

## **Cases of poisoning with arsenic / by James M. Adams.**

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CASES OF POISONING WITH ARSENIC.

By JAMES M. ADAMS, SURGEON, Glasgow.

THE subject of poisoning is never devoid of interest to either the medical or the lay public, but the fearful prevalence of poisoning with arsenic, as shown by the returns of the Registrar-General, as also by the frequent public trials and newspaper accounts of such occurrences, gives to this form of poisoning an interest of a more absorbing character than to most other poisons.

From the fatal facility with which arsenic can be procured and administered, there is no lack of opportunity for observing its effects. It is yet, however, to be regretted, that so many examples of conflicting medical evidence are witnessed in public courts. The occasional record in our periodic literature, of cases which even do not possess features of peculiar interest, are then, I conceive, of use, by refreshing the memory, or by awakening attention, and so causing medical men to be at least familiar with the more prominent effects of this deadly agent. It is with this view that I select from my case-book a few instances, which I dare say will find parallel in the observation of most practitioners of any experience.

*Case—Jan. 3, 1840.*—Mary R——, æt. 24, reported to be of good moral character, and of temperate habits. About six weeks ago, her father died, leaving her the principal support to an aged and infirm mother. Her brother, a young man of dissipated habits, had repeatedly ill used her; and this morning he had beaten her and threatened another beating. She was heard to remark that she would put that out of his power, for that “sooner than live in such misery, she would poison herself.” No heed was paid to her threat, which was considered the hasty ex-



pression of the moment. She had, however, determined on self-destruction; for this evening, a few minutes before six o'clock P.M. she purchased 1d. worth (3vj) of arsenious acid, "for the purpose," she said, "of destroying rats." She seemed in good spirits, and joked with the shopman, from whom she made the purchase. She then went to the house of a neighbour, where she showed the paper of arsenic, and again spoke of her determination to poison herself. A few minutes afterwards, *i.e.* a quarter past six P.M., she mixed the poison in a little water, and succeeded in swallowing the whole of it unobserved. In about 15 minutes she became sick, and vomited freely. She then went to her own house, where she became rapidly worse with occasional vomiting. She at last acknowledged having taken the poison, and medical assistance was sent for. My brother, Dr A. Adams, and myself attended. We found our patient in bed; her features were cadaverous, sharpened, and expressive of great anxiety; her eyes prominent, bright red, and sparkling; surface of body cold and clammy; pulse quick, fluttering, and very feeble. These symptoms were accompanied by great prostration of strength, and she complained only of a sense of extreme faintness. There was no swelling of the abdomen, and she did not complain of pain when pressure was made over it. No vomiting had occurred for half an hour previous to our arrival. It was at this time a quarter before 10 o'clock P.M. Two large doses of sulphate of zinc were administered, with an interval of 5 or 6 minutes between each dose, but without exciting vomiting. She was then caused to swallow frequent draughts of milk, with magnesia suspended in it. Severe but ineffectual attempts at vomiting now occurred. About this time, she passed a small quantity of urine with much pain and difficulty, and shortly afterwards she was seized with involuntary diarrhœa. A little before 11 o'clock, we applied the stomach-pump, which, up to that time, we were unable to procure. On introducing the œsophagus tube, vomiting was excited, by means of which, and by the continued action of the stomach-pump, considerable quantities of the contents of the stomach were withdrawn. Very soon after, she was seized with excruciating pain in the epigastrium, and she repeatedly exclaimed, that her "inside was burning." She called incessantly for cold drinks, which were freely administered. Her pulse shortly became imperceptible, and the heart's action feeble, and ascertained with difficulty. At a quarter past 11 o'clock convulsions came on, accompanied with delirium; the pupils became dilated, and she sank rapidly, dying at half past 11 P.M. A period of  $5\frac{1}{4}$  hours occurred from the time she took the poison until her death.

