

through constricted orifices can be shown on the same model. If the rate of flow is slowed down so that eddies cease and become stream-like, as in Fig. 6, we notice that the lines as far as the valves are straight and after that a distinct series of waves is produced. In this particular experiment the rate of flow was only five millimetres per second and two distinct waves are noticed in every half centimetre in the model, which equals two waves per second. If we increase the rate of flow we increase the length of the wave and its frequency until an audible note is produced. The waves now, however, are too frequent to be reproduced in a photograph. In these actual experiments the component parts were rigid and hence the vibration of the frequency mentioned could not have arisen from them. It arises, therefore, from a simple rhythmical variation in the rate of the flow through the constricted orifice. The rhythm produced is further found to depend upon two factors only—first, the rate of flow and, secondly, the physical nature of the fluid. The actual shape or nature of the bounding edge has apparently no influence on the vibrations produced. The physical nature of the obstructing material has also no effect as long as the size of the orifice is not materially altered.

Rochdale.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CALOMEL AS A POISON, WITH AN ILLUSTRATIVE CASE.

BY T. L. BUNTING, M.D. EDIN.

CALOMEL is very inconstant in its action as a poison. Guy says that six grains have proved fatal, while an ounce has been taken with impunity. Rungberg records¹ a case in which three injections of one and a half grains each given within one month proved fatal, and he mentions other similar fatal cases after subcutaneous injections of small doses. The general assumption seems to be that calomel itself produces the symptoms of acute mercurial poisoning. But this is contra-indicated by its insolubility, by the fact that it is not a mechanical irritant, by the fact that very large doses have been taken with impunity, and by the great variations in the fatal dose. This difficulty is met by the suggestion, which does not commend itself to Guy, that calomel acts as a poison only by its partial conversion into perchloride of mercury by the free hydrochloric acid of the stomach. On this supposition the very small fatal doses could be explained on the theory of an over acid stomach converting the calomel to perchloride more rapidly than usual, though it is more likely that an impurity (probably the perchloride) was originally present. It is certain that the action of calomel in medicinal doses is by no means always proportionate to the amount given, the purgation produced by one grain being often equal to that produced by five grains or more in the same individual. On the theory that it acts only by conversion into perchloride this is understood on remembering that, as soon as sufficient conversion has taken place, purgation will be brought on and the remainder of the calomel will be expelled unchanged. Calomel injected subcutaneously would in the same way be converted to perchloride by the chlorides of the blood. But in this case the action of a small quantity could not cause expulsion of the remainder. Hence, the fatal cases from small subcutaneous doses. If this be true, large doses of calomel should be borne with impunity by individuals with healthy gastro-intestinal tracts. That this is actually so is proved by a series of cases reported by Dr. Strong.² He treated lobar pneumonia by large doses of calomel. In most cases he gave 20 grains every three hours for 24 hours. In one case, that of a woman, he gave an initial dose of 60 grains, followed by 30 grains every three hours, making 360 grains altogether. In none of these cases was there more than moderate catharsis and there was no ptialism.

Dr. A. W. Messer informs me that he has given similar doses with the same result, and repeated doses of 20 grains have also been given with apparent advantage in cholera. A recent case of my own also illustrates the comparative harmlessness of calomel.

A boy, aged three and a half years, obtained possession of a bottle of 120 cachous, each of which contained one grain of calomel, and ate 110 of them. He came under treatment within about 20 minutes. This consisted first of a dose of eight grains of sulphate of zinc. This did not produce emesis, and was quickly followed by apomorphine, one-fortieth of a grain hypodermically, which produced free vomiting. The stomach was then washed out through an ordinary stomach-tube, bringing away more of the disintegrated pink cachous. A solution of bicarbonate of sodium was used in washing in order to neutralise the free hydrochloric acid and so prevent conversion into perchloride. After the washing five ounces of milk were poured down the tube and left in the stomach. The patient immediately fell asleep. Half an hour later he vomited again and then slept undisturbed for nine hours. There was no further vomiting. The first motion of the bowels did not take place until 12 hours after the calomel was taken; it was copious and soft but not liquid. A second motion, which consisted entirely of an almost gelatinous green mucus, occurred four hours later. After that the bowels were moved only normally. The patient never at any time showed any ill effects or any other symptoms than those recorded. Other cachous previously taken from the same bottle had produced their normal therapeutic effect, so there is no reason to doubt their reputed strength.

