Four letters that strike fear into the heart of any administrator of an ambulatory surgery center (ASC) are T-A-S-S, or toxic anterior segment syndrome. This complication of cataract surgery has been around for years, but news of an outbreak in 2006 brought it to the forefront.

A new report of a TASS outbreak at a community hospital in Maine was reported June 29 by the Centers for Disease Control and Prevention.

A TASS outbreak brings difficult decisions about whether to close a facility, negative effects on staff and surgeon morale, and, most important, pain and suffering for patients (sidebar).

Prevention is the best defense. The American Society of Cataract and Refractive Surgery (ASCRS) and the American Society of Ophthalmic Registered Nurses (ASORN) developed the Recommended Practices for Cleaning and Sterilizing Intraocular Surgical Instruments, which outline prevention strategies. Here are suggestions from those guidelines and experts in the field.

Follow the manufacturer’s guidelines

It may seem like common sense, but too often, ASCs don’t follow the directions for use (DFU) from instrument manufacturers when it comes to cleaning. In general, recommendations include using a neutral pH solution with low sudsing properties and thoroughly rinsing the solution off the instrument.

Some experts recommend not using enzymatic detergents because they are difficult to rinse properly.

“Residual enzyme is one of the more common causes of TASS, in my opinion, particularly if it is present within the lumen of a cannula or I/A [irrigation/aspiration] or phaco hand piece,” says David F. Chang, MD, clinical professor at the University of California, San Francisco, and chair of the ASCRS Cataract Clinical Committee. “If instruments are thoroughly flushed with sterile water immediately after the case is completed, I would question why enzyme is necessary in the first place.”

Vikki Pearce, RN, BSN, clinical director at the Peninsula Eye Surgery Center in Mountain View, California, says her center does not use detergents because their use may lead to TASS. The center performs 4,000 eye cases a year.

But Barbara Ann Harmer, RN, BSN, MHA, president of MedAssist Consultants, Inc, in Celebration, Florida, and a member of the ASCRS/ASORN guidelines development team, disagrees: “Let’s put this enzymatic issue to bed. You don’t have to stop using enzymatic detergent; you just need to use it correctly.” Harmer has been involved in TASS education for nearly 7 years and notes that during the 2006 outbreak, facilities that didn’t use enzymatic detergent still had cases of TASS.

Using detergent correctly means thorough rinsing per the manufacturer’s DFU. “Even when you take a shower, you make sure you rinse adequately and don’t leave any soap residue on your skin or in your hair,” says Harmer. Similarly, rinsing removes detergent so it does not build up in the instrument.

Ramona Conner, RN, MSN, CNOR, manager for standards and recommended practices at AORN, agrees enzymatic detergents are fine as long as they are used at the correct dilution and thoroughly rinsed off. Conner also participated in the development of the ASCRS/ASORN recommended practices. She says the committee
didn’t ban enzymatic detergents because they are helpful for removing viscoelastic, which dries quickly and is difficult to remove.

Whatever the choice of cleaning agent, instrument care procedures must be written, based on the manufacturer’s DFUs, and kept in a binder or online, where staff can easily refer to them.

**Reduce the number of instruments**

Thorough cleaning requires time, a precious commodity in an ASC. To reduce this time, Harmer recommends cutting back on the number of instruments used for cataract surgery.

“People have too many instruments on the tray,” she says. “You should have no more than 5 to 10 instruments.” Some ASCs have as many as 45, driving up cleaning time. Often, the high number is simply the result of the OR manager and surgeon failing to pare down what is needed.

Taking that time pays off. Harmer estimates it takes only 4 to 6 minutes to clean 5 to 10 instruments.

A common question is how many sets of instruments are needed. “If you have 1 OR, you need a minimum of 3 trays; if you have 2 ORs, you need a minimum of 5 trays,” says Harmer. This breaks down to 1 set in use, 1 being reprocessed, and 1 ready for use (terminally sterilized); in the case of 2 ORs, the 1 set ready for use can be shared between the 2 rooms.

