ON
THE TREATMENT
OF
INJURIES
RECEIVED IN DISSECTION

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INJURIES occasioned by dissection are of so frequent occurrence, and present local and constitutional symptoms of so severe and fatal a character, that any attempt to illustrate their treatment will, I presume, not be unworthy the attention of this Society.

Three opinions have prevailed in the profession regarding the nature of the symptoms resulting from these injuries: one, that a peculiar virus is introduced into the system, which so influences the nervous and vascular functions, as to occasion the alarming symptoms: another, that the latter depend on the nature of the part injured, as in the case of puncture of the sheath of a tendon, &c.; and a third, that impaired general health preceding the accident is the cause of the symptoms.

We may admit constitutional predisposition in all cases: but it appears to me that the pheno-

mena can only be satisfactorily accounted for on the first supposition, that of the introduction of an animal poison. For we find the most alarming and rapidly fatal cases to occur where there has been but a slight abrasion or scratch, as well as where a deeper wound has been inflicted by the point of the scissors, the hook, or the scalpel, so as to render questionable the probability of wounding the sheath of a tendon. Further, many cases are recorded in which no abrasion, scratch, incision, or puncture was noticed, or any evidence of such injury found on the most minute inspection of the part; consequently some deleterious poison must have been absorbed by the skin. I shall produce remarkable instances of this mode of receiving the injury. It is also a curious fact, that in most of the cases recorded by Dr. Duncan, Dr. Colles, Mr. Travers and others, and where the symptoms were the most severe, and the result fatal, the wound was generally no larger than a puncture by a needle, or a slight abrasion.

It would appear that in dissection wounds, the constitutional symptoms and the local affection vary considerably both in intensity and extent. In some individuals the wound itself only inflames; in some the absorbents also become inflamed; and in others an abscess may form in the axilla without further mischief. These are the simple cases; but there are others of a more formidable character,—cases where, in a few hours, without the local injury being of any extent or severity, indeed hardly per-

ceptible, the constitutional symptoms are of so appalling a nature, that the vital powers are at once overwhelmed, and almost immediate death is threatened. In other cases, again, diffuse cellular inflammation occurs in the hand, the arm, the axilla, the side, or some other part of the body, giving rise to vast collections of pus and sloughing of the cellular tegument, and thus overpowering the constitution. Absorption of animal matter may also be attended by the appearance of vesicles containing fluid on various parts of the body. Such cases are related by Dr. Duncan*, Dr. Colles†, and others. It may produce also mortification of the injured part, as in Dr. Pett's case‡; irritative fever, eruptions, diarrhoea and general ill health.

Such then being the various forms in which they affect different individuals, there consequently has been considerable variety, and indeed contrariety, both in the local and constitutional treatment of injuries of this description; and the principal object I have in view in the following pages, is to relate several severe cases which have fallen under my observation, and which I believe tend to illustrate the treatment of the injured part, as well as the formidable and appalling constitutional symptoms which too frequently supervene.

* Medico-Chirurgical Transactions of Edinburgh, Vol. I.

† Dublin Hospital Reports, Vol. III.

‡ Travers on Constitutional Irritation.

CASE I.

On Sunday, 2d of March, 1833, at eight o'clock in the morning, I received a note from my friend Dr. Sims, informing me that the absorbents of his right fore-finger and fore-arm were inflamed, in consequence, as he supposed, of his having dissected a brain on the previous day. I immediately went to his house, and we both very minutely examined the finger. There was an elevated spot on the inner surface of the second phalanx resembling the bite of a gnat, but we could not discover in any part of it, not even by a magnifying glass, the slightest trace of a puncture. The finger was extremely painful, and considerably swollen and inflamed. The inflammation of the absorbents extended in two or three distinct lines along the inner side of the fore-arm nearly up to the ulnar side of the elbow joint. On the night before, Dr. S. went to bed in his usual health. At four o'clock in the morning he was awoken by the pain in his finger, at which time he got up, and took a five grain dose of calomel. The pain and inflammation gradually got worse, and at eight o'clock the hand and fore-arm were in the state I have already described. The pulse was hard and at ninety, having that thrilling or jerking stroke which indicates constitutional disturbance; the tongue was coated by a dirty white fur, and the skin was somewhat hotter than natural. Eight leeches were applied to the finger; an evaporating lotion on the fore-arm, and a