The absence of ill effects in this case may be largely due to the prompt energetic treatment, so that it alone proves nothing. But as at least half an hour elapsed between ingestion and the first emesis there had been plenty of time for absorption with so large a quantity present, and, further, as washing never absolutely clears the stomach some must have been left. It may therefore be said that this case, together with those mentioned above, tends to show that pure calomel possesses but slight toxic effects and that considerable overdoses may be given over a limited time without fear of either acute or chronic mercurial poisoning. A subsidiary point of interest is the early age at which a full-sized stomach-tube was used. There was no difficulty in passing it.

Scotswood, Newcastle-on-Tyne.

A CASE OF ACCIDENTAL VACCINATION INOCULATION SIMULATING CUTANEOUS ANTHRAX.

BY WILLIAM SHEEN, M.S., M.D. LOND., F.R.C.S. ENG.,
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I send a note of this case as accidental vaccination is infrequent and often puzzling. The patient was seen at the Cardiff Infirmary. She was a woman, aged 30 years, who had on her left cheek a lesion consisting of a central depressed black slough, a quarter of an inch in diameter, with a ring of small, nearly confluent vesicles round, a few of which were broken and exuding a turbid fluid. Beyond this the whole of the cheek was swollen, red, slightly cedematous, and somewhat tender. The swelling extended round the eye, which was partially closed, and also below the jaw, where enlarged and tender submaxillary glands were to be felt. The appearance of the "pustule" is well shown in the reproduction of a photograph kindly taken for me by Dr. Eldon Pratt. The patient's general health was unaffected and the temperature was normal. The woman volunteered the statement that she thought the condition was due to vaccination and said that her baby was done three weeks previously, "took" well, and the places were now drying up. Eight days before the mother's cheek had been scratched by the baby; on the following day a pimple appeared, which two days later became swollen and painful, and then gradually got to the present condition. An examination of the fluid for anthrax bacilli gave a negative result. Boric acid fomentations were applied, and in a week the swelling had nearly subsided and the sore was scabbing.

The case much resembled true anthrax and called to my mind a similar accidental infection which I saw when house surgeon at Guy's Hospital in 1892. The

¹ Deutsche Medicinische Wochenschrift, No. 1, 1889.

² New York Medical Record, March 16th, 1889.

case was under the care of Sir (then Mr.) H. G. Howse; it is alluded to in his Bradshaw lecture for 1899¹ and I have his kind permission to refer to it. The patient was a girl, aged 19 years, ignorant and stupid. The lesion here also was on the left cheek and the face was greatly swollen and inflamed. No bacilli of



Accidental vaccination pustule simulating anthrax.

anthrax were found. The possibility of vaccination was suggested but the patient denied it and the place was larger than any vaccination vesicle ever seen. There was marked constitutional disturbance and the temperature was about 103° F., so Mr. Howse determined to excise what was obviously a source of general infection. Recovery took place with a somewhat larger scar than was necessary. The patient subsequently admitted that she had been nursing a recently vaccinated child through an attack of fever.

Cardiff.

A CASE OF DIPHTHERIA TREATED WITH MULYPTOL.

BY R. HAY MARSHALL, M.B., C.M. ABERD.

