TECHNICAL METHODS

A Survival Technique for Obtaining Large Volumes of Blood from Rodents

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In survival experiments rodent blood is classically obtained from the tail or iliac veins. Only small samples of blood, particularly in the case of mice, can usually be obtained from techniques involving the use of either of these routes, and moreover these samples often exhibit some haemolysis. The object of this communication is to present a simple technique by which these difficulties may be obviated.

Technique

Mice.—The animal is anaesthetized with ether and ethyl chloride and is then placed on its back on a cork board. An assistant extends the neck by retracting the lower jaw with forceps, at the same time holding back the front paws with the thumb and first index finger (Fig. 1). A transverse incision, 5 mm. in length, is made lateral to the midline of the neck in the course of the internal jugular vein (Fig. 1). This vein is large, easily identifiable, and can be punctured with a No. 16 needle attached to a syringe. Care must be taken to prevent the needle from tearing the friable wall of the vein. Blood is then aspirated in stages, allowing the vein to fill up between each application of suction, and in this way 1 ml. or more of blood can easily be removed. Slight pressure with a cotton-wool plug is applied for a few seconds after the needle is withdrawn. One skin suture is then inserted. The whole procedure, from the start of anaesthesia to recovery of consciousness, takes less than two minutes.

Rats.—The operative procedure for rats is similar to that for mice, except that they are anaesthetized with ether alone and subsequently positioned on a hollowed wooden board and the neck extended by catching the top molars on a metal wire across the board. Five millilitres of blood can then be removed through a No. 1 needle from these animals. During removal of blood no further anaesthetic should be administered, as fatalities may occur at this stage with

too deep anaesthesia. The animals should be returning to consciousness by the time the suture is applied.

Discussion

The technique described above is simple and can be easily mastered after a little experience. Two hundred consecutive blood samples were withdrawn from rats and mice in this way. These particular samples of blood were collected into siliconized tubes and centrifuged within one hour. Freedom from haemolysis was demonstrated spectroscopically in 98% of these samples. No animal died as a result of the operation or suffered any ill effects. On some occasions blood was taken on successive days.

Summary

A simple survival venepuncture technique by which large volumes of non-haemolysed blood can be taken from rats and mice is described and evaluated.

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