senna draught taken. From the rapid progress of inflammation of the absorbents, the case put on an increasingly unfavourable aspect. Between twelve and one Dr. Lee called upon him; he was then much worse. The pain in the finger had greatly increased, and the inflammation of the absorbents had extended nearly to the axilla. The pulse was small and irregular, wavering from 120 to 130. There was a peculiar physically anxious expression of the countenance, accompanied with a nervous tremor over the whole frame; the voice was tremulous, and occasionally there was a transient incoherency, which, however, Dr. S. appeared conscious of, and could immediately command. In addition to these symptoms, he suffered a most excruciating pain in the lumbar region, which caused a constant involuntary tremor and twitching of the lower limbs, and more particularly on the right side. In fact, the whole nervous system appeared to have received so great a shock, that the symptoms almost resembled those produced by the bite of a venomous reptile.

As the symptoms were rapidly increasing in severity, we felt it our duty to call in the most able and experienced members of the profession. In the mean time, however, the nitrate of silver was rubbed on the surface of the arm along the course of the absorbents, about three inches in breadth and two in length, with a view of arresting the progress of inflammation. Sir Astley Cooper and Mr. Lawrence were sent for. We met Mr. L. between two and three o'clock in the afternoon, Sir Astley being

out of town. The symptoms were advanced in severity. There was a depression of the nervous system, as if a fatal change might soon take place. The tremors continued; the pulse was extremely small, faltering and irregular. There was a cold clammy perspiration on the skin. The pain and inflammation of the finger and fore-arm had greatly increased, and the pain in the back was almost insupportable, attended in a much greater degree with the convulsive twitchings of the lower limbs. In our consultation, the indications appeared to be, to lessen and oppose the further progress of inflammation, and to tranquillize the nervous system by the application of leeches, the employment of fomentations, keeping the patient under the influence of opium as long as the pain continued, and administering aperients until the bowels were freely relieved.

Twenty more leeches were immediately applied to the finger, and along the course of the inflamed absorbents; the hand and arm were afterwards well fomented. Twelve grains of the compound powder of ipecacuanha were taken, but immediately rejected. A fourth of a grain of the muriate of morphia in solution was therefore substituted.

8 o'clock, P.M. The bowels had acted three times without the repetition of the aperient. The muriate of morphia had produced some relief. The pain in the finger and back were somewhat lessened. The tremors and muscular twitchings were much the same. The finger still more swollen and tense, and

the palm of the hand and third phalanx swollen. Inflammation of the absorbents not reduced.

A deep longitudinal incision was made along the flexor tendon of the second phalanx, but no pus escaped. To continue the fomentation, and apply twenty more leeches to the hand and absorbents. Repeat the muriate of morphia as often as occasion may require.

March 3d, 4 o'clock, A.M. After the leeches had been applied and the morphia taken in the evening, Dr. S. dosed for an hour or two. When the muriate of morphia had been taken half an hour, all the symptoms abated. The pulse was reduced from 130 to 100, and beat with a firmer stroke. The tremors were lessened and the pain in the back and hand considerably diminished. The effect of the morphia had now ceased; the pain in the hand and particularly the finger was excessive. The pulse had increased to 140, and wavered irregularly. The tremors and twitchings of the limbs were still more violent than they had been, and the pain in the back excruciating. The depression of the nervous system was even greater than it ever had been; so much so that unless relief could be obtained, a speedy dissolution might have been expected. Half a grain of the muriate of morphia was immediately given. The effect was remarkable. In five minutes it began to act. The pain gradually diminished; the tremors and twitching of the limbs were alleviated. The frequency and unsteadiness of the pulse (being only between 90 and 100) diminished, and the patient fell

asleep. In two hours, however, all the symptoms began to return. The same dose of muriate of morphia was administered with the same good effect, and ordered to be repeated every second hour as long as the symptoms demanded it.

