

INTRAMUSCULAR KETAMINE – REPEATED INJECTIONS

D. V. CATTON, M.D., F.R.C.P. (C) *

A THREE-YEAR-OLD CHILD with a diagnosis of acute lymphoblastic leukaemia currently in haematological remission was presented as a management problem.

The diagnosis had been established six months earlier with the onset of fatigue, restlessness, pallor and a low-grade fever. His haemoglobin at that time was 6 g, the white blood count 23,000, and bone marrow section showed acute lymphocytic leukaemia with anaemia, thrombocytopenia and neutropenia. His liver and spleen were palpable and petechiae and haemorrhages were present.

The child responded to a chemotherapeutic regime including prednisone and vincristine, followed by a combination of cyclophosphamide, methotrexate and 6-mercaptopurine.

He was considered a candidate for central nervous system irradiation to the cranium and spinal cord, to prevent subsequent central nervous system leukaemia and eventual relapse. Due to the child's hyper-activity and resistance to any handling, it proved technically difficult to administer accurately placed field radiation therapy. Attempts were made to make a stabilization facial cast and even under heavy sedation, the child refused to cooperate.

At this point we were asked to assist in the management. It was proposed to make a light plastic head stabilization mask, into which the child could be positioned prone during the twelve cranial radiation sessions.

Control of the airway using conventional inhalation anaesthesia would require endotracheal intubation. This was rejected, as the twelve treatments were planned daily as an out-patient. Ketamine hydrochloride was considered an acceptable alternative.

The child weighed 26 kg and had excessive amounts of subcutaneous fat which made venopuncture impossible. We therefore administered ketamine deeply intramuscularly, alternating buttocks, over twelve successive days (omitting weekends). Atropine 0.4 mg was combined with 150 to 175 mg of ketamine and up to 3 ml was delivered into a buttock (5.7 to 6.7 mgm/kilo). The child fell asleep in five to ten minutes and could be positioned in the head stabilization frame for field irradiation (total dose 2400 r).

Rather than irradiate the spinal cord, it was decided to administer five intrathecal injections of methotrexate. These injections were done while the child was still anaesthetized. There was no local tissue reaction to the intramuscular ketamine and the child was discharged home about two hours following each treatment.

Figure 1 illustrates the problem presented during the taking of a mold to make the plastic mask. Figure 2 shows the child positioned prone, in the plastic head

*Department of Anaesthesia, McMaster University, Hamilton, Ontario, Canada.

