tions of themselves have liberated the organ from its unnatural situation.

Mr. Spencer Wells "had upwards of twenty cases of childbirth noted after his ovariectomy cases, and in none had uterine adhesions led to any unusual difficulty". Such, however, he admitted, might obtain as a direct effect; "for Sir J. Simpson", he stated, "had recorded a case where the pedicle of an adherent fibroid outgrowth had been ruptured by the uterine contractions".

Dr. Holman "thought it was a matter of clinical experience that, in cases where there had been peritonitis and pelvic cellulitis, there was increased tendency to *post partum* hæmorrhage. All practitioners must have met with many cases in which the uterus did not contract and expel the hand, and in which the hand had to be left in the uterus for some time after the separation of the placenta. In such cases, if there were this atonic inert condition of the uterus, it was quite possible that adhesions might assist the inertia of the organ and aid in the production of the hæmorrhage; and that, if the adhesions were so strong, they would not be broken down until the uterus was pressed down by the hand externally."

Dr. Cleveland "could not conceive how adhesions formed during pregnancy could be of such strength and firmness as not to be separated when the uterus contracted after the birth of the child. Further evidence was, he thought, required before adhesions could be regarded as an efficient cause of retained placenta or *post partum* hæmorrhage."

Such evidence I have sought to adduce by the recital of this, the only case which has as yet come under my notice of adhesions of the gravid uterus as a cause of *post partum* hæmorrhage.

IRIDECTOMY VERSUS SÄMISCH'S OPERATION IN HYPOPYON ULCER OF THE CORNEA.*

By R. S. HUDSON, M.D., Redruth.

IN the early part of 1871, my attention was directed to a paper in the *Royal London Ophthalmic Hospital Reports*, by Pagenstecher of Wiesbaden, which highly praised Sämisch's operation for certain indolent ulcers of the cornea. It happened that at that time I had seen two cases, which, in spite of the orthodox treatment by tonics, such as quinine, instillation of atropine, fomentations, and pressure bandages, had terminated unfavourably—one in staphyloma, the other in rupture of the eyeball, with subsequent atrophy—and I resolved to give the operation a fair trial on the first opportunity. We had not long to wait, inasmuch as the district in which I practise furnishes a considerable number of the traumatic forms of the indolent hypopyon ulcer. Many of our miners are pale and anæmic from their underground occupation: the air which they inhale while at work is highly carbonised by candle or powder smoke; ventilation at certain stages is impracticable; and those of low vitality are liable to ulceration of the cornea, when the cause has been so trivial as the imbedding of a piece of tinstone, or granite, or quartz, in the anterior epithelial layer. Sometimes the injury is more severe, and I have known the foreign body to enter the true corneal tissue, and even project into the anterior chamber; but this is more likely to occur when the violence arises from blasting operations, rather than the more common cause, viz., the use of the "pick". The blacksmith at the mine is usually visited when the man comes to surface, and probably the larger proportion never consult a surgeon. In some, it may be that the remedy is worse than the original injury; for, in obstinate cases, we find that the cornea has been abraded for a considerable distance around the offending body. It is clear, at any rate, that miners are peculiarly prone to injuries of the cornea; and a few of these, after the lapse of a week or so, present a greyish ragged ulcer in the seat of the injury, with swollen edges and surrounding opacity. In some cases, there is not much pain; in others, ciliary neuralgia of a severe character. In a large number, there is hypopyon; and, if the progress of the ulcer be not arrested, it generally ends in rupture, with protrusion of the iris, staphyloma, or atrophy. It is most intractable to treatment, and is frequently rapid in its destructive course. Sämisch has called it the "ulcus serpens" or "creeping ulcer"; but this name more accurately describes an ulcer of similar character and tendencies, which occurs in aged decrepid people, but without any definite history of injury. His operation is now well known, and needs no description on my part. Regarding the benefits of the operation, I can speak with confidence; very seldom is an anæsthetic required, and then only with very nervous or excitable patients. In itself, it is not very painful; and all these cases with severe

