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CASE OF POISONING FROM CYANIDE OF POTASSIUM. DEATH. AUTOPSY. REMARKS UPON OTHER CASES, &c.

Read before the Boston Society for Medical Improvement, December 13th, 1869, by Dr. ALFRED L. HASKINS.

ABOUT 10½ o'clock Thursday evening, December 9th, 1869, I was hastily summoned to visit a man in Lagrange Street, who, while intoxicated, was supposed to have fallen down stairs and broken his neck, or to have been prostrated suddenly by some internal disease. Upon my arrival at the house I found him lying upon a lounge. The eyelids were partially closed. The eyes presented a glistening aspect. The pupils of both eyes were considerably and equally dilated. His mouth was open; within was found a large end of tobacco. Upon the right side of the forehead there was a slight abrasion of the skin. The extremities were cool. The limbs were easily flexed, and the mouth was closed without difficulty. Respiration had ceased, the pulse could not be felt, and the pulsations of the heart could not be heard.

The cold douche, artificial respiration and violent shaking of the body were employed, but all attempts to arouse him were fruitless. The following history was learned concerning him:—

He was a married man, aged 33 years, and generally in good health, but for years he had been addicted to the free use of alcoholic drinks. He was an artist in a photographic establishment. For two weeks he had not followed his occupation, but had been "on a spree." During the day of Thursday he had indulged very freely. At 6½, P.M., he ate a hearty supper. At about 8½, P.M., he went out, and in three-fourths of an hour returned so intoxicated that he could scarcely walk. He sat for a while in his room. His wife was reading, and paid but little attention to his movements. She observed, however, that he took a package from his vest pocket and, unfolding it, took

in his hand a white substance which she supposed to be confectionery, as he was frequently in the habit of bringing confectionery to her. He soon arose and informed his wife that he was going to the water-closet. In about twenty minutes she heard him ascending the stairs which lead to the basement. She heard him walk through the front entry and ascend a few of the front stairs. She noticed nothing peculiar in his step, but his breathing was panting. This did not particularly attract her attention, as she had frequently heard him pant in the same way while ascending stairs. When he was about half way up she heard a fall. From her room, which was on the second story, she ran down the stairs, but, there being no light in the hall, she could see nothing. On reaching the foot of the stairs, she found him lying upon the stairs with his head resting upon the hall floor. As no assistance was immediately available, four or five minutes elapsed before he could be carried to his room. Just as two gentlemen came to remove him he was heard to make a noise, as if attempting to vomit. No other sound was afterwards heard, nor any movement of the body observed.

To my question, whether any medicine had been taken, a negative answer was given. An investigation of the localities which he had last visited revealed the following:—Upon a table in the basement a goblet was found, in which were about six drachms of a transparent liquid. At the bottom of the goblet were four or five small, hard, white, irregularly shaped masses. As the substance which was dissolved in the liquid had been deposited upon the sides of the goblet, the quantity of fluid which the goblet had contained could be distinctly seen. It was seven or eight ounces. The same substance had been deposited upon the side of the goblet from which the liquid had been poured in drinking. Upon the inner side of the goblet, and near the brim, was a small piece of tobacco. The tablecloth, near where the goblet stood, was stained with the coloring matter of tobacco. The floor, beneath that portion of

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the table where the goblet was placed, was wet with melted snow, which had evidently come from a pair of boots. There were found also upon the floor three or four matches which had been used, and a piece of paper which corresponded to the piece which had contained the supposed confectionery.

The goblet with its contents, which, from the appearance of the white masses and the odor of peach which was thought to be exhaled, was considered to be cyanide of potassium, was taken to the office of Dr. John Homans, where the substance was subjected to a hasty analysis.

A piece of the solid mass applied to the tongue caused a sensation of pungency and coolness. The reaction of the liquid was alkaline. A solution of nitrate of silver dropped into a portion of the liquid produced a dense white precipitate of cyanide of silver, and left the supernatant liquid clear. The precipitate was wholly dissolved by the addition of ammonia. Muriatic acid being added to some of the liquid, hydrocyanic acid was evolved. The liquid exercised a remarkable bleaching power upon the tincture of iodine and a solution of the ammonio-sulphate of copper. A solution of sulphate of iron added to a portion of the liquid, and followed by dilute hydrochloric acid, produced the beautiful color of Prussian blue (ferrocyanide of iron).

Autopsy.—At the autopsy, made sixteen hours after death, I was kindly assisted by Dr. J. F. Appell.

The skin presented a pale aspect. Rigor mortis very marked. It was with the greatest difficulty that the limbs could be in the least flexed or extended. The mouth was firmly closed. Upon the right side of the forehead there was an abrasion of the skin about an inch square. The pupils were considerably dilated. The muscles of the chest and abdomen were of a dark red color. The lungs were somewhat congested, especially at their posterior aspect. The mucous membrane of the bronchi was quite red. There was about a drachm of clear serum in the pericardium. The heart was quite small. The left side of the heart was firmly contracted and contained but little blood. The right side of the heart was filled with dark colored, fluid blood. The walls of the heart were of normal thickness. With the exception of one small coagulum in each cavity of the heart, no coagula were anywhere found. From every cut vein there was a profuse flow of blood. The mucous membrane of the œsophagus was of a deep red color. The entire mucous membrane of the stomach was of an in-

tensely crimson color. Dotted over the surface were small elevations of the same red appearance. There was no thickening or ulceration of the mucous membrane. The membrane was covered with a considerable coat of viscid mucus. The stomach contained about ten ounces of a thick fluid composed of partially digested food, mucus and some blood. The duodenum and a portion of the jejunum presented the same crimson appearance as the stomach. The remainder of the small intestines and the large intestines presented nothing abnormal. The pancreas was healthy. The spleen and kidneys were much congested. The substance of the liver was more red than normal. Its serous coat was very red. The bladder was empty and firmly contracted.

