The following case of acute hepatitis, which was kindly forwarded to me by Staff Assistant-Surgeon (now Surgeon) J. A. Clery, M.B., I give *verbatim*, as it well illustrates the efficacy of the ammonium chloride in cases of tropical hepatitis.

"Private Stevens, aged 27, was admitted into hospital on May 30th, 1872, suffering from acute hepatitis. During his protracted service in India, of eight years' duration, he had enjoyed good health until on arrival at Secunderabad, in January last, he was seized with pains in the hepatic region, which subsided in a few days, but returned with renewed intensity on the night of May 28th.

"The following notes of his case were taken on June 1st: Patient's face is flushed, and expressive of great suffering; his brow contracted; breathing short, and apparently attended by much distress. The skin has a mottled appearance, and, on the application of the hand, communicates a burning sensation. Temperature 103 deg.; the pulse beats 100, full and throbbing; the heart's action is excited, but unattended by any deviations from the normal sounds. Dyspnoea and a short dry cough prevail, for which we can find no adequate physical signs, as there is normal resonance all over the chest, except towards the base of the right lung anteriorly; and the respiratory murmur, although louder than natural, is otherwise unaffected. Tongue is furred; appetite deficient; thirst urgent and distressing. He complains of acute pain over the liver, extending along the borders of the false ribs and all up the side to the shoulder; this pain is aggravated by lying on the right side; most relief is felt when on the back, inclined to the left side. All over the painful part there is exquisite tenderness. Greater part of the abdomen is tympanitic; but we find increase of dulness in the right hypochondriac region, extending downwards to a level with the umbilicus and upwards to the fifth rib. His temper is irritable; depression of spirits prevails, with restlessness and want of sleep.

"I prescribed a podophyllin pill and diaphoretic mixture (one ounce every two hours until diaphoresis set in); locally six leeches were applied, followed by fomentations over the hepatic region.

"June 2nd. The dry heat of skin has been replaced by free diaphoresis, attended by some slight alleviation of his sufferings. Temperature 101.4 deg.; pulse 105. I prescribed twenty grains of chloride of ammonium, morning and evening; the fomentations and diaphoretic mixture to be continued during the day.

"3rd. Stevens enjoyed a good night's rest, and appears quite cheerful to-day. The following is his description of the effects following the administration of the drug: 'The medicine had a saltish taste, which produced an inclination to vomit; this was followed by heat in the side, which extended all over the body until I was covered with perspiration. In about an hour's time I subsided into a refreshing sleep, and, on awaking, felt that the pain had vanished.' The temperature in the evening had fallen to 99.8 deg., and the pulse to 98.

"4th. Pain has returned, but in a mitigated form. Temperature 99.8 deg.; pulse 100.

"5th. Improving; continue chloride. Temperature 99 deg.; pulse 100.

"6th. Pain and tenderness over the hepatic region have greatly abated; the dulness has descended from the fifth to the sixth rib, neither does it extend further than one inch below the false ribs. Pulse 95; temperature 99.8 deg.

"7th. Much relieved; slept well. As patient looks ill and anæmic, I allowed him six ounces of wine. Temperature 98.8 deg.; pulse 80.

"8th. Patient is altogether free from pain, except when he attempts to lie on the right side; the liver is apparently reduced to its normal dimensions; reduced the chloride to five grains *bis in die*.

"10th. Patient may now be said to be convalescent, as he is quite free from pain, except in violent exertion; can lie on either side with perfect ease, but, on taking a full inspiration, he feels a slight catch in his side. Temperature 98.8 deg.; pulse 78.

"15th. Since last report, patient has been progressing favourably; his appetite is good and strength returning.

"20th. Discharged convalescent."

The cases which I have given have been selected with the view of illustrating the treatment of tropical hepatitis and congestion of the liver, in which the sensible and characteristic action of the medicine is most marked; but the same principles and method of treatment are applicable in cases of jaundice, depending on hepatic congestion with retention of bile, and in certain functional derangements—often ascribed to "torpor of the liver"—attended by lithæmia (Murchison), associated with congestion of the liver, want of sleep, and depression of spirits. In such cases, I have known a few twenty-grain doses of the salt remove the symptoms of disordered liver, restore sleep, and revive the drooping spirits, after the complete failure of other remedies.