ciliary neuralgia obtain relief after twenty minutes or half an hour—just time to allow of the smarting caused by speculum and instruments to subside. I have had eighteen cases in which I have performed the operation; some I have lost sight of owing to death or emigration, others I meet with occasionally; in only one has the sequela of staphyloma occurred, against which Mr. Brudenell Carter warns us, and in this case I could not expect any other result, owing to the meddlesome curiosity of the man's wife. No surgical operation offers more brilliant results than iridectomy in certain ulcers of the cornea, such as the phlyctenular on the point of bursting, when pain and inflammation cease as if by magic. We are now agreed as to the superiority of iridectomy over every other plan for reducing intra-ocular tension; but I hesitate to employ it in the "hypopyon ulcer", inasmuch as it is a much more grave operation than the corneal incision of Sämisch, and I think it good surgery to choose the less violent of any two methods which are represented as equally effective. Against the possible risk of a "weak cicatrix", after Sämisch's incision, you must weigh the following considerations which an iridectomy involves:

1. More pain, rendering an anæsthetic more desirable;
2. Risk of injuring the lens, if the patient be unruly;
3. Risk of secondary iritis or iridocyclitis; the inflamed irides of old decrepid people being soft and rotten, portions may (even when great care is taken) be left to mix with the lymphoid pus in the anterior chamber.

I have written the above notes, giving my experience in this common but neglected disease of the eye, with the view of learning the experience of gentlemen present at the section. I am not wedded to Sämisch's operation; and if any surgeon, who has opportunities for watching his cases year after year, confirms the dread of staphyloma and enucleation of the eyeball, already referred to, I should consider it my duty to return to iridectomy in such cases, and abandon the corneal incision through the base of the ulcer, with which Sämisch's name is so honourably connected.

CHLORIDE OF AMMONIUM IN THE TREATMENT OF HEPATIC DISEASE.*

By WILLIAM STEWART, M.D.,
Surgeon-Major, Army Medical Department.

IN 1869, when stationed with my battalion in Rangoon, British Burmah, I first made known the value of chloride of ammonium in the treatment of hepatic congestion and tropical hepatitis. In a pamphlet published in 1870,† I brought the subject prominently to the notice of the profession in India; and in subsequent papers in the *Madras Monthly Journal of Medical Science* and the *Indian Medical Gazette*, I gave the result of further clinical observation and experience, and ventured on an explanation of the general and special action of the medicine on the congested or inflamed liver. Since then, the subject has received the attention of a number of careful and skilled observers, and at length the chloride of ammonium, having "obtained a great and well deserved reputation in India and other tropical countries, for the treatment of hepatic congestion, has been found to be of great utility in this country as well as in India" (Murchison, *Clinical Lectures on Diseases of the Liver*, second edition, London, 1877).

But although the power of chloride of ammonium to subdue hepatic congestion and bring about healthy action in the inflamed or functionally disordered liver is now fully recognised in India, as well as by some among us who have made the diseases of the tropics a special study, I fear its influence is still inadequately realised by the general profession in this country. Under these circumstances, with your permission, I will give a short account of the remarkable train of effects following the ingestion of the medicine in cases of hepatic congestion, as met with in India and other tropical climates, with a few cases in illustration, in which the characteristic and special symptoms produced by the drug have been recorded.

In active congestion of the liver, the special and characteristic action of the medicine will be found to be more marked than in cases of chronic hepatitis, for reasons which will be apparent from a consideration of its *modus operandi*.‡ The dose necessary for its full therapeutic effect is twenty grains, and the only condition which contraindicates its use is the existence of a dry and hot skin in cases of hepatitis. Under such circumstances, its use should not be commenced till the skin is rendered moist by the administration of some simple diaphoretic

* Read before the South Wales and Monmouthshire Branch.

† *Chloride of Ammonium a Specific Therapeutic Agent in the Treatment of Hepatitis and Abscess of the Liver*. Rangoon: 1870.

‡ For an explanation of its therapeutic action, see my paper in *Madras Monthly Journal of Medical Science* for March 1872.

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Bath, August 1878.

mixture in repeated small doses, say two drachms of liquor ammoniæ acetatis in each dose, every half hour. In congestion of the liver (or acute hepatitis, when the skin has been made moist by the above means), the chloride should be at once commenced in twenty-grain doses twice or thrice daily, noting carefully its effects, which are striking and remarkably regular in the order of their occurrence.