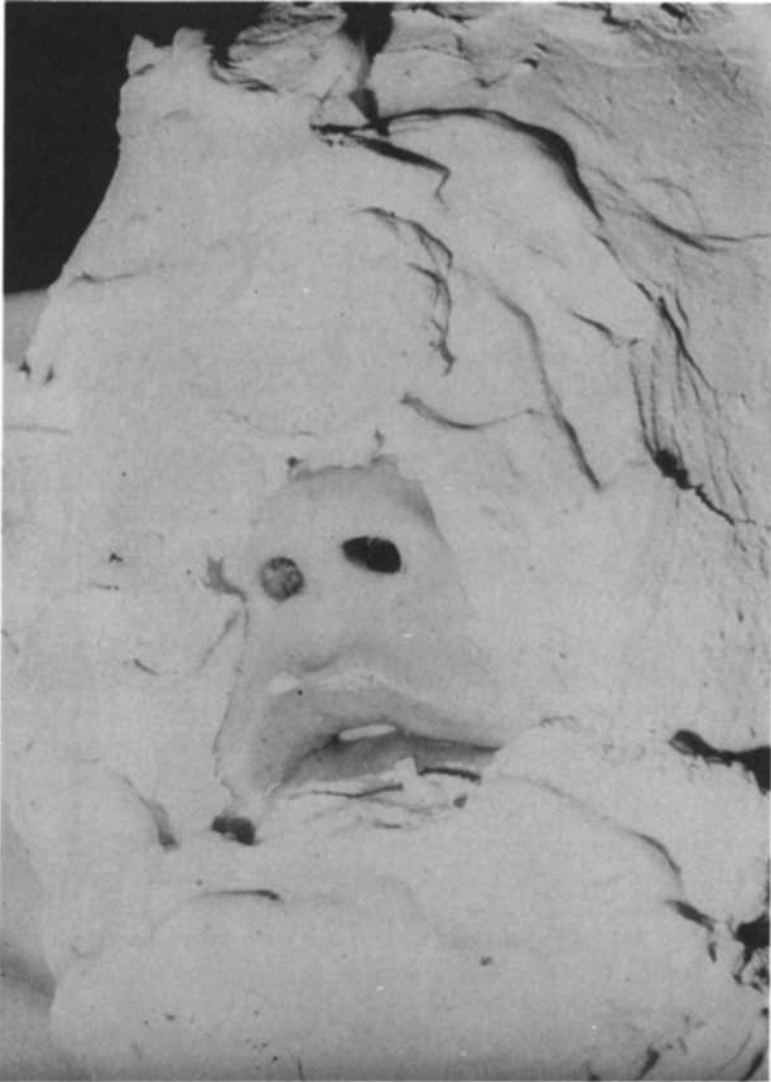


FIGURE 1. This figure illustrates problem involved in the making of a mold for the preparation of the plastic mask.

rest, about to be radiated. Even in this position, he was well able to maintain his own airway, and secretions were not a significant problem.

The child has remained well. He is now regrowing his hair, and has restarted the triple chemotherapy regime.

In summary, we present an example of a difficult anaesthetic problem, made simple by the use of ketamine.

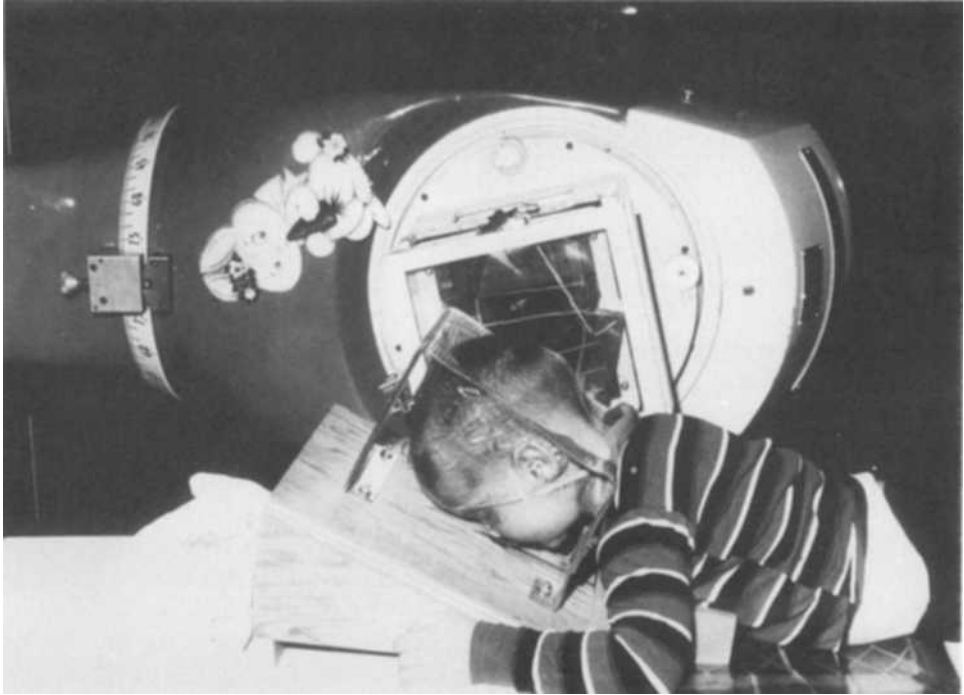


FIGURE 2. Position of the child in the plastic head rest.

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