Several solutions have been developed to rectify the problem of lens fogging during arthroscopic surgery. The least expensive of these options are anti-fogging agents. Products such as Dr. Fog™ offer sterile treatments that can be applied to a lens to reduce the potential for fogging. However, these agents add a step to surgical preparation, aren’t always fully effective (requiring that applications be repeated), can leave a build-up on a lens, and may set up the possibility of cross contamination when an opened bottle of the agent is reused.

Vented coupling systems, such as Arthrotek, Inc. couplers, are aimed specifically at reducing fogging occurrences caused by the residual moisture that can remain if optical equipment isn’t allowed to dry sufficiently after sterilization. The large venting holes allow air to access the coupler area to reduce the potential for fogging that can result from moisture that is already on the camera lens. However, these options are cumbersome, add a step to the OR prep time, increase equipment costs, and do not offer a remedy that effectively eliminates the problem.

The most effective answer to date is a dedicated (direct-coupling) scope/camera system such as the ones offered by Stryker and Linvatec Corporations. Direct-coupling systems remove the possibility of fluid collecting in the camera junction and fogging of the lens by providing a sealed assembly between the scope and camera. However, should any element of a direct-coupling system go down during a procedure, the whole system will need to be replaced before a surgery can resume.
OBSERVATIONS

The soft, flexible design of the DryVu Fluid Shield (see Figure 2) allows the device to slip easily and conveniently over the sheath of existing scope systems. It arrives sterile, takes only seconds to set in place, and, once positioned, requires no additional attention. A single-use device, there are no added costs for sterilization and maintenance.

Throughout a procedure the DryVu continually deflects fluid and debris away from the camera interface (see Figure 3). Even when the scope is held at a severe descending angle, fluid does not reach the coupling area. Consistent visibility is maintained without having to uncouple the scope and interrupt a procedure. The device can be turned in either direction and still work just as effectively. As an added bonus, the DryVu can be used during a procedure to redirect fluid into a collection drape for easier post-surgical OR clean up and room turn over.

CONCLUSION

Current scope defogging options increase OR cost either by extending surgery times due to added preparation steps and procedure interruptions or by requiring costly outlays in capital equipment. The DryVu Fluid Shield not only offers a truly effective, low-cost solution for eradicating the scope fogging caused by escaping fluid flowing in the camera junction during a procedure, its use helps to improve OR cost efficiency while at the same time paying for itself within the first few seconds of a procedure.

REFERENCES


Figure 2 – The flexible design of Cannuflow DryVu slips easily over existing scope systems.

Figure 3 – The DryVu continually deflects fluid away for the camera interface.