As a general rule, about fifteen minutes after taking the medicine, the patient experiences a sensation of warmth in the epigastrium, which by-and-by extends, pervading the abdomen, and gradually becomes diffused over the entire cutaneous surface. The nervous system is at the same time exhilarated sympathetically and also through the circulation, for the patient now feels "light-headed" (as he generally expresses it), and at times drowsy. The acute pain previously experienced in the right hypochondrium and along the margins of the lower right ribs, extending, as the case may be, forward across the epigastrium or backward to the lumbar region, is either entirely removed or, in its stead, pain is sometimes referred to a point higher up and towards the base of the axillary region, where before none was complained of. At this stage of the operation of the remedy, the patient often falls asleep, relieved of all his distressing symptoms. After the lapse of another quarter of an hour, a free and equable perspiration takes place over the entire surface, which lasts for a period varying from one to two hours. In the meantime, the pain, which had shifted from the lower margins of the inferior ribs of the right side, will again manifest itself at or near its original position, or may be referred to one totally different, as the lumbar region or even the right hip. With the next dose, similar effects will be observed to take place with like regularity and certainty, and with each succeeding one the interval of relief from pyrexia (in hepatitis), and pain referred to the part affected, as well as from sympathetic pains of the shoulder, arm, etc. (which latter are at times distressing) will gradually become longer, till at length, in favourable cases, the relief becomes complete and constant. After several doses of the medicine, the urine is much increased in quantity (particularly in the cold season), is limpid, and passed without uneasiness. The increase is chiefly at night, causing the patient to awake suddenly, perhaps three or four times, for the purpose of micturition. After a few days, the appetite is much improved and the patient craves for more food, which may be given, provided it be light, nutritive, and easily digested; but solid food should on no account be permitted, as its ingestion would in all probability provoke a recurrence of all the acute symptoms. The above are the more obvious symptoms experienced by the patient after the administration of the medicine, some of which, as the diaphoresis, diuresis, etc., being objective, are easily ascertained by the physician. But there are other symptoms produced by the drug in hepatic disease which are peculiarly and directly referable to the liver and related parts; and lest these should be wrongly interpreted by the physician—as I have known them to be by the patient himself—as evidences of the medicine disagreeing so as to contraindicate its use, a short account of them becomes necessary.

The symptoms now to be described occur shortly after taking the chloride (in five minutes to half an hour), and are referable either to the liver or related parts. They are variously described by different patients; a circumstance not remarkable when we consider how different may be the description of material, form, and colour, by different individuals concerning one and the same object. Sometimes a "shock" is felt, or as if "something gave way" in the side; at other times, a succession of shocks is experienced in the hepatic region, accompanied or not by a "pricking sensation" ("pins and needles"); or the action is described as that of "a pulling" from one hypochondrium to the other, or from the margin of the right costal arch upwards and backwards, as if through the liver; or "a clawing", "working", or "gnawing sensation" is spoken of as felt by the patient. When a single sharp shock is experienced in a debilitated, nervous, and susceptible subject, it is generally severe, and I have known the patient to cry out in consequence, frightening the other patients in the ward, and being himself alarmed. Immediately afterwards, the severe hepatic pain vanished, and never returned with its original severity; and with each succeeding dose, a sensation of "pulling" only was felt in the hepatic region, till at length all sensible action ceased, the case being one of simple enlargement of the liver.

With the local actions excited in the liver and related parts (through reflex nervous action), when a full dose of the medicine has been taken, motor impulses are similarly communicated to the muscles of the intestinal canal, causing its peristaltic action to become more rapid and energetic, as evidenced by the twisting and other movements experienced in the situation of the duodenum, or all over the abdomen, and which at times are more sensibly felt in particular parts, in the situation of the umbilicus or in the inguinal region. Simultaneously with, or closely following, the above phenomena, the abdominal muscles

may be thrown into tonic contractions, which are perceptible at times to both sight and touch, and pulsatile movements are felt, and are sometimes visible, along the margins of the right inferior ribs. I have, in the paper above referred to, shown that all these phenomena are highly purposive, contributing, with other vital actions and processes brought about by the action of the medicine, to diminish portal congestion, restore the diseased liver to a healthy state, and afford relief to the entire system.

