Home-made vacuum syringe for endoscopic ultrasound-guided fine-needle aspiration

Fine-needle aspiration (FNA) has become an integral part of endoscopic ultrasound (EUS) procedures. EUS-FNA is performed using two types of needles: (a) single-use needles, with only one vacuum-lock aspiration syringe supplied (made by Wilson-Cook, Medi-Globe, and Olympus); and (b) needles with a reusable handle, with no syringe supplied (Olympus NA-10J-1 or NA-11J-KB; Olympus, Hamburg, Germany, Europe).

We have created a simple and cheap homemade device that maintains the vacuum in the syringe during EUS-FNA. This device is useful because it eliminates the need for an assistant's help during suction with reusable-handle needles. This is a useful facility because it is inconvenient for this assistant to synchronize his or her movements with those of the endoscopist's hands during the actual aspiration. It is also helpful for use with single-use needles when the syringe provided by the manufacturer is no longer usable.

We took a 20-ml plastic syringe, removed the piston, and cut off the distal knob (Figure **1a**). We then removed two adjacent flanges of the remainder of the piston along its entire length (Figure **1a,b**). Next, we cut off three-quarters of the proximal circular part, so that the remaining quarter corresponded to the angle formed between the remaining two flanges (Figure **1b,c**). Lastly, the shaded area of the remaining flanges was cut off to fashion the final version of the device (Figure **1c,d**). The same procedure can be applied to 10-ml syringes.

The use of the device is as simple as its preparation. Firstly, take another plastic syringe of the same capacity as was used to create the device – a 20-ml syringe in our case. Withdraw the piston and place the device as shown in Figure **2a**. Push the piston back in place into the syringe, which is now ready for use. During EUS-FNA, having punctured the target lesion and removed the stylet, simply insert the prepared syringe as usual, withdraw the piston to create the required vacuum, and simultaneously press the quarter-circle part of the device to lift its other end, so that it fixes itself against the rim of the syringe (Figure **2a**). In this way the vacuum created in the syringe can be maintained for the whole duration of the procedure (Figure **2b**).

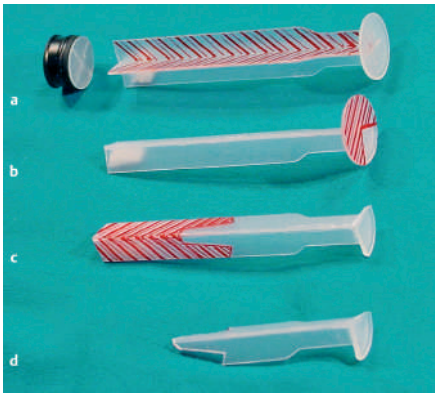

Figure **1** **a** Preparation of the vacuum syringe. The piston was removed from a 20-ml plastic syringe, and the distal knob was cut off. **a,b** A pair of adjacent flanges of the remainder of the piston were then removed along its entire length. **b,c** Three-quarters of the proximal circular part was then cut off, so that the remaining quarter corresponded to the angle formed between the remaining two flanges. **c,d** The shaded area of the remaining flanges was cut off to fashion the final version of the device.

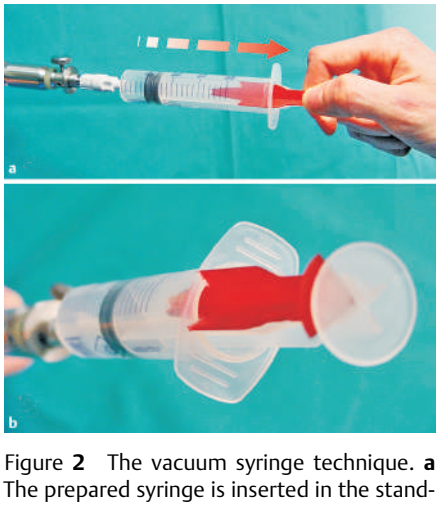

Figure **2** The vacuum syringe technique. **a** The prepared syringe is inserted in the standard fashion and the piston is withdrawn to create the required vacuum; the quarter-circle part of the device is pressed simultaneously to lift its other end so that it fixes itself against the rim of the syringe. **b** With the homemade piston in this position, the vacuum created in the syringe can be maintained for the whole duration of the procedure.

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