VISCERAL CRISES.

BY
ARTHUR MILLS, M.D.,
DUNDEE.

LOCOMOTOR ATAXIA, with its well-defined and uniform group of symptoms, has been familiar to us for a period of about seventy years. That locomotor ataxia is syphilis pure and simple is only now becoming a universally accepted fact, and it does not seem unreasonable that its clinical symptoms might be reconsidered—first in the light of our now certain knowledge as to its etiology, and secondly in the light of our increasing knowledge of the varied manifestations of inherited and late syphilis.

Not infrequently there is evidence that the morbid process in tabes is widely distributed. Atrophy of the optic nerve is common; atrophy of other cerebral nerves is frequently noted. There are instances in which tabes is associated with general paralysis, the cerebral cortex becoming involved, and quite frequently symptoms may be present the result of lesions in motor nerves and nuclei and of degeneration in peripheral nerves. We do not, however, look upon such symptoms as diagnostic of tabes. If, amid these various symptoms indicative of a widespread syphilitic involvement of the nervous system, we are unable to recognize others the result of an accidental selection of the posterior nerve root system, we are not warranted in making a diagnosis of tabes. The destructive process in this posterior root system leads to symptoms due to interference with and cutting off of afferent impulses from various parts of the nervous system, and these alone form the classical symptoms of tabes. Ataxia, hypotonia, Westphal's phenomenon, and sensory disturbances are usually interpreted as being due to impairment of function; hyperaesthesias, paraesthesias, and girdle pains present the character of irritative symptoms. The purpose of this paper is to point out that visceral crises should not necessarily be included in the last-mentioned group of posterior root irritative phenomena, but should be looked upon as evidence of the morbid process being probably present elsewhere. In particular it is desired to demonstrate that they are not peculiar to the condition of tabes.

Visceral crises are paroxysmal in character. There is a sudden disturbance in function usually with pain, lasting a variable time, hours or days, and terminating as a rule abruptly. Recurrence is a marked feature of these attacks, and no sufficient external cause for the attack can be found. They have frequently been mistaken for acute surgical conditions. So far as I can learn, the visceral symptoms of tabes have never been satisfactorily explained by reference to their anatomical basis, and yet there is a persistent tendency to group them with root pains and to regard them as of radicular irritative origin and of diagnostic importance.

Of all the classical symptoms of tabes, root pains, however, form probably the symptom which is most constantly met with. In a series of about 450 referred to by Starr,¹ 98 per cent. of these patients suffered from pains and only 10 per cent. from gastric crises. There appears to be as yet no generally accepted theory as to the mechanism of the production of these symptoms. Charcot originally attributed gastric crises to disease of the sympathetic, and many others adopted the same view. Dr. T. Buzzard suggested that they are due to a lesion in the vagal nucleus. Peripheral neuritis has also been offered as an explanation; Barker,² describing a case in detail and endeavouring to make a theory to fit the pathology, suggested irritation of dorsal root fibres causing a reflex vaso-constriction in the splanchnic area.

Purves Stewart³ considers that the various visceral crises of tabes may be due to irritative changes in various parts of the autonomic nervous system. There is no reason that I am aware of to regard pathological irritative changes in various parts of the autonomic system as peculiar to tabes; in fact it is difficult to refer such changes to spinal or posterior root degenerations. They have little apparent connexion with these, and yet the same author, when discussing abdominal pain and the differential diagnosis between visceral crises and acute abdominal disease, looks to the finding of the classical symptoms of tabes to save us from error.⁴ This indeed is the usually advocated procedure in textbooks of medicine and surgery. If in doubt as to whether the condition is a visceral crisis or not, we are asked to investigate the knee-jerks and ankle-jerks and to look for symptoms of ataxia and sensory disturbances characteristic of disease of the posterior columns and roots.

