Medical Memoranda

Dangerous Symptoms after Injections of Heroin (Diamorphine)

It is thought that two recent experiences of the dangers of heroin should be added to the available information.

CASE 1

A woman aged 40 spent a fatiguing day in town with her daughter. She travelled 230 miles by rail, dined on the train, did not fancy the meal, and reached home very tired. Next day she vomited repeatedly, diarrhoea developed, and by evening she appeared to be seriously ill. She sent for X.Y.Z., who had known her well for twenty-five years. He found her pale and rather limp. Her pulse was rapid, the systolic pressure 115 mm. Hg, and the breathing shallow and rapid. She stated repeatedly that she felt very ill. There was no rise of temperature nor any signs in abdomen or chest. He decided to give a morphine sedative to check the vomiting and diarrhoea, and chose heroin, as it is said to be less liable than morphine to cause nausea. In three or four previous cases he had injected 1/6 gr. (11 mg.) of heroin with little apparent effect. He therefore took two tablets of this dose, specially prepared for injection, dissolved them in water, and injected them subcutaneously.

He waited (fortunately) to see the patient comfortable, and was at first gratified to note that her distress diminished; she was soothed and felt sleepy; she remarked drowsily, "It's coming over me." Then, 10 to 15 minutes after the injection, almost suddenly, she became deeply unconscious and unrousable. Inspirations became rapidly shallower, with longer and longer intervals; there was deep cyanosis, with complete muscular relaxation and an imperceptible pulse. The pupils were very small—not quite pin-point. X.Y.Z. reversed his therapeutics. He injected nikethamide 0.5 g., removed the pillows, raised the foot of the bed, sent a very urgent message for another doctor, and began artificial respiration. I arrived in ten minutes. By then respiration had entirely ceased, there were no reflexes, and the extremities were cooling. The only hopeful sign was that the heart sounds were faintly audible and the pulse was occasionally perceptible. A catheter specimen of urine was free from albumin, sugar, and ketones. Lobeline 0.003 g. was injected. Artificial respiration was continued and rhythmic traction was applied to the tongue. Oxygen and carbon dioxide were sent for. The former arrived in fifteen minutes, and its administration quickly lightened the cyanosis and seemed to produce some general improvement. After about twenty minutes the patient began to make very feeble respiratory gasps at long intervals. The intervals gradually diminished and the respirations deepened, so that after another twenty minutes artificial respiration could be stopped, though the oxygen was continued a little longer. By the time the carbon dioxide arrived its use was thought unnecessary.

About four hours after the injection of heroin the patient could be roused sufficiently to recognize her husband and to be spoon-fed with strong coffee. The pupils were still minute, and she continued to be extremely drowsy. Three hours later the respirations again became alarmingly shallow and infrequent and there was cyanosis, but recovery took place without major measures.

Next day the patient was drowsy, weak and feeble, and had contracted pupils. There was much nausea, with some vomiting. Coffee and glucose were given per rectum. Recovery proceeded evenly for five days; then there was some return of nausea, vomiting, weakness, and a feeling of respiratory oppression. In another five days recovery was practically complete.

No further light was obtained on the original illness. No more signs developed; the temperature was never raised; and no albumin, casts, inflammatory cells, or blood corpuscles were found in the urine. Agglutination tests were completely negative for *Salmonella paratyphi* A and B, *Bact. sonnei*, *S. typhi murium*, Gaertner's bacillus, and *Br. abortus*. No non-lactosing-fermenting bacilli were obtained in cultures of the faeces. The daughter was unaffected.

CASE 2

This patient, a woman aged 65, had arteriosclerosis, a systolic blood pressure of 230 mm. Hg, and was liable to attacks of severe epistaxis. X.Y.Z. was summoned at 2 a.m., with a report of very severe vomiting for an hour, the face being drawn to one side, and numbness of the right hand. On arrival he found no anaesthesia or paresis, and could not ascertain to which side the face was thought to have been drawn. The patient and her relatives were very restless, anxious, and alarmed. X.Y.Z. injected 1/6 gr. of heroin subcutaneously, taking a tablet from a fresh tube. The patient seemed inclined to settle.

He returned in half an hour and found the patient unconscious, pale, and pulseless. Her jaw was dropped, her features relaxed, her

eyes half open, and the pupils very small. She was breathing only by spasmodic stertorous inspiration at long intervals. Artificial respiration was started, and this, with various vigorous sensory stimuli, roused the patient sufficiently to ensure automatic breathing. She remained very drowsy till next morning, but no more alarming symptoms developed.

These two cases do not form an extensive series, but further experience is not being invited. I have to thank X.Y.Z. for collaboration in this note.

CRANSTON WALKER, M.D.

Skull Closure by Acrylic Plates

This note describes two cases of large frontal skull defects treated in India by means of acrylic plates. The method of Small and Graham (1945) was adopted with minor simplifications. The impression material used was dental wax, sterilized by heating to smoking temperature then autoclaving. A rim of lead was used to hold the wax, and allowed of firm pressure. No undercuts were reproduced—an advantage in this particular work. The plate was of skull thickness, perforated, and curved by eye to fit a model of the skull.

At the first operation the skull defect was step-cut by a cylindrical dental burr and a chisel, and a key was introduced at two points. At the second operation, performed a month later, the completed plate was wired in with stainless steel. The plates were sterilized by scrubbing with soap and water, followed by immersion in 1% mercuric chloride in water for three days. This method produced no warping or softening of the acrylic substance and no deposition of heavy metal on the plate. These Indian patients were transfused with whole blood at the first operation to keep up a satisfactory level of haemoglobin, and chemotherapy and aspiration of fluid were employed on the first, third, and fifth days.

CASE HISTORIES

Case 1.—This patient, a Gurkha, had lost about two-thirds of his left supraorbital margin, the anterior portion of the orbital roof, and a large area of frontal bone. Following the wounding he had had a fungus cerebri for about six months. At the first operation a rotation flap was used to cover the defect with sound scalp. The result remained satisfactory when he was last seen three months after the second operation.

Case 2.—This was a Sikh who had lost a large portion of the fronto-temporal region. Debridement by Major G. M. Lunn, R.A.M.C., 72 hours after the wounding, secured first-intention healing. The plate was inserted three months later, and continued to be satisfactory during two months' observation.

Acrylic resin, of all inert materials, has a strong claim for suitability in frontal defects, where by its use admirable cosmetic results can be achieved by the exercise of ordinary operative skill. The limiting factor in regard to size is the tension of the overlying scalp, not the durability of the plate. Granulation tissue grows through perforations in the plate and improves blood supply to the scalp, but ties it down and reduces its mobility.

Thanks are due to Sergeant Dewar, A.D. Corps, for preparing the trays and plates, and to Major N. Reichman, R.A.M.C., for his aid with the anaesthetics and the drilling operations.

E. A. TURNER,
Major, R.A.M.C.

G. FOSTER,
Major, A.D. Corps.

REFERENCE

Small, J. M., and Graham, M. P. (1945). *Brit. J. Surg.*, **33**, 106.

Dr. Barnardo's Homes state that they admitted 1,108 boys and girls in 1948.

Case 2.—Before and after operation