8 o'clock, A.M. The hand in much less pain ; the swelling had increased on the third phalanx and palm of the hand. The inflammation of the absorbents remained nearly the same ; if any thing, slightly abated ; and the tremor and pain in the back continued, but were alleviated. The pulse from 100 to 110, slightly irregular and faltering ; tongue coated with a brown fur.

Twenty leeches to be applied to the absorbents and most painful part of the hand ; to continue the morphia, the fomentations, and poultice. He was allowed fever diet, but he could take nothing but soda and seltzer water, and an occasional cup of tea. Sir Astley Cooper met us in consultation to-day.

8 o'clock, P.M. During the day all the symptoms were alleviated. The tremors were lessened ; the pain in the back was not so violent ; the pulse was more equal, averaging 100 ; and the inflammation of the absorbents was somewhat diminished, but the hand, as to pain, remained the same. The swelling of the third phalanx, however, was greater and more tense, but no pus had apparently formed. Ordered twenty leeches to the hand and absorbents ; to continue the fomentation and poultice, and still to be kept under the influence of the morphia.

March 4th, 8, A.M. Had passed a better night,

having slept two hours. The tremors and pain in the back much better. The third phalanx of the finger more swollen and tense, but the absorbents less inflamed. Signs of the formation of matter were not evident. Pulse 98; skin moist; tongue covered by a dirty white fur. Bowels had not acted. Ordered a mild aperient, and to continue the other treatment.

3 o'clock, P.M. Finger more painful, tense, and swollen; slight fluctuation on the third phalanx could be felt. A deep longitudinal incision was made into it, and pus made its escape with the blood. To foment, poultice, &c., as before.

8, P.M. Finger much relieved and the other symptoms diminished.

March 5th, 8, A.M. Slept at different times during the night. Better in all respects. An opening made into the swelling on the palm of the hand, and pus evacuated. To go on with the treatment.

In a day or two the several wounds in the finger were laid open together, so as to make one continuous incision from the point of the finger into the palm of the hand; this gave great relief by removing the excessive tension of the parts. Several other collections of matter formed in different parts of the palm, and were opened as soon as discovered.

From this time the constitutional symptoms gradually abated. The inflammation of the absorbents subsided, and the openings made into the finger and hand discharged pus freely. Poultices were constantly applied and the hand frequently fomented.

The morphia was gradually diminished in quantity. His diet was improved, and tonics administered. Dr. S. was at length able to go into the country, and after an illness of six weeks he was restored to his usual health. In defiance of all treatment the flexor tendons sloughed, and consequently, when the wounds were healed, the finger remained motionless and stiff.

The first circumstance which may be observed in this case is, that no wound took place, nor was there any abrasion of the cuticle. All that could be perceived was an elevated white spot like a gnat bite, but at no point of it could it be discovered, not even by a magnifying glass, that a puncture had been made. It would appear then, that absorption by the skin had taken place. The possibility of such an occurrence may perhaps be doubted, but there are incontrovertible proofs that it can happen, independently of this instance. In the case of Mr. Pierce, which I shall presently relate, no puncture could be found, and Dr. Duncan, in a paper of his on "Diffuse cellular Inflammation," in the Transactions of the Medico-Chirurgical Society of Edinburgh, mentions a similar instance, where Mr. Cumming, a medical practitioner, was present at the dissection of a young woman who died from puerperal fever. "He took no share in the dissection, excepting introducing a fresh thread into the needle which was employed in sewing the body, and was not aware of an *abrasion*, or of *having punctured himself in the act of threading*. About eight hours after he felt an un-

easy sensation in the middle finger of the left hand, at the inner side of the first flexure of the joint, where, on examination, there was discovered an angry pimple." Absorption took place, in consequence of which the patient died on the eleventh day.