Étienne,⁵ discussing the frequency of aortitis in syphilis, quotes a case where the pain was situated in the epigastric region and recurred in violent gastric crises as in tabes. The autopsy showed a suprasigmoid aortitis with stenosis of the coronary arteries. He admits that clinical symptoms in such cases are sometimes absent, but concludes that the aortitis was the cause of the crises in the case mentioned. Pathault,⁶ in a communication entitled "Sur la fréquence des accidents gastro-intestinaux d'apparence banale qui doivent être imputés à la syphilis," describes a case where the patient suffered from painful attacks of colic and vomiting presenting all the characters of a gastric crisis of tabes. The patient had no other symptoms of tabes and made a rapid recovery with antisyphilitic treatment. He states further that had the diagnosis of syphilis not been made the patient would very probably have been subjected to a fruitless operation. This author is content in this instance with a diagnosis of gastric syphilis. Both these writers emphasize the similarity of their patients' symptoms to the gastric crises of tabes, but do not suggest that they may be of an identical nature.

Our advancing knowledge of the pathology of late syphilis may soon throw light upon this problem, and will probably show that these crises are due to a syphilitic infection of the autonomic nervous system. As described by Warthin,⁷ this new pathology is based upon the demonstration that the essential tissue lesion of either late or latent syphilis is a mild irritative or inflammatory process due to the localization in the tissues of relatively avirulent spirochaetes, and that inflammations of this type may occur in all tissues and organs. We have to understand that the gumma is a comparatively rare lesion in old syphilis and that the pathological diagnosis of syphilis is microscopical and rarely to be recognized by the naked eye. Such a pathology opens up for us a limitless field for clinical manifestations, and only the universal application of the Wassermann or other reliable test, along with careful clinical observation, especially as regards the results of treatment, will enable us to come to some understanding of the vast symptomatology of this disease. Patients attending venereal disease centres and suffering from acute and manifest syphilis, chancres, secondary manifestations, and gummata, appear to be outside of this problem entirely, and we cannot therefore look for much assistance from these clinics. We have to find out what symptoms may be caused by inherited "latent" and late syphilis. The task appears to be one peculiarly associated with general practice.

Observation and consideration of the following cases suggest that syphilis may be the cause of the visceral crises hitherto associated with tabes, and that these attacks are not peculiar to the special pathology of tabes.

CASE I.

Female, aged 29, unmarried. She first came under my observation in March, 1919, her complaint being recurrent attacks of abdominal pain and sickness. Her first attack had occurred in the summer of 1916, when she was seized very suddenly with severe pain in the abdomen and with vomiting. Since then she had suffered from these attacks at very frequent intervals; usually they lasted under twelve hours. The pain would come on suddenly early in the morning, and by late afternoon or evening both pain and sickness would cease quite abruptly, and she would be ready to take an ordinary meal. They occasionally lasted two days or even three, but usually she was off work one day, back to work the next, and then possibly off the following day with another attack; she rarely had more than a week or two at a time of freedom from these seizures. She had consulted several doctors, and appendicular colic had been suggested. In October, 1920, she had a more severe and more prolonged attack than usual and was now very anxious to have something done. I could feel a freely movable right kidney and was inclined to attribute her attack to this, but fortunately I asked Mr. D. M. Greig to see her with me in consultation. He suggested a Wassermann test, and the report was definitely positive; her family history also indicated inherited syphilis. She received three injections of 0.6 gram neo-kharsivan at weekly intervals and was given mercury to take by the mouth. She has had no further attacks, and has been well for over a year. I have no doubt whatever that the case is one of inherited syphilis, and that her attacks were due to syphilis. She has had none of the classical symptoms of tabes.

CASE II.

Female, aged 27, unmarried. This patient was seen by me for the first time in June, 1919. Her troubles dated from childhood, the chief one being that she suffered from frequent attacks of pain in the abdomen, sometimes, but not always, associated with vomiting; between these attacks her stomach gave her no trouble. In March, 1917, an attack of abdominal pain more severe than usual led to an emergency laparotomy being done. The surgeon who operated and removed the appendix was able to show me his notes of the case. He found no surgical abdominal condition, and the pathologist's report on the appendix was negative. She continued to suffer from these attacks. Her family history was

suggestive of syphilis, and the Wassermann report on her serum was definitely positive. She had no symptoms of tabes. Mercurial inunctions and mercury by the mouth were soon followed by marked improvement, and on January 12th of this year she reported that she had had no attacks for six months or more. It should also be noted that a brother of this patient was submitted to an appendicectomy at the age of 16, and that his appendix was also found to be normal; no surgical condition was found in the abdomen. He died on the third day after his operation. The cause of his death was believed to be delayed chloroform poisoning.

