LETTER TO THE EDITOR

A simple, inexpensive, and effective pulse lavage shield

Pulse lavage is an effective means of irrigation of contaminated or potentially contaminated wounds. Its use is well documented.\(^1\) Hamer et al.\(^2\) demonstrated that pulse lavage is significantly better than syringe irrigation at reducing bacterial levels and wound infection.

There are several varieties of commercially available pulse lavage systems. Morgan et al.\(^1\) demonstrated that the four commercially available pulse lavage systems they tested showed a significant variation in pulse characteristics. One of the major drawbacks of the systems available is the splashing of pulsed fluid during lavage. This inconvenience makes operating untidy and potentially dangerous.

To prevent splashing some surgeons use their hand to cover the wound and the tip of the pulse lavage. This can be dangerous to the surgeons, especially if there are sharp foreign bodies or bony fragments in the wound. Most surgeons, in our experience, use a galipot with a hole in its base with the tip of the pulse lavage going through the hole, placing the galipot over the wound while lavaging (Fig. 1) One company that makes a pulse lavage system has even built-in an umbrella-like shield into the tip of their lavage in order to reduce the amount of splashing.

Plawner et al.\(^4\) suggested using a standard light handle protector to protect against biohazards during jet lavage. They suggest cutting a hole in the top of the shield and feeding the tip of jet lavage through the hole they have made. The disadvantage of this method is that it does not prevent against relative movement of the shield against the lavage tip/neck. Therefore, when the tip of the lavage is close to the tip of the shield the efficacy of delivering the jet of fluid to the wound is reduced as the jet tends to hit against the walls of the relatively long and narrow neck of the shield. The other disadvantage of using the coloured shield is that the operator cannot see the wound they are lavaging. Here we propose a radically different shield. Made from clear plastic and with a different structure to the neck, although a coloured one can be used (Fig. 2). We believe our shield works much better than any other devices used so far.

Technique

The pulse lavage shield is created from a modified light handle protector. The shield is made from clear latex free plastic and comes in a sterile pack. The distal end of the neck is open ended and has...
a piece of self-adhesive tape attached to it. The length of the neck is approximately half that of a standard light handle protector.

To connect the neck of the pulse lavage to the apex of the shield one has to feed the tip of pulse lavage into the open ended neck of the shield and secure a seal with the self-adhesive tape that comes attached to the shield.

The wide end of the shield is applied to the area to be lavaged with the non-dominant hand and contoured according to wounds contours. The hand holding the wide end ensures that it stays relatively closely applied to the wound while the dominant hand is on the handle of the pulse lavage controlling the flow of lavage fluid. The clear plastic enables the surgeon to visualize the wound during use.

Discussion

This has proven to be a simple and effective method of preventing splashing during pulse lavage. It is particularly useful in patients who are carriers of hepatitis B, C, or HIV. Its ability to practically eliminate splashing in these patients is not only useful to the surgeon, but also to other members of staff in the operating room, especially as universal precaution measures such as goggles and masks alone are not one hundred percent effective in preventing droplets of infected fluid getting in the eyes. Our novel method adds safety when used in combination with standard universal precaution measures. This shield is very easy to assemble and requires minimal training for effective use. It allows pulse lavage to be used with ease, therefore making the operating more effective and enjoyable.

Summary

Here we present a novel pulse lavage shield. We designed it as a result of struggling with commonly used pulse lavage shields. We do not find the galipot effective enough, and simply covering the tip of the pulse lavage with a hand is potentially dangerous. The advantages of this shield are that it is relatively inexpensive, easy to use, and most importantly it is effective in eliminating splashing during pulse lavaging.

References


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