In the case before us, the rapid progress the inflammation of the finger and absorbents made, is very striking. At four o'clock in the morning Dr. Sims first felt pain in the finger ; at eight o'clock it had swelled to nearly double its usual size, and the absorbents on the fore-arm were inflamed ; and at twelve the inflammation had extended to within two inches of the axilla. The frequent depletion necessary to be employed was attended by the most beneficial result. The severity of the inflammation was such that there is but little doubt in my mind, that had not a large number of leeches been repeatedly applied to the hand and arm, the glands in the axilla would have become inflamed, and abscess most probably have ensued.

The tremors, the tetanic convulsions, and the general shock to the nervous system occurring so soon after the signs of injury manifested themselves, would lead us to infer that the poison was received very quickly into the blood, and produced an almost immediate impression on the brain. As there was no apparent lesion of the finger, no other mode of explanation offers itself to my mind, excepting such an effect being produced through the agency of the circulation, and secondarily affecting the nervous system. This is not a solitary instance of the sym-

ptoms showing themselves so quickly after the puncture. In Moss's and Mr. Pierce's cases the same took place, and in most of those related by Dr. Duncan and others, the absorption was equally rapid. In other local injuries, even where the absorbents are inflamed, such symptoms do not occur. Hence, the irritation of what are termed a hangnail, and whitlow, or an irritable sore, which sometimes has this effect, is not attended by such constitutional consequences.

The powerful effect of the muriate of morphia in allaying the violence of the nervous symptoms, is remarkable. So soon did its action commence, that in five minutes after its exhibition its beneficial influence could be perceived. The frequency of the pulse gradually subsided, the tremors abated, and the pain in the back and hand were suspended. The equability of the action of the muriate of morphia is still more remarkable. As soon as a dose of it was taken, its influence was felt. The patient almost instantly dosed, and then slept. This state continued for a uniform period, (from two to three hours,) and unless the medicine was repeated all the symptoms returned.

Whether the application of the *argentum nitratum* on the surface of the skin above the inflamed absorbents had any effect in arresting the progress of inflammation, cannot for a certainty be ascertained. It is probable that it had, for in two other cases where I have used it in a similar manner, no abscess

in the axilla formed, and the glands did not become enlarged.

This case illustrates one important point, the necessity of making an opening as early as possible into a swelling where matter is suspected to be formed. Before the openings were made, the pain was excessive, and the irritative fever was kept up by the confinement of the pus and tension of the part. As soon, however, as the matter, although in so small a quantity, was let out, the pain was relieved, and the symptoms gradually abated. It was extremely difficult for some time to ascertain whether pus was formed or not in the third phalanx, and in the different points of the palm of the hand. Sir Astley Cooper and Mr. Lawrence were both a considerable time before they could satisfy themselves on the question. At length, however, an indistinct fluctuation could be felt; an incision was made into the part, and a small quantity of pus, deep seated, escaped with the blood.

Seeing the extreme difficulty of ascertaining whether pus is formed or not, in all cases of severe injury of this description, I would recommend that an opening should be made into the suspected part where there is considerable tension, with much irritative fever, accompanied with a depressed state of the nervous and vascular system. In the first place, should the swelling contain matter, instantaneous relief would be given by its being let out; secondly, should such not be the case, the extreme tension of the part

will be relieved, and also the distress occasioned by it ; and lastly, the blood-vessels of the part will be unloaded.

The next case which I shall relate, appears to me to illustrate in a remarkable manner the necessity and propriety of making early openings in swellings arising from this cause.

CASE II.

In Dec. 1831, Mr. Pierce, the late assistant apothecary of the St. Marylebone Infirmary, opened the body of a woman who died from puerperal fever. He was not aware at the time that he had wounded himself, nor was there any previous wound on the hand. When he rose on the following morning, he found himself very unwell, being languid and feverish, with pain in his head. In the evening of the same day, he complained of soreness and pain in the axilla, but he did not suspect, as there was no puncture perceptible nor inflammation of the absorbents, that his symptoms proceeded from absorption of animal virus. Leeches were applied to the axilla, and the bowels freely opened. Fomentations and poultices were employed, and fever medicine prescribed. The swelling increased and spread generally to the glands and cellular membrane surrounding them. Leeches were again applied, and the antiphlogistic treatment strictly adhered to, but from day to day the swelling increased. On the fourth day there appeared a general enlargement of the same side, extending from the third rib to about

three inches above the ilium. The part gradually became more tense, and there was a deep reddish blue appearance on the surface. No fluctuation could be discovered, and no prominence at any particular part of the enlargement. The constitutional symptoms now put on a very alarming character; the pulse was 140 and fluttering, there was extreme nervous depression, anxiety and distress of countenance, dry tongue, restlessness, low delirium, and dyspnœa.