A MAN, aged 30 years, consulted me on account of his throat having been painful for two or three days. He had been associating freely with three children and two adults in his home, so I advised his relatives to use mulyptol inhalations as a preventive and recommended him to remain in one room by himself. His temperature was 100·8° F., his pulse-rate was 108, and the cervical glands were swollen. On examining the throat I could see on the left tonsil a greyish patch of membrane and on the right tonsil, the arch and pillars of the fauces, and the uvula there was a grey coloured membrane. He had great difficulty and pain when swallowing even saliva. I swabbed his throat with mulyptol, gave him mulyptol internally, and told him to use mulyptol inhalations. The next day his temperature was normal, his pulse-rate was 100, and his throat was cleaner. By the third day his throat was quite clean, he felt very well and wished to return to work, but in the meantime I had sent a swab from his throat to the medical officer of the Isolation Hospital, Willesden, who reported that he found diphtheria bacilli in the specimen. The patient's convalescence was perfectly satisfactory and uninterrupted, he had no symptoms of paralysis, and none of his household became infected. I was quite surprised at the rapid subsidence of the local and general symptoms under mulyptol exclusively and think that it might be of some service to make the case and its result known.

Willesden, N.W.

¹ THE LANCET, Dec. 23rd, 1899, p. 1717.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Prooemium.

THE LONDON HOSPITAL.

A CASE OF CORTICAL HÆMORRHAGE WITHOUT FRACTURE
OR EXTERNAL SIGN OF INJURY CAUSING FITS AND
PARALYSIS; OPERATION; RECOVERY.

(Under the care of Mr. C. W. MANSELL MOULLIN.)

FOR the notes of the case we are indebted to Mr. A. I. Simey, late house surgeon.

On May 23rd, 1904, there was admitted into the London Hospital, under the care of Mr. Mansell Moullin, a patient, aged 26 years, in a state of profound concussion. His attendants who brought him up said that he had been thrown from a motor-car on to the pavement, after collision with an omnibus which at the time was drawn up on the left side of the road. The momentum was such that considerable damage was done to the hand-rail and back part of the omnibus. The patient was supposed to have struck the pavement with his head first but there was some doubt as to this observation. At 6.15 P.M., immediately after admission, a rapid examination was made with an absolutely negative result. There was no fracture of limb or ribs—not even a bump could be discovered on any part of the body. He was quite unconscious, having no corneal reflex; the pupils were equal and about from four to five millimetres in diameter. The pulse was slow (60) and slightly intermittent. Whilst his scalp was being examined he raised both hands to the back of his head. His breath smelt of alcohol but it was ascertained that after the accident some brandy had been administered. At 7.50 P.M. a more thorough examination was made and the following notes were recorded. The patient was fairly warm. He had spoken and complained of pain in the head. He had vomited; the vomit had no very definite smell. The pupils were equal and reacted to light; they were rather smaller than on admission. He had told his name and he remembered the accident. His head was re-examined; there was no œdema. There was no bleeding from the ears, nose, or mouth. The knee-jerks were present and equal; the plantar reflexes were glib. He was very drowsy, rather irritable, and he snored. The respirations were 18 per minute and regular. The pulse was 60 per minute and slightly irregular. No injury to the abdomen was detected; the bladder was not full; he had not passed urine or fæces. Later in the evening he became rather noisy and much more restless. His pulse went up to 80 and became somewhat bounding. The temperature, twice recorded, was subnormal. On the following day (the 24th) he became more restless, noisy, and irritable, lying on his side and resenting interference. His temperature rose to 101·4° and remained thereabouts. No localising sign was developed. Vomiting occurred once only. During the 25th and 26th no localising signs were developed, the temperature remaining fairly steady at about 102°. The left pupil was perhaps a trifle larger than the right. There were no motor paralysis and no rigidity. The left knee-jerk was just obtained. There was no further vomiting. On the 27th an ecchymosis was noted about the inner angle of the right eye and involving the conjunctiva. He became drowsy and incontinence of urine occurred for the first time. Vomiting occurred once. On the 28th, at 6.15 A.M., the first fit occurred and was followed by others at intervals of about a quarter of an hour. The following is a description of the fifth taken from notes made at the time. It began with twitching of the left side of the face, then the left arm and the left leg; the leg and arm stopped, then the upper portion of the face, ending with twitching of the lips. The fingers of the left hand were clenched into the palm. In the sixth fit, which occurred at 7.16, the same sequence of events was noted; between the fits the patient was conscious. There was no paralysis left behind after the last fit but incontinence of urine again