escape from their clutches. In one of these four cases the mental disturbances were short-lived, but in the remainder they proved more or less persistent.

Now, what I think must be insisted upon is that in these patients the failure of the heart to supply blood adequately to the periphery is merely one factor—often the final straw it is true, yet only one of many that together are sufficient to break the camel's back. Already the brain is worn out, and so are the vessels supplying it. So, also, is every other organ in the body, and when the circulation also fails, all sorts of new influences, of which uræmia may be included as one example and mild terminal infections as another, come into play and the mind is dethroned and the whole economy falls into anarchy. The process of decrescence has been hastened and confused, but it is still the same process, and it does not seem to me that we ought to speak of cardiac disease as causing this kind of mental breakdown. Undoubtedly it is a contributory cause, but that is all that should be claimed for it. At the back of both mental and cardiac disorders is a cause common to both—the series of events included in the term "decrescence."

To summarize, then, we may say that there is no evidence that cardiac disease can, unaided, cause insanity. There is reason to believe that mental disturbances can cause cardiac disorder, but whether these can go further and establish organic change appears to me uncertain. Finally, there are many morbid processes which affect both heart and brain, and thus account for many of the coincidences between cardiac disease and insanity.

References.—(1) *Heart*, 1925, xii, p. 121.—(2) *Quart. Journ. of Med.*, October, 1927, xxi, p. 51.

---

*Volvulus.** By FRED C. LOGAN, M.B., Ch.B., F.R.F.P.S., Deputy Medical Superintendent, and JANET A. A. SANG, L.R.C.P.&S. Edin., Senior Assistant Medical Officer, Prestwich Mental Hospital.

VOLVULUS is not a very common condition. In large general hospitals the incidence is about one case or two cases a year. It has occurred here at Prestwich eleven times from 1923 to 1927, and comparing the huge population served by a general hospital with the number resident in a mental hospital the frequency of the condition is out of all proportion. This fact is the reason for the present paper, giving some account of the condition and stating the factors that were present in the cases. Whether certain types of mental cases are liable to develop this pathological state

* A paper with demonstration of cases at a Divisional Clinical Meeting held on February 1, 1928, at Prestwich Mental Hospital.

https://doi.org/10.1192/bjp.74.305.259 Published online by Cambridge University Press

is a matter which will be discussed, and about which the experience of others will be welcome.

By volvulus is meant, as you know, an axial rotation of a coil of bowel so that its venous return is obstructed and the lumen of the canal completely blocked. The part of bowel involved has been the sigmoid in our cases. The sequence of events that takes place in the twisted coil are:

(1) Vascular engorgement with—

(2) Violent stimulation of the sympathetic supplying it. Then—

(3) Distension with gas, mostly CO_2.

(4) Complete obstruction of the lumen of the bowel.

(5) Complete arrest of the circulation in it.

(6) Paralysis of the coil of bowel which, if the condition is not relieved, is followed by—

(7) Thrombosis of its vessels, and—

(8) Gangrene, with or without rupture of the peritoneal coat.

Paralysis.

When the condition has lasted sufficiently long—and this may be a matter of perhaps only an hour—the bowel is paralysed, with the result that micro-organisms from the lumen pass through its wall to the peritoneum, which becomes infected. The longer the delay in operating the greater the risk of peritonitis setting in.

As seen at operation the colon is often purple or even purple-black, but it is not, because of its colour, therefore dead, and will, when untwisted and the veins relieved in most cases recover.

True gangrene, on the other hand, is shown by a lack of lustre, a grey-green colour and a flaccidity of the bowel plus the presence of free gas in the peritoneum and a stench. The cause of the paralysis is the combined effect of—

(1) The mechanical injury to the nerves produced by the twisting.

(2) The vascular interference, and—

(3) The enormous distension of the gut with gas.

It is not surprising, therefore, that when the twist is uncurled the bowel is unable to empty itself, and that a stout, wide, rectal tube of rubber has to be passed and the bowel gently massaged from above downwards. The bowel does not recover its power and tonicity all at once. Subsequent to the operation tympanites frequently recurs and is a dangerous and a distressing condition, which is best dealt with by turpentine enemata and subcutaneous injections of pituitrin and eserine. The giving of morphia to relieve the distress is dangerous.