At a consultation of several physicians and surgeons, it was concluded to delay opening the swelling, as there was not complete evidence of the presence of pus. The poultices were ordered to be continued, and wine and other remedies given to allay pain and support the system. During the night all the symptoms became worse, the pulse weaker, and it was evident the patient was fast sinking. In the morning, as the only remaining chance of saving life was to open the swelling on the side, Mr. Mayo made an incision nearly an inch deep and four in length into it. No pus escaped, but it bled very freely. From that moment, however, Mr. P. was relieved, and all the symptoms abated. In two days, a profuse discharge of matter made its way out from the bottom of the wound, and its quantity was so excessive that he became greatly reduced and exhausted. He was consequently allowed wine in considerable quantity, bark, meat, porter, strong beef-tea, and gravy, and, in short, nourishment of every description that the stomach could bear, and such as circumstances required.

The abscess in the side communicated with that of the axilla, beneath the pectoral muscles. The discharge continued gradually diminishing in quantity however, for nearly two months, during which time the treatment which I have just mentioned was employed, and at the end of three months Mr. P. recovered.

In this case the patient was reduced to the lowest state of exhaustion and distress, threatening dissolution, in consequence of the tension of the swelling of the side. Although no pus escaped at the time the opening was made, yet the tension of the part being relieved he immediately revived, and the nervous system in some measure recovered its vigour. It is highly probable, that had not this operation been performed at the time it was, he would have sunk. There are some other points of interest in this case. The absorbents were not inflamed, neither could any trace of a puncture be discovered. So little conscious was Mr. P. of having wounded himself, that he had not the least idea of the cause of his sufferings until some time afterwards, when he was told the reason. On being questioned, he then fancied he recollected that he had pricked one of his fingers, but which he could not say, while sewing up the body. Supposing he had punctured himself, there does not appear to have been inflammation of the absorbents, or of any part where a wound was received.

The following case is a good illustration of the advantages of the application of the *argentum nitratum*.

CASE III.

Joseph Moss, æt. 51, punctured the second phalanx of the forefinger on June 16th, 1835, while sewing up a body. On the same day, a few hours afterwards, extreme lassitude came on, with violent pain in the head, in the loins, the knees, and limbs, accompanied with rigor. The finger became extremely painful and swollen, which deprived him of sleep; on the following morning he was admitted into the Infirmary under my care. The finger was then extremely swollen and tense on each of the phalanges, but there was no fluctuation. The absorbents were inflamed in three distinct lines up to the elbow, with a general mottled red appearance between each. The constitutional symptoms were the same as yesterday. The fever was very high, and he felt great lassitude. Pulse 110; tongue covered with a white fur; extreme thirst.

Ten o'clock, A.M. Twelve leeches were applied immediately to the finger, a calomel pill and an active purgative were taken. The fomentation of the decoction of poppies was applied.

Two, P.M. Pulse 104, symptoms the same, if any thing rather lessened. The nitrate of silver was applied about four inches above the elbow, on the course and immediately above the inflamed absorbents, about two inches in breadth; twenty more leeches were applied to the finger, and along the inflamed absorbents; ordered to take an antimonial mixture every six hours, and to continue the fomentation.

Eleven, P.M. Bowels had acted several times : less pain in the finger and along the arm ; febrile symptoms the same. Ordered ten more leeches along the absorbents, a poultice to the finger ; to take half a grain of the muriate of morphine every six hours, and continue the antimonial mixture.

18th, 2 P.M. Has had a better night, sleeping an hour at a time. Pain much less ; absorbents less inflamed ; no enlargement of the glands ; finger less painful and less tense. Pulse 74, fever subsiding ; tongue less furred. Bowels had been opened once ; continue the morphia and antimonial. To go on with poultice and fomentation, and apply four leeches to the third phalanx.

