TECHNICAL NOTE

*A METHOD TO REDUCE DISLODGMET OF IMPLANTED
CRANIAL ELECTRODES IN RATS*

The dislodgment of implanted cranial electrodes is a serious problem, especially under conditions of prolonged testing. A minor change in the location of the anchoring screws from the dorsal to the lateral skull surface has virtually eliminated such losses in animals tested daily over many months.

Prepare the animal in the stereotaxic instrument as usual. Separate the temporal muscle from the lateral ridge of the parietal bone starting from a point slightly posterior to the bregma caudally for about 8 to 9 mm. Retract the muscle ventrolaterally. Drill a pilot hole as close to a horizontal plane as possible in the center of the exposed lateral surface and about 2 mm ventral to the ridge. Insert a stainless steel screw on each side of the skull (Fig. 1A). Apply cement around the shaft and onto the head of the screw and build it up just over the ridge (Fig. 1B). It is important that: (a) the cement is sufficiently tacky when applied so as not to flow freely into the opening. Any such excess should be removed before hardening to minimize postoperative irritation of the overlying tissue, (b) there is not too thin a cement layer over the ridge itself (losses that have occurred invariably break at this point), and (c) the cement is continuous around the entire screw shaft. After the electrode is inserted, apply additional cement to connect that already laid down around the screws to the electrode (Fig. 1C). The cement and screws thus form a clamp over and into the skull.

For histological analysis, cut through the cement with a hand-operated circular saw or dental burr along each parietal ridge. Where multiple electrodes have been implanted at different angles, additional cuts must be made to separate them, or, the cement may be dissolved according to the method suggested by Case and Valenstein (1963).

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REFERENCES

- Case, Barbara and Valenstein, E. S. Methyl methacrylate monomer, a solvent for removal of implanted electrodes. *Stain Technol.*, 1963, 38, 201-202.

Fig. 1. A. Dorsal view of skull preparation illustrating the retraction of the lateral muscles, screws inserted. B. Cement applied around screws. C. After implantation; cement connecting screws to electrode.