Safe Procedure for Opening Evacuated Glass Ampoules Containing Dried Pathogens

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A simple, safe, closed system for opening evacuated, sealed glass ampoules and removing dried pathogens is described.

The need to open sealed, evacuated glass ampoules containing biological materials dried by sublimation of ice in vacuo has resulted in potential hazards to laboratory personnel and possible losses of valuable research reagents. If sealed ampoules containing dried pathogenic bacteria, viruses, fungi, etc. are opened carelessly or hurriedly (and sometimes carefully and slowly) the dried powder could be dispersed by the inrush of air and the investigator and his surroundings would be dusted with highly infectious materials. If the ampoules are wrapped in towelling saturated with alcohol prior to being opened, the danger of the spread of infectious material is reduced, but the sample may be lost in part or in whole.

Because of our concern with the problem above, we developed a simple procedure for opening evacuated glass ampoules which provided a closed, sterile system and reduced accidental spread of infectious materials to a minimum. The first step in our procedure consisted of scoring the neck of the ampoule and dipping the neck into 70% ethyl alcohol for purposes of sterilization. A sterile, glass-plugged rubber tube was then slipped over the neck of the ampoule (Fig. 1A). With slight pressure, the neck of the ampoule was broken at the scored line; a small displacement of the neck permitted one to insert the needle of a hypodermic syringe containing solvent or suspending medium through the rubber sleeve into the body of the ampoule for rehydration and withdrawal of the sample (Fig. 1B).

A

Glass plug

Dried material

Scored neck

Rubber tubing

Ampoule

B

Syringe

Fig. 1. (A) Components of system for opening evacuated glass ampoules safely. (B) Procedure for rehydrating and removing dried materials.