19th. The finger less painful and reduced in size. A puncture was made into the first phalanx, and a serous fluid let out ; absorbents much less inflamed. Pulse 94, tongue cleaner, but there was a dryness in the throat. Had a bad night ; bowels had only acted once and slightly. Ordered a senna draught, a spirit lotion to the arm, and poultice to the finger ; to continue the medicine.

20th. Much better in all respects ; bowels had acted several times ; had a good night. The inflammation of the absorbents disappeared, and the finger much less swelled.

From this time all the symptoms abated, and the finger healed in a few days, without leaving stiffness, or any injury behind. He had however an attack of rheumatism afterwards in the joints, which he had

been occasionally subject to for years, and which yielded to the usual treatment.

It may be observed this case in some measure resembles that of Dr. Sims. The symptoms were by no means so severe, but in many points they approach each other, and the treatment also in each appeared to be equally beneficial. It appears also that in both cases there was no extension of inflammation of the absorbents, beyond the part where the *argentum nitratum* was applied.

CASE IV.

April 27, 1832. Thomas Brown, æt. 69, whose occupation was that of an attendant in a dissecting-room, punctured the forefinger of the left hand. In the evening the part became extremely painful and swollen, and he immediately applied for advice. Leeches were applied to the inflamed part, with fomentations and poultices. He also was ordered a dose of calomel, and a brisk aperient.

On the next morning the inflammation had extended along the absorbents in dusky red lines, up to the ulnar side of the elbow. The nitrate of silver was immediately applied above the inflamed part, on the skin, two or three inches in breadth. Leeches were again applied to the absorbents and finger, and repeated as often as required. The inflammation did not extend beyond the application of the caustic, which appeared to arrest its progress. Under this treatment the patient recovered in a few days.

CASE V.

In March 1835, Brown received another wound, and came under my care. States that in sewing up a body, he pricked his left thumb. He took no notice of it at the time, and even although he suffered great pain in it, accompanied with inflammation of the absorbents, rigor, headache and fever, &c., he did not apply for advice until four days afterwards.

March 31st. The absorbents of the left upper extremity were considerably inflamed, and the glands in the axilla enlarged, being about the size of a pigeon's egg. They were extremely tender, but no pus had formed, and the absorbents were of a deep dusky red colour. The constitutional symptoms at this time were, high fever, quick pulse, dry tongue, pain in the head, and delirium. Leeches were repeatedly applied to the absorbents and axilla, and fomentations and poultices were employed. An active aperient was administered, and antimonials, and the muriate of morphia, were prescribed. On the following day he was seized with excessive dyspnoea. Coma soon came on, and he sank.

This case points out the urgent necessity of early attention to an injury of this description. Three years before, this man suffered from the same affection, and by immediate treatment was restored. On this occasion, however, the inflammation had made

rapid and fatal progress before proper remedies could be employed.

On dissection, extensive pneumonia was found, which appeared to be the cause of death. Several of the axillary glands were inflamed and enlarged, and others had suppurated. The brain was congested with blood, a bony tumor was attached to the base of the mitral valve of the heart, and the liver was diseased.

CASE VI.

At the latter end of August, 1835, Dr. R. Lee having a slight abrasion on the inner side of the left forefinger, was examining a uterus that had been macerating a day or two in water. About twenty-four hours afterwards he felt some uneasiness about the second joint, with slight swelling. For several days this uneasiness continued, and pain was occasioned by bending the joint. A week after the accident the pain increased, with shooting pain along the arm. The constitution now became affected, and he complained of great debility, chilliness, and general irritation of the system. The pain rapidly increased in the finger, with swelling, redness, throbbing, and a sense of stricture around it. Leeches were repeatedly applied to the finger and palm of the hand, during the next three or four days, with warm fomentations and poultices. These remedies produced very great relief, but the part gave the sensation of matter being deeply seated. Mr. Copeland saw the finger,

and recommended the application of a splint, cold lotion, and absolute rest of the part. The finger has been gradually recovering up to this time; there is still some swelling, and slight pain on motion.