Symptomatology.

The symptoms of volvulus, as they occurred in our cases, are in sharp contrast to the accounts given in books, which are based on its occurrence in the mentally sound. In our cases, the amount of upset and distress was small and the patients were unable to help with a history. The symptoms are pain, vomiting and collapse.

Pain, the earliest symptom, was sometimes absent throughout, or at least not complained of. When present it is sudden in onset, stabbing, and fairly well localized over the site of the twist. It is of a colicky nature. When it ceases it is a bad sign, and means paralysis and approaching death of the bowel.

Vomiting was not common at all. It occurred in three of the eleven cases. For this reason an anæsthetic is taken well and there is no trouble with a gushing fæcal vomit, as occurs in other forms of obstruction, but what is common is eructation.

Collapse is not severe, and exists only in proportion to the duration of the twist. It comes on late, and is due to intoxication and infection from decomposing and stagnating bowel contents.

General signs are: Interference with respiration, slight rise of temperature, increase in pulse-rate and furred tongue.

The signs of most importance for diagnosis are:

(1) Tremendous distension of the abdomen, which is tympanitic.

(2) Absolute constipation.

(3) Ballooning of the rectum.

(1) The abdomen is very tense and the tympanites obliterates even the liver-dullness. Volvulus is the only condition which gives rise to this sudden tremendous distension. No waves of peristalsis are seen, and no abdominal contents, anatomical or pathological, can be palpated. The abdomen is like a huge drum, and as tense as a strangulated hernia. It is obvious that examination generally and percussion in particular must be carried out gently to prevent injury to the bowel, which is stretched and distended to the point of bursting.

(2) Constipation in volvulus, as in other examples of acute intestinal obstruction, is complete. Enemata are returned clear and without flatus, or else they are retained altogether. A point to observe is that when the diagnosis has been made definitely it is not wise to persist in giving turpentine enemata in the hope that something will happen to undo the twist. Enemata only distress the patient and irritate the gut, which is not in a condition to withstand any injury whatever.

(3) Ballooning of the rectum is a very useful sign of absolute

https://doi.org/10.1192/bjp.74.305.259 Published online by Cambridge University Press

constipation and of some assistance in the diagnosis of volvulus. It is a minor sign, but one not to be despised.

The Mechanism of Volvulus.

The mechanism of volvulus is probably something as follows:

The upper loop of a coil of bowel—the sigmoid—falls into the pelvis and drags on its mesentery, which is thereby lengthened. In addition to this there is a process of chronic inflammation of the mesentery, which contracts its base and approximates, in time, the two ends of the coil.

The condition probably remains like this for months or it may be years with, as a rule, a general visceroptosis, which is due to a general muscular asthenia and loss of tone. This is apparent from the physique of the patients, who may be thin and of light weight, but have protuberant pendulous abdomens. This observation is confirmed at operation, when it is found that the muscles of the abdominal wall are very thin indeed, and difficult to stitch securely. When this condition is established it only takes a muscular spasm to produce rotation or twisting of the coil. The exciting cause is, as a rule, constipation with or without the giving of a strong purgative, which produces violent irregular peristaltic action on a loaded colon.

The constipation is largely due to neglect to respond to that sensation of distension of the rectum which is the natural stimulus to defæcation. What was at first neglect becomes inability, because not only is a greater degree of distension (which is, in fact, constipation) required to produce the necessary stimulus, but there seems to be present in these cases a defective nerve control to the bowel, causing lack of tone. Those who have suffered from volvulus once before have this lack of muscle-tone aggravated by the overstretching of the colon; the muscle of the colon does not fully recover from the stretching, but remains in a state of atonic bagginess which causes overloading; hence the liability to recurrence of volvulus in these cases.

Results.

The results are interesting and instructive. The number of patients was eight and the number of cases of volvulus eleven, *i.e.*, in three patients the condition recurred. Six were operated on, three of them twice; two were not operated on at all, *i.e.*, nine operations. The first operation was successful in each case. But the outlook is precarious because of the liability of the condition to recur, and if it does so the prospect of a successful result is very poor.

In the case of those operated on a second time, only one has survived the operation more than three weeks. This patient is alive, after two and a half years, and is still in the hospital.