Twelve hours after death, I made an examination of the body. It was plump and firm. Large livid discolorations were observed on the trunk and upper extremities. The alimentary canal, from the stomach to the sigmoid flexure of the colon, was much con-



tracted, and its serous surface was closely injected with bright arterial blood, giving it an inflamed appearance. The peritoneum *generally* had a peculiar, dry, and *waxy-like* aspect, very markedly different from its ordinary appearance. The stomach was filled with coagulated milk, having flakes of magnesia suspended. On removing its contents, the inner surface, especially towards the cardiac extremity, was found lined with a dark-red pulpy substance, composed apparently of extravasated blood, mixed with mucus. Several elevated patches, of a dark colour and fungoid appearance, were scattered over the inner surface, but were found principally towards the pylorus and in the duodenum. The greater portion of the inner surface of the stomach was corrugated into thick prominent rugæ, between which, and especially in the vicinity of the dark patches referred to, quantities of a yellowish powder were found closely adherent. The villous coat, together with the pulpy substance alluded to, was easily detached with the finger-nail, exposing scattered patches of extravasated blood; and the whole organ seemed thickened, and felt soft and gelatinous. Several parts of the intestines presented similar appearances upon a smaller scale. The bladder was firmly contracted, and its mucous lining streaked with red vessels. We were allowed to proceed no farther with the inspection.

The contents of the stomach, on applying the ordinary reagents were found to contain arsenic.

This case, I think, presents some interesting features. In the absence of a necroscopic examination, and from the mere detail of symptoms, I would have placed it under the class described by Dr Christison, where the patient is destroyed without any appreciable local lesion. But the *post-mortem* appearances make it evident that it belongs exclusively to neither the first nor second class of cases described by that writer. At first, the extreme exhaustion, faintness, fluttering action of the heart, and absence of epigastric tenderness, indicated that the poison was producing its fatal effects by its remote action, and independent of any local irritation or inflammation. But while the nervous prostration was most extreme, inflammatory symptoms supervened, the patient then becoming conscious of a burning sensation and desiring cold drinks. I can only attempt to account for the absence of epigastric tenderness at this stage, by supposing that the poison had narcotized, in a great measure, the general nervous system, rendering it incapable of evincing one of the most constant and characteristic symptoms of inflammatory lesion, viz. pain. A few cases, presenting the same anomaly have been recorded. It is also deserving of notice, that in the first stage of the symptoms, the powerful emetics employed had no effect in producing vomiting.

*Case—Dec. 2, 1841.*—I was requested this evening, by my



friend Mr S., a medical student, to inspect the body of a man who had died from taking arsenic. On inquiry, I learned that the subject of our examination, Peter M'Nab, aged 56 years, was a stone-mason, of intemperate habits, and a freethinker, and had frequently declared his disbelief of future punishments, &c. On the 23d of last month (November), he swallowed half an ounce of arsenious acid, which he had purchased on the usual pretext of poisoning rats. In about three-quarters of an hour thereafter, he became sick, and vomited freely. Profuse purging came on shortly after, and, together with the vomiting, affected him twice or thrice in the course of the same evening. For some days he kept within doors, but made no complaint. On the 26th of the month, he removed to another lodging, situated about a mile off, and walked the distance. On the 30th, he became suddenly and severely ill, and believing that the deadly effects of the poison had gone off, and that he was now enduring unnecessary suffering, he confessed having attempted his life in the manner narrated. Mr S., who lived in his immediate neighbourhood, was instantly applied to, and found him in the following condition:—He was quite collected, his breathing quick and anxious, his mouth dry and parched; tongue dry and of a dark-brown colour; pulse 65, and small. He had frequent dark watery stools. He complained of considerable epigastric tenderness, and had a constant desire for drinks, but could take no solid food.

Mr S. cupped him over the epigastrium, and administered mucilaginous drinks, from the effects of both of which the patient expressed himself as much relieved. In six hours afterwards, he became comatose—his extremities cold, and his pulse imperceptible. His pupils became contracted, accompanied with strabismus. His mouth became parched, his breathing laborious, and he was very restless. He sank rapidly, and died—an interval of nine days having elapsed from the time he took the poison.