Of the Treatment.

When signs of absorption have taken place, which will be known by the pain and inflammation of the wound, and whether the absorbents are inflamed or not, it would be advisable to rub the *argentum nitratum* on the cuticle, across the course of the absorbents, about two inches in breadth, and sufficient to blacken the surface. If the absorbents are not inflamed, its application should take place on the forearm, as near as possible to the hand; but if they are already inflamed, it should be employed immediately above the point to which the inflammation has extended. The next step will be, to evacuate freely the contents of the bowels. The part around the wound will now probably begin to swell. It must be immediately reduced by leeches, and their application must be repeated at each accession of inflammation, or non-reduction of it. Soothing fomentations also must be employed, and poultices, &c., to the wound. Attention to the constitutional symptoms will now be of the utmost importance. If there be, according to the severity of the case, extreme pain in the wound, violent pain in the head, the back, in the lumbar region, rigor, tremor, tetanic convulsions, and extreme nervous depression,—these symptoms should be immediately combated as soon as they arise; and from the results of

the treatment adopted in Dr. Sims's and Moss's cases, under such circumstances, the muriate of morphia appears to allay them more than any other remedy. In these cases, and particularly in Dr. S.'s, the effect of this medicine was remarkable. Although he was suffering the most excruciating agony in the back and finger, with all the symptoms above mentioned, yet this remedy had an immediate effect in producing composure, and keeping down their violence. It appears advisable, therefore, to administer it in such doses, and with such frequency, as to keep the patient under the influence of its action.

After the first shock the system has received from the introduction of the poison, fever will supervene. This symptom will be, perhaps, best treated by sudorifics, and the usual means employed under such circumstances. A question may now arise, whether general bleeding should be employed or not? There may be individual cases, where the patient is of so plethoric a habit, or so inflammatory a tendency, that the abstraction of blood may be required; but, generally speaking, it appears to me that it would be better to avoid it. My reason for thinking so is, that in the first place the nervous system has already been depressed by the introduction of the poison—in the second, the fever which is present cannot be considered simply of an inflammatory nature, but rather of an irritative kind,—and in the third, that although the present symptoms may be violent, yet perhaps from the formation of abscesses, and the general reduction of the patient, he will afterwards

require as much of the restorative power as possible to recover his strength. On referring to the cases published by Dr. Duncan in the *Medico-Chirurgical Transactions of Edinburgh*, it will be seen that several of the patients suffering from injuries from dissection were bled. In many of these cases the patients died; they never appeared to rally after the bleeding.

The second stage of the treatment embraces the keeping down the inflammation of the absorbents, the prevention of inflammation of the glands in the axilla, and the treatment to be pursued when pus is suspected to have formed in any part.

Although it appears to me that general blood-letting is not advisable in most cases of injuries from absorption, (excepting under peculiar circumstances,) yet on the other hand I consider topical bleeding of the greatest consequence; indeed so important does it appear, that I feel persuaded that without its employment, when the inflammation of the hand and absorbents is very great, the patient has but little chance of recovery. Blood therefore should be abstracted by the repetition of leeches on the inflamed part, on any swelling arising from the wounds, along the course of the inflamed absorbents, and on the glands of the axilla, or any other part, where their employment may be required. The good effects of topical bleeding will be seen in Dr. Sims's, Moss's, Brown's and Dr. Lee's cases. In all these it was employed, and in not one of them was there formation of pus in the axilla or the side. The ad-

vantage of it in Dr. S.'s case is perhaps more marked than in any of the others. Here they were applied by twenty at a time, and so frequently, that not more than four or five hours elapsed between each application. The relief they gave was indescribable. We will suppose, however, that they had not been employed,—the consequences appear pretty evident,—abscesses might have formed in the axilla, the side, or along the course of the absorbents, unless, as is most probable, death had previously taken place.

