

high velocity, or where there is immediate damage to the central parts of the brain. None of the six patients in this series showed any immediate loss of consciousness or appeared much disturbed by their experience, and it is perhaps for this reason that the injuries were regarded as trivial and that in only one case was even the precaution of immediate x-ray examination deemed necessary. Yet the results were serious enough. One case sustained severe bilateral brain damage and four developed intracranial infections, with one fatality. There has been one established case of epilepsy and two more children are still at considerable risk. Three children needed multiple operations, and the total duration of their stay in hospital exceeded a year.

Conclusions

Wounds in the region of the orbit in which there is any suspicion of the entry of a sharp object, and particularly where the victim is a child, must be taken seriously.

Despite the absence of any history of loss of consciousness or other neurological disturbance, immediate x-ray examination of the skull, with special reference to the roof of the orbit, should be made.

If the cranium has been penetrated, early and complete exploration is imperative.

Medical Memoranda

Amphetamine Poisoning Associated with Hyperpyrexia

A recent annotation in the *British Medical Journal* (1960) describing a case of amphetamine poisoning in an athlete reported by Bernheim and Cox (1960) makes the comment: "Were it not for the extraordinary high rectal temperature reported, this man's death might have been attributed almost entirely to amphetamine. . . ." The implication that hyperpyrexia and amphetamine poisoning are unrelated prompts us to report a recent fatal case of poisoning by this drug in which hyperpyrexia was a presenting clinical feature.

CASE REPORT

A 25-year-old single woman, said by her friends to have been "full of life and energy" for the few days preceding her death, was admitted to hospital with a history that two hours previously she had complained of headache and taken two aspirin tablets. She became comatose after taking the aspirin, and her temperature at that time is recorded as 101.6° F. (38.7° C.) (axilla). On admission she was found to be comatose, with a temperature, taken in the axilla, of 109° F. (42.8° C.). The skin was hot and moist and there was intense shivering with some neck retraction. At this time her pulse was rapid (132 a minute), full, and bounding, and her systolic blood-pressure was 80 mm. Hg. The pupils were dilated and non-reactive, and respiration was rapid and stertorous. 100 mg. of chlorpromazine was given intravenously and after tepid sponging the temperature fell to 102° F. (38.9° C.) during the next hour. Lumbar puncture showed a pressure of 130 mm. H₂O and the fluid was normal on examination. At this stage she was able to give her name and to respond to simple commands, but one hour later she suddenly collapsed and died in spite of resuscitative measures.

At necropsy the only significant findings were a moderate degree of cerebral oedema and the presence in the stomach

of very large numbers of white granules which varied in size up to about that of a pin's head. Analysis showed 310 mg. of amphetamine (expressed as sulphate) in the stomach contents, and the analyst's report suggested that the drug had been taken in the form of "spansules." At the coroner's inquest which followed no light was thrown on the circumstances in which the drug had been taken, and a verdict of accidental death was recorded.

COMMENT

Neither the clinical history nor the necropsy revealed any cause for the hyperpyrexia observed in this patient. The day of her death had been warm, but not excessively hot, with maximum temperature in the lower seventies. She had taken no strenuous exercise and had passed the day quietly indoors. In the circumstances we felt that consideration must be given to the possibility that the hyperpyrexia was a manifestation of amphetamine poisoning.

Polson and Tattersall (1959) state that severe poisoning by this drug may result in tachycardia and a raised body temperature followed by exhaustion. The *Extra Pharmacopoeia* (1958) makes no mention of pyrexia as one of the symptoms of overdosage. In a number of published cases a raised temperature has been described after large doses of amphetamine, though we have found no example of such a high temperature as that recorded in our case or in the case of Bernheim and Cox (1960). Mitchell and Denton (1950) describe a fatal case in a nurse who had consumed massive doses for 9-12 months and in whom a temperature of 105° F. (40.6° C.) was recorded shortly before her death. In her case, however, there was a striking pancytopenia, so that the interpretation of the pyrexia is in doubt. Gericke (1945) describes a case of suicidal poisoning by the drug, with a recorded rectal temperature of 103.8° F. (39.9° C.); Pretorius (1953) describes a case in a child where the temperature was 104° F. (40° C.); Patuck (1956) mentions a temperature of 100° F. (37.8° C.) in another case; and Shanson (1956) reports a case in which the temperature was 100.5° F. (38° C.), though in this case ingestion of the drug had been preceded by a mild febrile illness.

It seems clear that amphetamine in high dosage can raise the body temperature, and the present case suggests that hyperpyrexia may result. The hyperpyrexia in the case reported by Bernheim and Cox may or may not be attributable to amphetamine, but we would suggest that the drug cannot be ruled out as a possible contributing factor.

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REFERENCES

- Bernheim, J., and Cox, J. N. (1960). *Schweiz. med. Wschr.*, **90**, 322.
Brit. med. J., 1960, **2**, 590.
 Gericke, O. L. (1945). *J. Amer. med. Ass.*, **128**, 1098.
 Martindale, W. (1958). *The Extra Pharmacopoeia*, 24th ed. Pharmaceutical Press, London.
 Mitchell, H. S., and Denton, R. L. (1950). *Canad. med. Ass. J.*, **62**, 594.
 Patuck, D. (1956). *Brit. med. J.*, **1**, 670.
 Polson, C. J., and Tattersall, R. N. (1959). *Clinical Toxicology*. English Universities Press, London.
 Pretorius, H. P. J. (1953). *S. Afr. med. J.*, **27**, 945.
 Shanson, B. (1956). *Brit. med. J.*, **1**, 576.