We search in vain in medical literature for any mention of the symptoms, characteristic and special, induced by the ammonium chloride in

hyperæmia of the liver. The brilliant results following its use in congestion of the liver and tropical hepatitis could scarcely have been inferred from what has been said of its physiological properties. In one work, it is described as a general stimulant; in another, as a sedative to the heart's action; in a third, as a diaphoretic; and, in a fourth, it is noted as a laxative. From a consideration of the above circumstances, coupled with the fact that, in numerous instances in which I have used it, either as an experiment in health, or as a remedy or experiment in diseases other than liver congestion, in which it has either been without sensible effects, or, if any, these have been but slight and not characteristic, I am led to the conclusion that the medicine has not only a specific elective action, but that, its characteristic and sensible action being manifested in any given obscure case, may be considered as *diagnostic* of hepatic disease.

In the foregoing observations, I have restricted my remarks to the use of chloride of ammonium in hepatic disease, as met with in India and other tropical climates; but congestions of the liver and functional derangements are of more frequent occurrence in this country than is generally imagined. "A high temperature" (says Dr. Murchison in his classical and scientific Croonian Lectures) "favours certain functional derangements of the liver, and particularly those relating to sanguification and disintegration of albumen. Functional derangements, as well as congestion and inflammation of the liver, are more apt to occur in tropical than in temperate climates; and, in our own country, the liver more often becomes disordered in summer and autumn than in winter." In the treatment of functional derangements of the liver, Dr. Murchison says (*Clinical Lectures on Diseases of the Liver*, second edition, 1877, page 624): "The chloride of ammonium holds a pre-eminent place" among remedies of its class, and he has found it of "great service in the functional derangement of the liver attended by lithæmia"—a statement which again reminds us that "there is not a single fact observed or a single disease investigated on the banks of the Ganges or the Mississippi that does not bring its quota of utility to the practice of medicine in our own country."

RUPTURE OF THE SPLEEN DUE TO MUSCULAR ACTION.

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THE case of spontaneous rupture of the spleen described in the BRITISH MEDICAL JOURNAL for May 4th, 1878, by Dr. Markham Skerritt, is of great interest from a medico-legal point of view, and its publication induces me to communicate two instances in which the organ was ruptured by muscular movement without the application of external violence to the structures protecting it.

It is, no doubt, well known that Mauritius is now a very malarious country, whatever it may have been formerly. Enlarged and diseased spleens are the rule rather than the exception in certain localities and among certain classes. Violent deaths due to rupture of a diseased spleen are consequently common, the violence varying from that sufficient to cause a broken rib to such as leaves, on the most careful inspection, no mark of violence, externally or internally, beyond the injury to the organ itself. I may here observe that the commonest indication of violence found is a small extravasation of blood in the muscular layer of the parietes.

CASE I.—On October 4th, 1873, an Indian woman, named Rujkalea, about thirty years of age, belonging to Branchamp estate, was carrying a large vessel of water on her head. She made a sudden movement to save the vessel from slipping, immediately fell down, and had to be carried fainting to her hut, where she died soon afterwards. The police had no suspicion of violence having been used. The occurrence was witnessed by a number of persons, and happened on the high road. On inspection, forty-eight hours after death, there was found a large quantity of blood in the abdominal cavity, which had escaped from three superficial tears of the spleen radiating from the hilus. The organ was very large and soft, with an extremely delicate capsule. There was no ecchymosis of muscles over the organ. The stomach contained part of a meal of rice.