Twenty hours after death, I examined the body in the presence of Mr S., and of my brother Dr A. Adams. It was firm and muscular, presenting discoloured patches, but not remarkably so. There was great emphysema of the lungs, particularly that of the right side, where there also existed some old adhesions of the pleura. The pericardium contained nearly five ounces of serum. The heart was enlarged, though not to a very marked degree. The stomach was dilated, and a slight but distinct contraction divided the pyloric from the cardiac extremity. The serous surface of stomach was congested with dark vessels, and the cardiac portion was quite black. A quantity of thick, brown, muddy-looking fluid was removed from the interior of the stomach, having flakes of coagulated mucus floating in it. At the cardiac extremity, and corresponding to the blackened portion already mentioned, the villous coat, in an extent of three or four inches, was also black, caused by extravasated blood lying beneath the membrane. The



duodenum had much the same appearance as the stomach. The mucous coat of the intestines was throughout very soft and pulpy, and peeled off readily with the finger-nail. The whole tract of the intestinal tube from the œsophagus downward was congested, and in several parts injected with bright-red vessels, both externally and internally. Considerable quantities of mucus were thrown out at different portions of intestine, but by far the greatest quantity was found in the rectum, which was also highly injected with red vessels. Yellowish particles, resembling fine sand, were found adherent to the mucous lining at various parts. The mucous membrane of the bladder was slightly streaked with red vessels.

Our inspection went no farther, as some relatives from the country were somewhat clamorously desiring our departure, so that they might remove the body.

This case differs in nowise from many other recorded examples of a lengthened interval ensuing from the taking of the poison until the subsequent death; and the common explanation seems to be equally available here. For as copious vomiting, together with purging, came on shortly after he had swallowed the poison, it is a fair inference that the greater portion of the deleterious ingredient had been then thrown off.

The two preceding cases are well-marked examples of the common forms of poisoning by arsenic. The case which follows shows a train of well-marked symptoms followed by recovery.

*Case—March 15, 1843.*—John Parker, æt. 42, by trade a silk-weaver, of intemperate habits and shattered constitution. Yesterday evening, at 8 o'clock P.M., he swallowed two drachms of arsenious acid, stirred up in water, stating to those near him that it was soda for the heartburn, and “as it would not mix with the water,” he used a considerable quantity of the latter to rinse out the bowl, from which he swallowed the poison. Shortly after, he became sick and faint, and in *two* hours afterwards he was tormented with a burning thirst, and eagerly desired cold water, which, however, at the time, could not be procured for him. At 12 P.M., severe vomiting and purging came on, and continued with little interval for three hours. He was then seized with convulsive tremors, “so that the bed shook under him,” and these were accompanied by sensations of cold and extreme faintness. As the morning advanced, he, under the impression that his end was approaching, confessed to his wife that he had taken poison. She immediately came for my assistance. When I saw him first, at 8 A.M., he was out of bed and sitting up. His countenance was pale and sallow, and bore a painful anxious expression. His pulse was 120 and feeble; pressure over the epigastrium gave pain. The surface of his body was cold and clammy. He complained only of sickness and inclination to vomit, with occasional tendency to



faint. He was very restless, and now and again paced across the apartment, "to shake off the faintness."

I gave him repeated draughts of lime-water, tepid water, with powdered charcoal, and carbonate of magnesia suspended, and of infusion of linseed. These produced copious vomiting, which I encouraged so long as I considered safe and necessary. At one P.M. his pulse was 96, and had increased in strength. He complained of tenderness across the abdomen, increased on pressure, and his respiration was short and gentle. Mucilaginous drinks were freely exhibited, and a large dose of the precipitated carbonate of iron, with a little aq. ammon. was also administered. At eight P.M., his pulse was 96, and the pain over the epigastrium had increased. A cantharides blister was applied over epigastrium.

*March 16.*—During the night and towards the morning, he has had several slight convulsions. His pupils are dilated, and the conjunctiva reddened, so as to appear inflamed. His pulse is 96, soft and feeble. There is no tenderness of abdomen, unless on pressure. Slight tormina and bowels constipated. Half an ounce of castor-oil given.

*March 17.*—Bowels have been opened. Was incoherent and slightly delirious yesterday evening, but during night had several hours of refreshing sleep. Tongue is furred, and red at tip. Pulse 90, and soft. Complains of pain above pubes.

*March 18.*—Complains of excessive debility, and occasionally experiences cramp of legs. For the first time, he expresses great remorse for his crime and its probable consequences.

*March 20.*—Has cough, with pain of throat, but no expectoration. Posterior part of mouth and pharynx is intensely red and seemingly excoriated; gums tender and swelled. A *vesicular* eruption has come out over greater part of right ear, and also of nose. Several of the vesicles have coalesced, forming large patches. They are all surrounded with an inflamed base. Complains of severe frontal headach. Abdomen is tympanitic, but there is no pain on pressure; bowels are constipated, and he feels as if they were "wrung together." The cramps of legs are occasionally recurring. To take inf. sennæ et mannæ.

