

## Correspondence

### Sagittal Tomography with Gasserian Ganglion Block

*To the Editor:*—Block of the gasserian ganglion is one of the most difficult techniques employed in a pain clinic. The difficulty lies in the fact that we cannot observe the accurate

location of the needle tip within the foramen ovale, even with conventional lateral roentgenograms of the skull.

We have used sagittal tomography of the

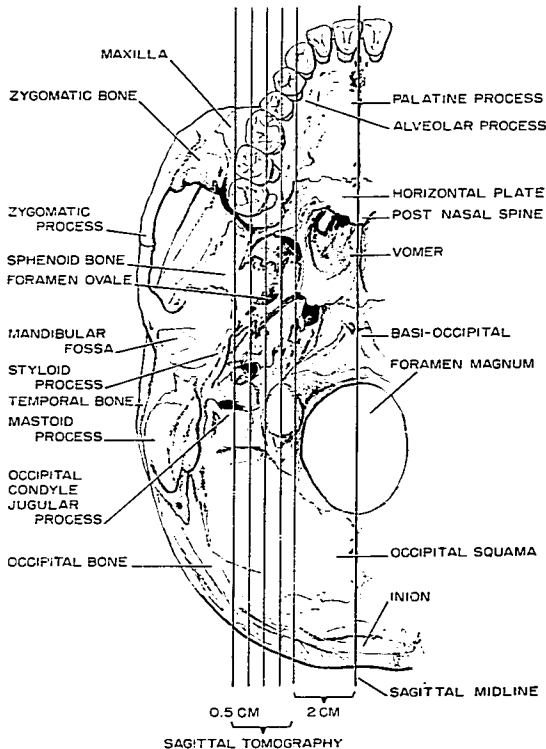


FIG. 1. Sagittal tomography of the gasserian ganglion.

gasserian ganglion to overcome this difficulty on five occasions. In each case the sagittal roentgenogram distinctly revealed the needle tip within the foramen ovale. The foramen ovale lies at a distance of 2.6 to 3.5 cm from the midline in the base of the skull. Therefore, one of five consecutive roentgenograms taken parallel to the sagittal plane separated by 0.5 cm at a distance of 2.0 to 4.0 cm from the midline of the skull should clearly show the location of the needle tip.

Because of the accurate localization of the injection site, wide availability, and ease of

performance of tomography, we recommend its use for gasserian-ganglion block, especially when permanent block with injection of alcohol is contemplated.

AKITOMO MATSUKI, M.D.\*  
*Senior Research Associate*  
ELEMÉR K. ZSIGMOND, M.D.†  
*Professor*  
*Department of Anesthesiology*  
*University of Michigan Medical*  
*School*  
*Ann Arbor, Michigan*

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### Still More on MAC and Dose-Response Curves

*To the Editor:*—The work by Drs. Shim and Andersen<sup>1</sup> attempts to explore the constancy of the relationship between MAC and other indices of nervous system depression. They conclude that dose-depression curves are not parallel for different anesthetics in the toad or in mice. In particular, they found that dividing the inspired concentration needed to abolish the righting reflex by MAC did not produce a constant ratio: the ratio was higher for chloroform and diethyl ether than for other anesthetics.

Interpretation of their data is complicated by their use of inspired rather than alveolar concentrations for the estimation of both the righting reflex and MAC. They defend this use of inspired concentrations on the grounds 1) that the experiment precluded endotracheal intubation and 2) that inspired and alveolar concentrations were equilibrated. We do not dispute their first contention, but this does not validate the appropriateness of the measurement.

Their second argument is contradicted by their own work. In a previous study they found that inspired and alveolar concentrations differed with highly soluble agents such as methoxyflurane and ether despite their concomitant use of hyperventilation<sup>2</sup> (note that chloroform too, is highly soluble). With methoxyflurane the inspired concentration was 50 per cent greater than the alveolar concentra-

tion. Variations in ventilation would alter this relationship: the hyperventilation used in their earlier experiment should reduce the difference between inspired and alveolar concentrations. In their recent experiment, ventilation was spontaneous, and their own evidence would suggest that this produced depression of breathing—an effect which must have widened the inspired-alveolar difference. Thus, it was surprising to find that their estimates of MAC for methoxyflurane and for ether were identical regardless of whether inspired (present study) or alveolar (previous study) concentrations were used.

This criticism of their use of the inspired concentration applies with still greater force to their test of the concentration producing apnea. The depression of respiration, with its attendant widening of the inspired to alveolar difference, renders the use of inspired concentrations inappropriate. We have found in dogs that at normal body temperatures the ratios of the alveolar concentrations producing apnea to those producing MAC vary from 2.4 (cyclopropane) to 3.4 (methoxyflurane), with halothane and diethyl ether tucked in between.<sup>3</sup> This variability is far less than that found by Shim and Andersen, and we believe this may be attributed to our use of alveolar gas for both measurements.

The test used to determine the righting reflex is not the usual one: "The righting reflex