CASE II.—On February 25th, 1877, an Indian woman, named Sunichuri, about thirty-seven years of age, paid a visit to her husband, who was an inmate of Providence Estate Coolie Hospital, suffering from ague and hypertrophy of the spleen. The latter was sitting on a bed, when, becoming angry at his wife asking him for money, he struck her on the face. In making a movement to get out of his way, she fell and shortly died. The man himself gave the alarm, and described what had happened to the police. On inspection, fifteen

hours after death, the body was found to be fat, and there was a small bruise under the left eye. The belly was somewhat prominent, but not hard. There was blood, both fluid and clotted, in the abdomen. The spleen had a long perpendicular rent on the inner side, extending from the hilus to the inferior border, where the rupture was the deepest. The organ was diseased; was of the consistence of thick cream; had a very delicate capsule, and weighed in its empty condition one pound and a half. No bruise could be found in the abdominal or chest-walls, nor on the skin of the chest or belly. A slight bruise was found beneath the skin of the left temple, but no corresponding mark on the skin itself.

I expressed an opinion, not forgetting Case No. 1, and taking all the evidence into consideration, that the spleen, in this instance, was ruptured by a sudden movement. The man was charged with a simple assault, and sentenced by the district magistrate to one month's imprisonment.

The second of these two cases is very similar, both in the circumstances under which it occurred and in the view taken of it by the legal authorities, to the celebrated Indian case which occasioned a collision between the executive government and the judges, and a reference to the Secretary of State.

Those interested in the subject of rupture of the spleen will find a large number of references in Dr. Norman Chevers's work on *Medical Jurisprudence in India*. He observes in a footnote: "Dr. J. W. Wilson suggests, with great reason, the probability that, however softened and congested it may be, the spleen never ruptures spontaneously, except under the action of muscular pressure, while the patient is turning or moving suddenly." Dr. Skeritt does not assign any reason for the anæmic condition which gave rise to the epistaxis and the passive hæmorrhage in the interior of the spleen, causing the bursting of its fibro-elastic tunic. The description of the case does not, perhaps, preclude the supposition that malarial poisoning may have been the cause. But the case would not on this account, I believe, be less unique. *Congestive apoplexy* (to use the phraseology employed in the official nomenclature of disease) of the spleen is common in chronic malarial poisoning, and predisposes a fragile spleen with a delicate capsule to rupture from slight causes. Dr. Skeritt's case, however, is the first instance of *sanguineous apoplexy*, either of a healthy or an unhealthy spleen, that has come to my notice. In the two cases related above, the cause of the rupture was probably the sudden concentration of the weight of the organ at the hilus or point of suspension, and the consequent giving way of the stretched and attenuated capsule. It is conceivable that such an accident might happen even in bed.

INTESTINAL OBSTRUCTION.

By EDWYN ANDREW, M.D., Shrewsbury.

IN the very able address of Mr. Jonathan Hutchinson on Obstruction of the Bowels, at the Bath meeting of the Association, he refers at some length to my case of malignant stricture of the colon.

From the brief time allowed to speakers, a mere outline of the case only was possible; but, judging from the purport of Mr. Hutchinson's remarks, this was evidently misleading, and requires further explanation. The patient, who generally treated himself, had been under my care occasionally during the previous two years for other affections (carbuncle, eczema, etc.), but had never referred to his bowels until the 1st of July last. On this date, he complained of pain and fulness over the cæcum, slight sickness, and diarrhoea, which he attributed to eating salmon. He said, on being questioned, that he had had one or two attacks before during the last three years, which were always relieved by a little aperient medicine; and that generally his bowels were quite regular, with solid motions.

On examination, there was found slight fulness over the cæcum, but little or no pain on pressure, no distension of the abdomen, and no abnormal symptoms, except coating of the tongue and loss of appetite. He was prescribed saline, with a little liquor bismuthi, prussic acid, and tincture of belladonna, and, should the pain return, to take pills of morphia and belladonna; to apply a fomentation with belladonna over the cæcum, and to be most careful in avoiding any indigestible food.

During the month of July, I saw him but seldom, as he said he was so much improved that he passed solid stools, which he did not permit me to see, in spite of my urgent request; but there was still slight cæcal pain and loss of appetite.