It not unfrequently happens, that in defiance of all our endeavours to prevent it, pus will be formed in the axilla, the side, or some other part. It now becomes a question of great importance in what manner a swelling, where such formation is suspected, ought to be treated? At first it will perhaps be extremely difficult to ascertain whether matter is formed or not, and at the same time the patient may be suffering from the tension of the part the most distressing symptoms. There may be great pain,—depression, fluttering pulse,—delirium,—exhaustion, and general distress. Under these circumstances, whether pus is formed or not, the swelling ought to be opened; and as the chief object, if matter be not formed, is to relieve the tension of the part, the incision made should be of considerable length. It was upon this principle that Mr. Lawrence recommended free incisions in erysipelas, in his excellent and practical paper published on this subject in the Transactions of this Society.

The case of Mr. Pierce, is perhaps, as good an ex-

ample as can be produced to prove the efficacy of making an early opening into a swelling, where pus is suspected to have formed. Here the most alarming symptoms occurred, and even death was threatened from the distress the tension occasioned; as soon, however, as an incision was made into it, relief was obtained. Dr. Sims's case also is another example of the same: but, in addition to these, there are others mentioned by Dr. Duncan*, Dr. Colles†, and Mr. Travers‡, in which more benefit was derived from this plan of treatment than any other. Mr. Blyth had a swelling in the side, and suffered the most severe pain and distress from it. It was opened and he was relieved. Mr. Whitelaw was in the same situation; an abscess was opened in the axilla, and from that time he recovered. The same occurred in the case of Mr. W., communicated to Dr. Duncan by Dr. Molleson. A deep incision was made into the finger and another afterwards in the axilla from which pus escaped. Mr. A. B., also, was relieved immediately on an opening being made into the tumor, and a large quantity of pus let out. Before, the constitutional irritation was so great that the pulse ranged from 130 to 160. In two cases which Dr. Colles relates in the Dublin Hospital Reports, the same good effect resulted from this treatment. In the case of Mr. Hutchinson, an incision was made into an erysipelatous redness of large extent of

* Medico-Chirurgical Transactions of Edinburgh, Vol. I.

† Op. Cit.

‡ Op. Cit.

a doughy feel on the side. Although no pus was let out, yet the operation gave immediate relief. In the second, that of Mr. Egan, the result, when the pus was allowed to escape, was favourable, whilst his coadjutor, Professor Dease, where the abscess was not opened, died.

It is a remarkable fact, but in most of the cases related by Dr. Duncan, Dr. Colles, and others,—where a swelling or abscess took place without an opening having been made into it, the patients did not recover. The first case was that of Mr. Young. He died from pleuritis, but on dissection an abscess of vast extent, reaching from the axilla to the ilium, was discovered, containing purulent matter; and it would appear, from its contiguity with the pleura costalis, that it caused inflammation of that membrane, which spread to the pleura pulmonalis. The next cases are those of Mr. Hersey, Dr. Dewar, and Mr. Cumming. In these no openings were made into the swellings arising from the absorption, and each ended fatally. The case also of Professor Dease is an example of the same description. In all of these cases an abscess had formed, or there was swelling with tension in the arm, the axilla, or the side. No openings were made. On the contrary, in those cases where openings were made, the patients lived. The experience of Mr. Travers also confirms the necessity of the foregoing treatment. In those cases related by him where the tumefaction was treated by early incision the patients mostly recovered, whilst on

the contrary, where this practice was not pursued, the disease generally proved fatal*.

The following inference, therefore, may fairly be drawn :—that free incisions made into swellings arising from the absorption of animal poison are attended by the most beneficial results, and that, from the facts now brought forward, they ought to be made in the earliest stage of their formation.

The third stage of the treatment, when abscesses are discharging profusely, and the patient is reduced by the violence of the disease, consists in giving power and support to the constitution. Bark, wine, meat, porter, and nourishing diet of every description that the stomach can bear, and such as circumstances require, may be allowed. The abscesses and other symptoms may be treated according to the common principles of surgery.

During the progress of the disease symptoms may arise, such as inflammation of the lungs, &c., which I have not mentioned in this paper. These can only be judged of by the attendant at the time, and should be treated accordingly.

* Travers on Constitutional Irritation.