CASE III.

Male, aged 49, married. I was called to see him on January 31st, 1921, when he was suffering from pain in the epigastric region and vomiting; he had never suffered from this before, and no cause whatever could be discovered for his illness. His pain and vomiting lasted for a week. He had no rise of temperature, but his tongue in time became furred and his pulse increased a little in frequency; his bowels moved normally. Pain was the outstanding feature; he became very impatient as regards the pain, and a surgeon's opinion was suggested but not insisted upon, for I could not convince myself that the condition was a surgical one. I could, however, make no diagnosis satisfactory to myself. The attack subsided, but left him very weak; he had had no nourishment and very little sleep for a week, for I had withheld morphine in the expectation of making a definite diagnosis. I received an urgent call to see him again on the afternoon of March 25th. Returning to his work after his usual midday meal, he had been seized with sudden severe pain in the epigastrium and violent vomiting, and had been carried home in a collapsed condition. He had crawled upstairs and lain on his bedroom floor in agony unable to get into bed. I saw him about 4 p.m., by which time the pain and vomiting had ceased. He was off work only two days. He informed me that he had had a similar attack, not so severe, at the end of February, and had then only been one day off work. Between these attacks he had had no complaints. I could get no definite history of syphilis, but he admitted having run the risk of infection in his youth. The Wassermann report was definitely positive; his wife's blood was also definitely positive, and I discovered she was suffering from a gumma. She had had three miscarriages and then one very delicate child, born twelve years after marriage. I failed to find, and still fail to find, any of the classical symptoms of tabes in this patient. He has had mercury by the mouth, from 6 to 12 grains daily, since April 1st. An attempt to use mercurial inunctions was followed by a severe dermatitis. Examined on January 18th of this year he was well, and had had no further attacks of abdominal pain.

Had these patients shown the classical symptoms of tabes, the attacks from which they suffered would have been diagnosed as gastric crises. They were the subjects of inherited and late syphilis. Their attacks yielded to antisyphilitic treatment, and quite frequently in the treatment of locomotor ataxia by vigorous antisyphilitic methods improvement is reported as regards the visceral crises, though there may be none as regards the ataxic symptoms. Visceral crises are relatively uncommon in locomotor ataxia, being observed in only about 10 per cent. of these cases. Syphilitic visceral crises such as I have described may be relatively frequent and may account for many vague conditions and many errors in diagnosis and fruitless laparotomies. In particular I shall look with grave suspicion upon every case diagnosed as "colic," "appendicular colic," "kinks," "bands" and "adhesions," "cholelithiasis without gall stones," and so forth. The investigation of the knee-jerks will not save us from error, but the application of the Wassermann test may do so. My conclusion is that visceral crises are a manifestation of inherited and late syphilis, and are not peculiar to tabes.

REFERENCES.

¹ Starr, *Organic Nervous Diseases*, pp. 294, 302. ² Barker, *Johns Hopkins Hosp. Bull.*, 1910, xxi, p. 48. ³ Purves Stewart, *Diagnosis of Nervous Diseases*, fourth edition, p. 363. ⁴ Purves Stewart, *Ibid.*, p. 197. ⁵ Etienne, *Arch. des mal. du coeur*, October, 1921. ⁶ Pathault, *Bull. de la Soc. Franç. de Derm. et de Syph.*, No. 10, 1921. ⁷ Warthin, *Amer. Journ. Syph.*, 1918, ii, p. 425.

IN Moseley's classification of the elements founded on x-ray spectra there were four vacant places of ordinal numbers—43, 61, 72, 75. Moseley himself suggested that the number 72 probably belonged to the element cerium previously described by Professor Urbain of Paris. In June, 1914, Professor Urbain, with the late Sir William Ramsay, went to Oxford in order to investigate these and other related matters along with Moseley. The results with regard to cerium were inconclusive, but Moseley was to have published a paper on the inquiry. He joined the army at the beginning of the war, and his death at Gallipoli was an irreparable loss to science. Professor Sir Ernest Rutherford, whose pupil Moseley was, has now written to *Nature* to accept Professor Urbain's identification of cerium with the element having the number 72. Proof has been given in a paper communicated to the Académie des Sciences by M. Dauvillier.

