

## Correspondence

### Glass-particle Contamination of Color-break Ampules

*To the Editor:*—There have been reports of contamination of large-volume intravenous solutions by particulate matter, including whole-rubber particles,<sup>1</sup> bacteria,<sup>2</sup> asbestos fibers,<sup>3</sup> and insects,<sup>4</sup> but no mention of glass particles, which we have found on many occasions in color-break ampules used regularly during clinical anesthesia. As figure 1 illustrates, grossly visible particles of the broken glass neck of the ampule, as large as 3 to 4 mm in diameter, may drop back into the solution. This photo was taken after the ampule was emptied and air-dried. One might suppose that smaller non-visible fragments are probably present and can presumably be aspirated through a large-bore withdrawal needle and then subsequently be injected into the patient. Bacterial contamination of the solution is also likely since one face of the glass is the exterior of the ampule. We have not filtered the solutions to determine whether smaller fragments are indeed present, but other reports suggest this is the case.<sup>5</sup>

If commercial manufacturing processes cannot prevent this fragmentation of glass, it would be well to withdraw the solutions with fine-bore needles only, or employ a suitable filter to avoid possible injection of glass particles. It is unlikely that fragments aspirated through a fine needle could cause harm, but there have been reports of pulmonary microemboli, thrombi, and granulomas resulting from small-particle contamination of large-volume injections.<sup>6,7</sup>

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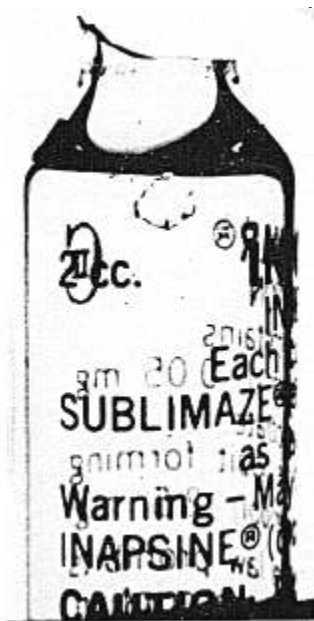


FIG. 1. Glass particle in ampule.

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