Of those who have had the condition once, one is living and is now at Lancaster Mental Hospital, and Dr. Sephton tells us she is free from abdominal trouble except for tenderness of the scar, but she had a partial recurrence before transfer.

Another, a man, died recently, after two and a half years. He had a fistula from a week after the operation until he died.

The third and last patient is living and still here in Prestwich.

These results compare very favourably with those taken from published statistics of the London Hospital, where, in a series of

twenty-seven cases, occurring over a period of thirteen years, only two recovered, *i.e.*, their mortality-rate was 93%. The deduction to be made from this is that the thing that matters is early diagnosis and immediate operation. As already pointed out, bowel paralysis permits of germ migration through the bowel-wall to cause peritonitis and death. In one of the two cases of our series, which died after his second operation, fatal delay had occurred.

A corollary to these observations is that the nursing staff must be instructed to report at once any abdominal swelling, for it must ever be remembered that the condition is most likely to occur in the demented type of patient, who either cannot or will not complain, and operation must not be delayed until the patient complains. The death of the other patient, after her second operation, was due to infection of the abdominal wound, from the patient soiling herself continuously, and interfering with the wound, in spite of special nursing.

It is very important, if possible, at the operation, to anchor the viscera by means of special stitching to effectually render recurrence unlikely. As already explained, there is a general visceroptosis, loss of muscle-tone, and to attempt to remedy this completely at the emergency operation would not only be a tremendous undertaking of doubtful value, but would unquestionably endanger the life of the patient. For it must be realized that to untwist the volvulus, the entire length of small intestines and a great extent of the large bowel have to be allowed to escape from the abdominal cavity, and the task of anchoring the colon in places is not practicable. The sphere of usefulness of operation is, therefore, limited. The best that can be done is to observe the case specially in a ward with few patients in it, and to make sure the patient has a regular daily action of the bowels by the use of a gentle laxative, if need be, such as pulv. glycerrhiz. co. ʒj nightly. An enema should be given twice a week.

A surgical belt to brace up the abdomen is useful, but this demands intelligent application. One patient who had such a belt could not be induced to wear it properly.

Another important measure is to diet the patient, paying special care to avoid potatoes and too much bread. There is no objection, however, but much in favour of green vegetables and fruit.

Conclusion.

There is always the temptation (to be avoided) of translating pathological facts into mental terms. Although there is correlation between structure and function when dealing with an organ, it is

another matter to assess the relationship of body to mental disorder. That there is a relationship no one will dispute, but its nature or extent is a mystery.

What does seem an established fact is that cœnæsthesia, *i.e.*, the fusion of all bodily stimuli into one harmonious whole, is the basis of well-being; that the viscera take a large part in the formation of cœnæsthesia; that cœnæsthesia normally is not noticed by a person, but any rise or fall in its intensity is felt,and is accompanied by a corresponding alteration in emotional tone.

Now the mental patients who suffer from volvulus are of either the demented or the hypochondriacal type with false interpretations of visceral sensations.

Mentally these patients are dull, confused, possess a slow reaction time, are inert, lacking in initiative and mental energy, of poor memory for both recent and past events.

Physically they are slow, lumbering and clumsy in their movements, suffer from muscular asthenia and visceroptosis, and do not possess much energy.

With them the mental and physical seem to be counterparts to each other and to point to a defective innervation of the body as a whole.

The brain as organ of mind is working sluggishly, the musculature of the limbs and of the bowels is working feebly and causing a lowering of cœnæsthesia and emotional tone, and their mental outlook is thereby rendered blank and colourless—which is dementia.

Details of Cases.

No. 1.—A. L—, female, æt. 50, single. She had been in the hospital five years when she developed volvulus of sigmoid on 14.3.24; operated on same day by Mr. Gow, F.R.C.S. Mental condition very confused, sluggish and stupid; shows no interest in anything; memory poor; disorientated for time and place. Volvulus returned on 8.5.27; operation performed by Dr. Logan within six hours of onset. Bowel had to be incised before reduction possible. Pitibulin 1 c.c. given twice, also eserine $\frac{1}{75}$ gr. given twice in the succeeding twenty-four hours. Died on 24.5.27.

