patch of fibrin upon the ventricle. Liver healthy. Kidneys large and congested, with spots of ecchymosis. Secreting structure coarse and soft. Pelves dilated; their mucous membrane and that of the ureters and bladder injected and covered with purulent exudation. An old stricture existed at the commencement of the membranous portion of the urethra, and several false passages, one opening into an abscess behind the bladder, and two returning into the bladder. The vesical veins in the neighbourhood of the pelvic abscess were thickened and partially obstructed by recent lymph. No traces of peritonitis. Intestines healthy.

Here phlebitis was no doubt caused by the catheterism, but in the following cases gonorrhœa probably brought on paraplegia as one of its proper sequelæ, after the manner in which its other secondary affections, as swelling of the joints, are produced. Whether this be through a purulent infection of the blood, or through some more specific taint, is yet unknown.

Paraplegia, with softening of the cord, following gonorrhœa and chronic gleet.

Henry F—, æt. 21, a pale and delicate man, a shoemaker. Habits irregular. Has had gonorrhœa many times, and is subject to a permanent gleet, increased when he indulges in drink. His general health has been good ; and he was, so far as he knows, quite well on Tuesday morning, March 1st, 1853. In the afternoon of that day he began to have pain between the shoulders, and a diarrhœa came on, to which he had been frequently subject. This continued during the night, with increased pain in the back and spasmodic tremblings in the legs. Towards morning the legs became weak and numb, and he was unable to void his urine. His friends, for his relief, applied hot fomentations to the feet, legs, and pubes, which produced extensive vesication. He was brought to Guy's Hospital, March 4th, and admitted under the care of Mr. Bransby Cooper, with the following symptoms : complete loss of motion below the sixth dorsal vertebra ; the muscles of the seventh intercostal space do not act in respiration ; sensation perfect above the line indicated, but on the abdomen pinching or pricking the skin gives no pain, and only the faintest sensation ; in the legs there is complete anæsthesia ; bladder distended, with dribbling of urine ; great exhaustion ; pulse 110, weak ; respiration tranquil, 24 ; febrile heat ; tongue injected ; complains much of thirst. Spine quite straight. A slight degree of tenderness and some sense of stiffness between the shoulders. At the epigastrium and about the penis, thighs, and ankles the integuments are vesicated and the skin is in parts sloughing, from the hot fomentations which have been applied, and last night, in addition, several bullæ formed spontaneously on the left ankle and on the soles of the feet. No bed-sore. Fæces healthy ; passed involuntarily. Urine drawn off by the catheter ; ammoniacal, and containing mucus and pus, with traces of blood.

He died exhausted from irritative fever and sloughing,

March 15th, a fortnight from the beginning of the paraplegic symptoms.

Sectio cadaveris.—Several superficial sloughs over the legs and abdomen. Large, sloughing bed-sore over sacrum. Bullæ on the soles of the feet. Bones and ligaments of the spine healthy. The cord was generally softened as high as the middle of the dorsal region, at which point the nervous substance was broken up by the gentlest stream of water falling on it. The gray and white portions appeared to be equally affected. Amongst the softened nerve tissue granule-cells were abundant. There was no point of suppuration, nor any trace of old disease in the cord. The membranes were apparently healthy; liver healthy; kidneys of a dark colour, from venous congestion; the mucous membranes of the pelves slightly ecchymosed; bladder thickened, the lining membrane covered by recent diphtheritic exudation. Between the bladder and rectum there was an irregular abscess, with sloughing walls, communicating with the bladder by a large perforation of its coats. Near the bulb was a more recent abscess, filled with healthy pus. The lungs collapsed freely on opening the chest, and were free from disease. Heart healthy.

Paraplegia occurring with gonorrhœa. Recovery.