Memoranda : MEDICAL, SURGICAL, OBSTETRICAL.

QUININE NECROSIS OF MUSCLE.

THE interest of the following case relates to the early treatment of the patient by intramuscular injections of quinine and its unusual sequel. Necrosis took place, but in none of the other cases of quinine necrosis recorded has there been, as in this case, a definite separation and encysting of the necrosed muscle. The specimen is now in the museum of the Royal College of Surgeons of England.

J. S., an ex-soldier, contracted malaria in Salonica in October, 1916. Rings and crescents are said to have been found in his blood at various times. He was invalided to the United Kingdom in February, 1917, and had relapses about once a month till he came under specialist treatment, when the relapses gradually decreased in frequency, the last being in February, 1921. In 1916 he had about forty-nine injections of quinine into each buttock alternately every other day, but we are unable to discover the particular form of quinine used. About a month after the course of injections had ended he noticed a swelling in the right buttock "first feeling like a lot of little lumps," but shortly he noticed "one big lump," as was the condition when he first came under the notice of one of us (P. F.).

On examination, there was a cigar-shaped swelling some three inches long in the upper part of the right buttock, the skin moved freely over it, and the lump itself appeared to be movable on the deep structures. It was somewhat tender to the touch, and owing to its position frequently received slight blows and caused much discomfort and even pain. It was therefore decided to remove it.

Operation took place on February 7th, 1922 (D. D. P.). An incision was made over the whole length of the swelling, and on cutting through the skin and superficial fascia the tumour was found to be lying in, and parallel with, the upper part of the gluteus muscle. Cutting into it, an adventitious bursal sac was opened in which a greyish white cigar-shaped body lay quite free. This was removed. It was quite smooth, firm in consistence, somewhat elastic, and had a smooth glistening surface, similar to the space in which it lay. The adventitious sac was cut away from the surrounding muscle, and the space left closed with catgut; the fascia was sutured with catgut and the skin with silk-worm gut.

The tumour measured $3\frac{1}{2}$ inches by $\frac{3}{4}$ inch by $\frac{1}{2}$ inch. A longitudinal incision into it showed that it consisted of wavy bundles of fibrous-looking material, dry and bloodless, and there was some slight calcification at one part near the centre. A section was cut by Dr. H. H. Sanguinetti, and it was seen that the greater part of the tumour consisted of necrosed muscle fibre, much of it still showing striations. It appears to have been a fasciculus of the gluteus maximus, which died *en masse*, owing to the injection of the quinine into it. Necrosis was due probably both to the direct action of the drug and also to pressure of the injected fluid in the muscle bundle proving so great that the blood supply to the bundle was cut off. The dead part of the muscle must have remained sterile, a line of demarcation was formed round, it separated from the surrounding tissue but was not absorbed, and so acted as a foreign body and became encapsuled.

PHILIP FIGDOR, M.B., Ch.B. Glasg.,

Acting Assistant Physician, London Temperance Hospital.

D. DENHAM PINNOCK, F.R.C.S.,

Assistant Surgeon, London Temperance Hospital and Victoria Hospital for Children.

THE BLOOD AT 100 YEARS OF AGE.

WHILE carrying on a research on pallor, the case of a lady aged 100 was encountered. As few people reach this age, and as records of their blood are seldom obtained, blood counts were done on two occasions. The following are the particulars:

	Feb. 9, 1922.	Mar. 2, 1922.
Red blood corpuscles ...	4,600,000	4,350,000
Haemoglobin ...	81 %	78 %
Colour index ...	0.88	0.90
White blood corpuscles ...	7,150	7,200

Differential count:

Polymorphonuclear leucocytes ...	42.5 %	51.0 %
Eosinophil leucocytes ...	4.0 %	4.0 %
Basophil leucocytes ...	0.2 %	0.5 %
Small lymphocytes ...	43.0 %	37.0 %
Large lymphocytes ...	7.3 %	6.0 %
Large hyaline mononuclear ...	3.0 %	1.5 %

Remarks.

The red blood corpuscles are well formed and of normal appearance. One normoblast was observed on February 9th. The white blood corpuscles show a relative lymphocytosis in comparison with the blood of an average healthy adult and there are more eosinophil leucocytes than usually found. Except for an old ununited fracture of the neck of the femur