On July 28th, he called at my house with more cæcal pain, and vomited during his stay about three pints of almost fecal matter. He was sent to bed, and ordered to take pills of opium and bella-

donna, and effervescent saline, with hot fomentations. Several large gruel enemata, the first containing turpentine and croton-oil, were administered; soda-water, ice and milk, and, if exhausted, some spirits or wine, were ordered to be taken.

Under this treatment, although there was no action of the bowels, the pain and sickness gradually abated; but the abdomen slowly became distended from below upwards. The patient remained quite conscious, and cheerful and chatty to the last. The pulse was generally regular, and about 84; temperature normal; and good quantity of urine. Fæcal vomiting returned on the last day, and death was apparently the result of exhaustion. The diagnosis made was a stricture or impaction in the cæcum.

The *post mortem* examination was made a few hours after death, while the body was quite warm. The stricture was found just above the cæcum, a little higher than I had anticipated. The rest of the colon was quite empty, and the small intestines greatly distended, but not even congested, except near the cæcum, and containing a dirty fæcal-looking fluid (without any hardened masses), similar to what the patient had vomited, which fluid could not be forced on, even with much pressure, into the ascending colon on the other side of the stricture. The other structures of the abdomen appeared quite healthy.

Mr. Hutchinson, from an examination of the gut after slight decomposition had taken place, considered that the stricture was not very tight during life; that a hard mass of fæces had probably obstructed it; and that laxatives, by liquefying the fæces, would be better treatment than opiates.

With all deference, I cannot coincide in this opinion; for, as stated above, the contraction was sufficiently great a few hours after death to prevent fluid from passing, with considerable pressure. The ascending colon was entirely empty, and, on washing out the gut, no masses, at least of any size, were observed.

Opium also seemed to me here specially indicated to allay spasm of the muscular fibre of the bowel, and to give rest to that portion of the bowel where there was threatening perforation. My only doubt is whether I should have pushed it to a greater extent than to render the patient temporarily comfortable, and refused the effervescent saline, which he particularly begged for, and which may have tended to the fatal vomiting.

To sum up, whilst cordially acknowledging the very great value of the memoranda of treatment laid down by Mr. Hutchinson (in the JOURNAL of August 1st), still, speaking as a general practitioner, with one's disadvantages compared with a consulting hospital surgeon, and taking into consideration the surroundings and prejudices of patients, and the time at one's disposal, the treatment, I think, in the generality of cases, may be much more simplified. My own plan has been to make a probable diagnosis of the seat of obstruction, whether in the large or small intestine, from the history, sudden or gradual production, amount of pain, absence or frequency of vomiting, amount of urine, increase of pulse or temperature, and abdominal physical signs;—in acute cases, to avoid entirely aperients, and to endeavour to obtain physiological rest by pills of opium combined with belladonna; the more pain, the greater proportion of opium; the less, the more belladonna; and these continued, no matter the amount, until the constitutional effects are produced;—in chronic cases, to try first aperients, such as a pill of calomel, opium, and ipecacuanha at night, followed by a large dose of castor-oil early in the morning; this failing, two drops of croton-oil; these drops not producing relief are generally a test, by causing uneasiness and often vomiting, and show that further aperients must be discarded, and recourse had to opium and belladonna. In both cases, I use occasionally large enemata with O'Beirne's tube, if possible; if vomiting, frequent small nutritive enemata are given; if not, ice and milk by mouth; and the abdomen is gently kneaded with an oiled hand along the course of the colon.

The conjunction of opium and belladonna seems to me most happy. The latter seems to prevent the constipating effect of the former, and gives, in a large proportion of cases, rest and final strength to the bowel to expel its contents, even without aperients, when the condition of the bowel is such that it can be relieved without operation.

These drugs have generally been given in the form of coated pills by mouth, occasionally by hypodermic injection, the only objection to which is inconvenience and frequently intense vomiting; rarely by rectum, as it is often objected to by country patients, and, in my experience, this mode is less effective.

The susceptibility of patients with regard to belladonna so varies, and the extract is of such uncertain strength, that the dose required can only be judged of by the effects produced; and this explains the large doses of one practitioner compared with the small doses of another. In some cases, when under the influence of opium and belladonna,