Alfred L—, æt. 28, a thin, pale young man, below the middle stature, employed in a ready-made-shoe warehouse. His habits are rather irregular, but yet he has had no illness until the present attack. On the 17th of June, 1855, he took a gonorrhœa, attended with the usual symptoms, until four days ago, July 1st, when he began to feel pain between the shoulders, which he attributed to cold, though he knew of no exposure. The following day the pain had increased, and extended to the loins, but was not such as to prevent his going on a Sunday excursion to Brighton. On reaching town in the evening, he walked to his home, the distance of a mile and a half, without feeling

any weakness in his legs. The next day (July 3d) he was at his work, but felt very unwell, and his legs weak; he had some difficulty in emptying the bladder. In the evening he applied a mustard poultice to the loins, and passed a quiet night. July 4th, he was unable to leave his bed, and sent for my friend, Mr. Roper, on account of retention of urine. During the day the legs became weaker, and in the evening he again required the use of the catheter, and his evacuations passed from him involuntarily. July 5th, he was admitted into Guy's Hospital, under my care. He could move the legs only very feebly; numbness along the outer part of the thighs, as far as the knees; involuntary muscular twitchings in both legs; abdomen flaccid, a sense of constriction around the lower part; inability to empty the bladder; constipation; no tenderness in the spine; no affection of the joints. Tongue moist, slightly furred; skin cool; pulse 76. Moderate gonorrhœal discharge.

By cupping, laxatives, and counter-irritation, the paralytic symptoms slowly disappeared, and on the 15th he was able to stand without help, though not to walk. A third blister was applied to the loins, and medicine continued, until he became impatient to return home. When he left the hospital he had but slight weakness in the legs. The gonorrhœal discharge had gradually ceased.

He continued to attend as an out-patient for a month, and was then apparently well.

I saw nothing more of him until July, 1856, when he again applied on account of a slight return of his spinal symptoms, of which he maintained he had no traces until the occurrence of the gonorrhœa.

By a return to his former treatment, he again improved, and is now well.

That the occurrence of paraplegia with gonorrhœa is due to an inflammatory affection of the cord is further made probable by one at least of Mr. Stanley's own cases, which I may perhaps be allowed to quote in this place:

"A man, æt. 30, was admitted three weeks previously on account of gonorrhœa, with phymosis, which was in progress towards cure; the inflammation in the urethra had subsided, but the discharge continued. Whilst in this state as far as the local disease was concerned, and without any particular derangement of the general health, he was suddenly seized with paraplegia, which extended as high as the umbilicus. In the limbs, the loss of motion was complete, and the loss of sensation nearly so: the functions of the brain were unaffected. On being questioned, he stated that he had been suffering for a day or two from pain in the loins. The pulse was 85, and rather full. He was cupped in the loins, and free action of the bowels obtained by purgatives, but with no benefit. The urine flowed involuntarily, and in considerable quantity. As, however, it was thought the bladder was distended, a catheter was introduced, and three pints evacuated. In sixteen hours from the attack of paraplegia, the man suddenly fell back in his bed and died. The spinal cord was first carefully examined. *There was found some turgescence of the vessels both in the membranes and substance of its lumbar portion*, and a few drachms of transparent fluid in the theca, 'but,' says Mr. Stanley, 'neither the turgescence of vessels nor effusion of fluid was sufficient to explain the paraplegia by pressure on the cord.' The liver was enlarged and indurated. The other abdominal viscera, with the exception of the kidneys, were sound, and with no unusual turgescence of the vessels. Both kidneys were of so dark a colour as to be almost black; they were remarkably flaccid, and, on sections being made of them, were found to be in every part gorged with blood. The mucous membrane lining the infundibula and pelves was dark-coloured, from the turgescence of the vessels. The coats of the ureters, and the mucous membrane lining the bladder, were also very much more loaded with vessels than is usual. In the bladder was about a pint of urine. Some fluid was found between the membranes of the brain and in its ventricles."

The objection made by Mr. Stanley that the turgescence

of the vessels and the effusion of fluid were insufficient to produce paralysis by pressure is no doubt valid, but it equally applies to a large proportion of the cases of paraplegia from inflammation of the structure of the cord. It is not often the amount of exudation which, by its mechanical action, determines the paralysis, but rather the coincident changes in the nervous tissue from defective nutrition and softening. The small amount of exudation, and the apparently slight changes of structure which accompany the inflammatory lesions of the cord, is one of the most remarkable points in their history ; and here it is, as I wish to prove, that the microscope has so much aided our investigations. With the knowledge we have so obtained, the *injection of vessels in the structure of the cord* must be considered an important indication of organic lesion, and can leave us but in little doubt that the paralysis was the result of disease of the cord, rather than of any simply morbid impression made on it through incident nerves.