No. 2.—A. C—, female, æt. 44, single. Admitted to Prestwich eight years previously, and during all that time was depressed, with ideas of reference and imagined people followed her; confused, slow and unable to converse. History of being dull at school. Volvulus of sigmoid developed on 7.2.25; patient operated on same day by Dr. Logan. Patient up and about on 4.3.25. Volvulus recurred on 20.9.25; operated on by Dr. Logan. Pituitrin 1 c.c. and eserine gr. $\frac{1}{50}$ given. Patient has attacks of abdominal distension from time to time and she is very constipated. She received an enema twice a week and pulv. glycerrhiz. co. ʒj nightly. Mental condition unimproved.

No. 3.—J. M—, male, æt. 35, stonemason, single. Developed volvulus on 30.5.24, twelve years after admission. Mental condition: Delusional insanity; fancied people were spreading bad reports about him and so preventing him from getting employment; very solitary and suspicious, and doubts the genuineness of letters sent him by his friends. Says he has been brought here in mistake for somebody else. Patient operated on 30.5.24 by Dr. Logan. Volvulus recurred on 3.7.25 and operation performed by Mr. Gow, but patient died on 10.7.25. He also suffered from silicosis and bronchiectasis.

No. 4.—A. G—, female, æt. 32, married. Developed volvulus on 4.4.24, four years after admission; operated on by Mr. Gow. Mental condition: Delusional insanity, sullen, morose and uncommunicative; smiles childishly; says people have spread false rumours about her for years. At times becomes confused and depressed, becoming more simple-minded; laughs to herself and has auditory hallucinations. Threatened return of volvulus on 28.4.25, relieved by enemata. Transferred to Lancaster Mental Hospital on 23.9.25.

No. 5.—H. S—, male, æt. 47, single. Developed volvulus on 20.5.25, two years after admission. Mental condition: Delusional insanity—says he know show to cure all disease and that he has been appointed to the medical staff; he talks to himself and hears imaginary voices. Becomes very depressed at times and complains of his abdomen in a fantastical manner. After operation stitches of wound cut through owing to patient's continual coughing, and a fistula was formed. Patient lived two and a half years.

No. 6.—K. H—, female, æt. 57, married. Has been admitted to mental hospital eight times since 1914. Developed volvulus on 22.10.27, one year and two months after admission. Mental condition: Confusional insanity—very dull and confused, unable to answer simple questions, auditorily hallucinated, disorientated as to time and place; has to be fed, washed and dressed. Operated on by Mr. Gow. Still in Prestwich (1).

No. 7.—G. A. B—, male, æt. 58, single. Developed volvulus, but was not operated on, and died. Patient had been in Prestwich Mental Hospital 4 years and 9 months. Mental condition: He had been in a state of profound dementia since admission, and in poor physical condition.

No. 8.—L. D—, female, æt. 39, single. Developed volvulus five years and five months after admission, but not operated on and died. Mental condition: Delusional insanity with ideas of reference and persecution: accused someone of always interfering with her intestines.

We are much indebted to Dr. Blair, Medical Superintendent, for permission to publish the notes of these cases.

(1) Patient was discharged on February 18, 1928.

The Mongol: A New Explanation.

By R. M. Clark, M.B.Edin., Medical Superintendent, Whittingham Mental Hospital, Lancashire.

It is now nearly sixty years since Langdon-Down first distinguished the mongol, and it must be admitted that to-day the ætiology of this type of idiot is as obscure as ever.

Disease of the thyroid gland is known to cause three of the most distinctive pictures in medicine: (*a*) Myxœdema; (*b*) its congenital form cretinism, caused by hypothyroidism; and in contrast (*c*) exophthalmic goitre, caused by hyperthyroidism. In my view it is possible to add a fourth type, the mongol, which I believe to be a congenital form of exophthalmic goitre. If not, we may ask where is the congenital hyperthyroidic infant?

Very little is known of the effect of hyperthyroidism on the fœtus of the mammal except that it causes death. Striking differences are discernible between the mongol and the product of congenital hypothyroidism, *e.g.*, the cretin has not the abundance of hair, the physical agility, the bright vivacious manner and the lively emotions common to the mongol and to the