The brain and spinal cord, owing to the objection of friends, was not examined.

An examination of the contents of the stomach by various tests, revealed the presence of hydrocyanic acid. The characteristic odor of hydrocyanic acid was clearly distinguished. The presence of hydrocyanic acid was detected in the blood. A microscopical examination of the blood presented nothing abnormal in the appearance of the corpuscles.

The symptoms in the above case are, unfortunately, almost wholly wanting. The privy, which the deceased expressed his intention of visiting, was situated outside of the building, and to reach which he must have passed through considerable snow. From the fact that melted snow was found upon the floor beneath the table where the goblet stood, and also from the fact that at the autopsy the bladder was found completely empty, it is probable that he first visited the privy. After taking the fatal dose he walked through a kitchen, across a short entry, ascended a flight of stairs, passed through another entry and had partly ascended a second flight of stairs before he fell. One minute at least must have been occupied in passing this distance. Five minutes probably elapsed before assistance came, when he was heard to make a noise as if attempting to vomit. From the time that he drank the liquid till death took place, an interval of ten minutes *may* have elapsed. The quantity of the liquid which he drank was six or seven ounces, and, as quite a thick film of the salt was deposited on the sides of the goblet, it is probable that the solution was quite strong.

The necroscopic appearances of the different organs of the body were those which are most frequently found in cases of poisoning from cyanide of potassium or hydro-

cyanic acid—viz., rigidity of the muscles, dilatation of the pupils, venous engorgement, fluidity and dark color of the blood, contraction of the left side of the heart and fulness of the right side, and intense congestion of the œsophagus, stomach, small intestines, spleen and kidneys.

This, we believe, is the only case of death from cyanide of potassium reported in this vicinity, in which a *post-mortem* examination was made. In vol. lvi. of this Journal, in the Reports of the Boston Society for Medical Improvement, a case of fatal poisoning from cyanide of potassium is reported by Dr. C. E. Ware. In this case a teaspoonful of a solution, containing seven grains of the cyanide to a drachm of water, was given by mistake. Almost immediately there was a severe burning sensation in the stomach, and a call to stool. The patient began to sink directly and became unconscious. Death took place in less than an hour. There were no convulsions, but a sudden convulsive movement of the body about ten minutes after the heart had ceased to beat. There was no autopsy. In vol. lxxiv. of this Journal, Dr. J. C. Warren gives a case of poisoning from this drug. A porter in a machine shop, two hours after a hearty meal, feeling thirsty, dipped a cup into a jar of liquid which he supposed to be drinking water, and drank about three drachms before he discovered his mistake. About twenty-three grains of the cyanide of potassium were swallowed. Two minutes afterwards he became senseless. About thirty-five minutes after swallowing the draught he came under Dr. Warren's observation. He was then insensible. Respiration was slow and labored. The eyes were open and fixed. The pupils were dilated. The veins of the face and neck were very prominent. The pulse was full, regular and rapid. The stomach was thoroughly washed out with warm water by means of the stomach pump. A solution of ammonia was afterwards injected into the stomach. During this operation there were convulsive movements of the extremities, followed by rigidity. There was some tendency to opisthotonos. The paroxysm continued about a minute. The patient soon began to revive, and in a few hours was completely restored. In the same volume of the JOURNAL, another case is mentioned by Dr. J. C. White in some editorial remarks headed "Poison on Draught." A stranger in Boston, being thirsty, entered a jeweller's shop and asked for water. He was directed to the rear, where seeing a large jar such as is used for holding ice-water, he lifted the

cover and drank about half an ounce of the liquid, which contained about half a drachm of the cyanide of potassium. He became insensible in five minutes, and died in half an hour. There was no autopsy. The remarkable escape from death in the former case, and the prolongation of life in the latter case, were probably owing to the fact that the stomach was filled with food. A dose of five grains has proved fatal in twenty minutes. The medicinal dose is one-eighth of a grain.

The extensive use of cyanide of potassium in the arts affords abundant opportunity for mistaken or intentional poisoning, and it behooves physicians not to assume that every sudden death, which takes place in the community, is a case of heart disease or apoplexy. So available is the cyanide of potassium, and so sudden and quiet is it in its action, that, in Europe especially, it is becoming the fashionable drug which the suicide and the poisoner employ, who wish to do their work surely and quickly.

OPIUM EATING CURED BY BELLADONNA POISONING.

Reported by E. M. WEBSTER, M.D., Kingsville, Ohio.

Mrs. C., aged 36 years, was admitted into the Ashtabula County Infirmary, April 22d, 1869:—Disease, opium eating of eight years' duration.

Apr. 23d, 1869, gave to nurse half an ounce of fluid extract of belladonna, and directed her to give the patient ten minims every eight hours for twenty-four hours. At two o'clock, P.M., was requested to see patient, who was supposed to be dying.

*Found her in a lethargic state, pulse and respiration nearly normal;** muscular system so extremely relaxed as to render deglutition very difficult.

Ascertained that four hours after taking prescribed dose (while nurse's back was turned), patient swallowed one half the contents of the phial (3ij.), which fact was not discovered until the effects of the poison were noticed. Two and a half hours had elapsed since taking the poisonous dose, when I found her in the condition above stated.

The stomach responded feebly to sulph. zinc and mustard seed. Only what was administered was ejected, and that only when lying on the face. Each effort to vomit was followed by slight tetanic spasm, to which there appeared a persistent ten-

* Italics are ours.—ED.