*March 23.*—Pulse still quick; tongue covered with a white crust. Roof of mouth corrugated, and the folds of mucous membrane hard and white. Palate and pharynx still intensely red. Several of the vesicles on ear and face have become filled with pus. Experiences difficulty in swallowing—has frequent tendency to vomit. Suffers from pain in stomach shortly after taking food. Abdomen slightly tympanitic—slight tenderness over epigastrium on pressure. Bowels constipated. Complains greatly of the cramps of legs, which are increasing in frequency. Renewed blister; gave draught of senna and manna; and after bowels are opened, to have four powders, each containing two grains of calomel and half a grain of opium—one to be given every four hours.



27

Shortly after this date, he was so far recovered that I ceased to visit him. When sufficiently well to take out-door exercise, he found himself so much the object of observation and remark, that he removed from Glasgow altogether.

About six months afterwards, I accidentally met a member of his family, from whom I learned that he had lost flesh considerably; that his general health was far from being as good as formerly; and that he occasionally suffered from affections of the stomach.

Some points in the preceding narrative require illustration. I traced the druggist from whom the poison had been procured, and found the quantity to be as stated, *i. e.* ʒij, and also that the drug was genuine. It had been purchased under the usual pretext, *viz.* poisoning rats. One of his children saw him throw the paper, from which he had emptied the powder, among the cinders of the ash-pit. The paper was procured after a search, and I found particles of arsenious acid adherent. I regretted much that I was deprived of an opportunity of examining the vomited matter, which, together with the alvine evacuations, unfortunately were thrown away immediately after my first visit, the scanty furniture of the household requiring them to make use of the vessels which contained them.

About two hours before swallowing the poison, he took two cups of tea, a slice and a half of bread, and a piece of a herring, followed up an hour after with two glasses of whisky.

For several weeks previous to the attempt he made on his life, he had suffered much in mind from the profligate conduct of one of his daughters, and this had led him to engage farther in intemperate habits, in consequence of which he lost his employment. At same time, he was harassed for his rent; and under this combination of circumstances, he was "driven to the act." Among his fellow-workmen, he expressed atheistical opinions, and professed to believe neither in a heaven nor hell.

With regard to the treatment, little need be said. His shattered habit of body prevented me from employing depletory measures, which I otherwise would have had recourse to at several stages of the case. The dose of carb. Ferri. was given from my recollection of having seen it somewhere recommended in the absence of the hydrated sesquioxide, which I was unable to procure at the time.



Shortly after this time, he was taken to the hospital, and I found to my surprise, that he was suffering from a severe attack of the disease. When I was called to see him, he was in a state of great distress, and I found that he was suffering from a severe attack of the disease.

About six months afterwards, I accidentally met a member of his family, from whom I learned that he had been in the country for some time, and that his general health was far from being as good as he once was; and that he occasionally suffered from attacks of the disease.

Some points in the preceding narrative require illustration. I stated that the disease was first observed in the autumn of 1841, and that the patient was in a state of great distress, and I found that he was suffering from a severe attack of the disease. It is to be understood, that the patient was in a state of great distress, and I found that he was suffering from a severe attack of the disease. The patient was in a state of great distress, and I found that he was suffering from a severe attack of the disease.

About two hours before swallowing the poison, he had two cups of tea, a slice and a half of bread, and a piece of a pudding, followed up as usual with two glasses of whisky.

For several weeks previous to the attempt he made on his life, he had suffered much in mind from the protracted conduct of one of his daughters, and this had led him to engage further in the same habits in consequence of which he lost his employment. At some time he was engaged for his rent; and under this compulsion of circumstances, he was "driven to the wall." At one time, he was working, he expressed a liberal opinion, and professed to believe in a heaven not hell.

It is to be understood, that the patient, after the attempt, was in a state of great distress, and I found that he was suffering from a severe attack of the disease. The patient was in a state of great distress, and I found that he was suffering from a severe attack of the disease. The patient was in a state of great distress, and I found that he was suffering from a severe attack of the disease.