It need not occasion surprise if, in the treatment of a case, as of hepatitis, accompanied by great anxiety, pain and tenderness in the hepatic region, and general pyrexia, the patient should fail to inform the medical attendant of the special symptoms produced by the medicine, unless specially requested so to do. In instances in which, as it turned out afterwards, the special symptoms were most striking and singular, the patients failed to give a spontaneous account of them. In these instances, they appear to be wholly absorbed in their sufferings; and, although aware of what takes place after the administration of the medicine, they are incapable of distinguishing between the effects of the latter and some new phase of the disease, with which they doubtless sometimes confound them. But, tell such a patient to observe the effects of the medicine, from the moment he swallows the dose till the cessation of all sensible action, so that you may interrogate him at the next visit as to the symptoms experienced; and the regularity and certainty of its action, as well as the varied and characteristic symptoms induced, and the relief afforded will be sufficiently manifested.

CASE I. Congestion of the Liver, illustrating some of the Special Symptoms produced by the Chloride of Ammonium in Hyperæmia of the Liver.—Private W. S., a stout well-made man, of plethoric habit, was admitted to hospital on Sept. 12th, 1871, with febricula, the result of drinking to excess for some days previously. He complained of a severe frontal headache, and his face was flushed.

Diaphoretic mixture was prescribed, and on the 16th he was free from fever, but still complained of headache. He did not complain of hepatic symptoms, as soldiers seldom do until seriously ill (or unless specially questioned on the subject); but, according to custom, I made an examination of the hepatic region, and interrogated him as to the symptoms of hepatic derangement, which I suspected. He stated that, for the past eight or nine months, he had suffered from a dull heavy pain in the right side (hypochondrium), aggravated by lying on the right side; he could not lie on the left side, owing to a sensation of weight and dragging when in that position; latterly, headache, loss of appetite, bitter taste in the mouth, and despondency, accompanied the above symptoms, and the pain of the side was aggravated by wearing his belts.

There were fulness of the right side in the hepatic region, and some tenderness on pressure beneath the margins of the false ribs. The right lobe was enlarged upwards; there were swelling and tenderness in the epigastrium, where there was increased area of hepatic dulness. There being no fever and the skin acting properly, he was ordered twenty grains of chloride of ammonium, thrice daily, and was desired to note its effects from the moment of swallowing the dose, so as to inform me of the same at the next visit. Beef-tea diet was ordered.

September 17th. He stated that, about ten or twelve minutes after taking the first dose of the medicine, a sensation of pricking ("pins and needles") and "pulling" was experienced beneath the tenth rib of the right side (the point, as shown by the patient, was a little to the inner side of a line let fall from the right nipple); the "pulling" was towards the spine. At the same time, he experienced the sensation of rapid shocks, proceeding from a point where the pulling was felt to a point as high as the seventh rib. The patient believed these shocks passed through the liver. The medicine also produced general heat of surface and perspiration in the usual manner. The patient now felt much lighter and easier; the headache was removed, and he was able to turn on his left side without uneasiness or sense of dragging. After the second dose, he felt a "pricking and tingling" in the part where the pulling was felt after the first dose; from this it extended all over the left side of the abdomen, but was more acute on the right side; it lasted a few seconds, when a perspiration broke out all over him, and he says he never sweated so much in his life before; he perspired from "head to feet", and after the perspiration he felt light, and a gentle heat remained in the right hypochondrium and in the right side of the abdomen for the rest of the evening. The urine was not diminished. He was now entirely free from uneasiness and tenderness in the hepatic region, and the swelling in the epigastrium had subsided. Chloride of ammonium was given, in fifteen-grain doses, thrice daily.

September 18th. There was no enlargement of the liver; no pain or tenderness. He was able to lie on either side, for any length of time, without uneasiness; his appetite was much improved; his headache was gone. He was discharged from hospital fit for duty, but was ordered to take the medicine in five-grain doses a few days longer.

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.

By R. SIDNEY STONE, M.D., L.R.C.P.,
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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