

# Errors Related to Different Techniques of Intraperitoneal Injection in Mice

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We found a 12% error in the placement of intraperitoneal injections of mice with the one-man procedure of injection. With a two-man procedure, the incidence of error was consistently reduced to 1.2%.

Two papers (1, 2) have recently shown that the average error of placement of inoculum in intraperitoneal injections in mice varies from 10 to 20%. Attempts were made to improve the injection procedure by using two investigators instead of one, but the incidence of error remained the same. No details of the procedure were given (1). Such an error would affect the results of chemotherapeutic studies in intraperitoneally infected mice.

We have compared the two-man with the one-man procedure, varying the investigator,

into the lower left quadrant perpendicularly to the fold for no more than 0.5 cm of needle. This procedure permits penetration into the peritoneal cavity without injuring viscera.

In the one-man procedure (Fig. 3), the operator holds the mouse by the skin of the back and neck in his left hand and injects into the same quadrant.

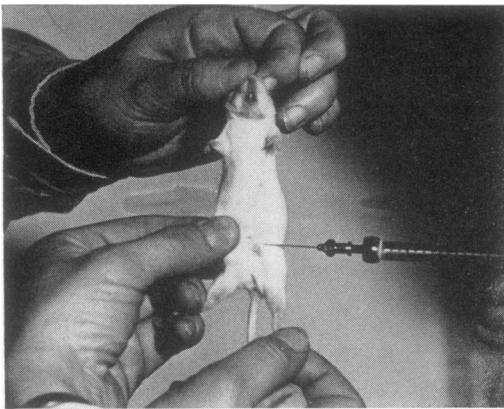


FIG. 1. Frontal view of the two-man procedure.

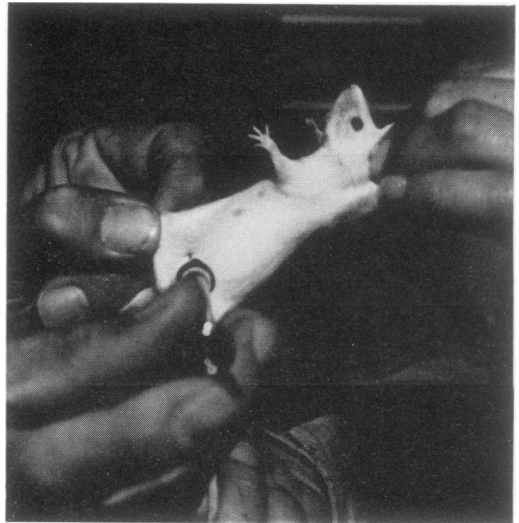


FIG. 2. Lateral view of the two-man procedure.

but no other technical factors, such as size of needle, site of penetration, and speed of injection.

CF<sub>1</sub> mice of either sex weighing  $20 \pm 2$  g were used. In the two-man procedure (Fig. 1 to 2), one operator holds the mouse by the neck with his left hand and slightly extends the animal by holding the tail and the left hind leg with his right hand. The other operator raises a fold of the abdominal wall with his left hand and penetrates

For both procedures, we used a 23-gauge, 2.6-cm needle to inject 0.5 ml of India ink and no special precautions were taken as to speed of injection. Mice were sacrificed about 15 min post-injection; the abdominal cavity was exposed, rinsed free of ink, and observed for ink placement.

The results are summarized in Table 1. V.A.



FIG. 3. *One-man procedure.*

alone injected 125 mice with 12.8% misplacement. The same investigator with an assistant injected 125 mice with 0.8% misplacement. E.R. injected the same number of mice with the

TABLE 1. *Comparison of the one-man and two-man techniques*

| Injector | One-man technique    |                             |          | Two-man technique    |                             |          |
|----------|----------------------|-----------------------------|----------|----------------------|-----------------------------|----------|
|          | No. of mice injected | No. of misplaced inoculated | Per cent | No. of mice injected | No. of misplaced inoculated | Per cent |
| V.A.     | 125                  | 16                          | 12.8     | 125                  | 1                           | 0.8      |
| E.R.     | 125                  | 14                          | 11.2     | 125                  | 2                           | 1.6      |

two techniques and scored, respectively, 11.2% and 1.6% of misplacements.

Of a total of 33 misplaced inocula, 31 were partly and 2 were wholly in the lumen of intestine. None was in the stomach or elsewhere.

The speed of the two-man procedure is at least double that of the one-man procedure.

#### LITERATURE CITED

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