That’s just the minimum, Harmer emphasizes. The ASC manager should check how long it takes to clean the instruments between cases. If you have a high volume of cases, such as 4 in 1 hour, you may need an additional tray. This means money in an era of tight budgets, but consider that if TASS occurs, the ASC may have to close its doors while the cause is found.

**Prepare cleaning space appropriately**

ASCs must have adequate room to decontaminate and clean instruments and a ready supply of sterile distilled water or sterile deionized water. Use of one of these water types is recommended for the cleaning process and is required for the final rinse. Tap water is never acceptable. “If you have a washer decontaminator that accepts a hookup, have a distilled tank line run to your machine,” says Harmer. Another option is to install a tank so you can use distilled water at the sink, but this is more expensive.

Cleaning space is necessary because, as Conner says, “Ophthalmologic instruments aren’t visibly soiled with blood, but they are soiled.” She notes there is viscoelastic in the small diameters of the instruments that is not visible to the naked eye. “You have to thoroughly wash, clean, and rinse the instruments.”

**Know your equipment**

“You must know your equipment,” says Harmer. “Managers assume the people they hire know it, and they often don’t.”

For example, ultrasonic cleaners should be cleaned at least daily and preferably after each use, and a tabletop sterilizer contains distilled water that must be cleaned on a regular basis. Sterilizer function should be checked daily, and the results documented in a log. The quality of the water supplying a steam sterilizer should be checked annually.

**Provide education and staff**

Consistent, repeated education is key to ensure staff clean instruments properly. Harmer advises OR managers to designate someone who spot checks cleaning and verifies correct technique by observing the staff. This designated person needs to have training to ensure that correct knowledge starts at the top.

“Education for new staff is done one-on-one,” says Pearce, who acknowledges that staffing can be a challenge in an environment with shortages of health care workers. She created her own solution, hiring a technician who had 17 years’ experience with caring for instruments to spearhead cleaning efforts. The technician also helps out in the preoperative holding area and postanesthesia care unit when time permits.

“You have to look at your risk-benefit analysis and your options, then choose what works best for your situation,” says Pearce.
Regular competency assessment is important, although the ASCRS/ASORN recommended practices don’t specify a frequency. Conner says an annual assessment is reasonable in ASCs with a stable staff.

Pearce adds that TASS must remain top of mind for surgeons and staff. “You have to remember it’s always a possibility, so you always need to be vigilant,” she says. “It’s like malignant hyperthermia: it’s out there, and it can be dangerous.”

**Partner with surgeons**

The ASC manager should work with surgeons to encourage reporting and establish a reporting mechanism.

Nick Mamalis, MD, directs a voluntary reporting program for TASS, based at the Intermountain Ocular Research Center, Moran Eye Center, University of Utah in Salt Lake City, which can be reached at 801/581-6586. The ASCRS/ASORN guidelines recommend a surveillance system for detecting TASS. The CDC says TASS outbreaks should be reported to state and local health departments. Assistance in investigating outbreaks is available from the CDC’s Division of Healthcare Quality Promotion at 800/893-0485.

“Ideally, surgeons should report any suspicions to the OR manager,” says Dr Chang. He notes that sometimes surgeons are reluctant to report a possible case of TASS because they are not sure what the diagnosis is, or they may want to avoid the stigma of having a “complication” no one else has had.

Dr Chang adds, “Reporting can even be done confidentially at first if the surgeon so desires. Communicating such suspicions to a central source can facilitate earlier rather than later recognition of a facilitywide pattern. Of course, definite cases need a more formal investigation that the OR manager will spearhead.”

Pearce says prompt reporting is crucial. “If there are any signs of inflammation on the first postop day, the surgeon should notify the OR manager and not wait until the monthly report.” The reason is twofold. First, the national TASS database tracks lot numbers, which are not normally recorded in the patient’s medical record. Pearce says if she knows soon enough, she can track down the lot number. Second, the cause of a TASS outbreak is often difficult to pinpoint, so the investigation needs to start promptly.

Pearce says her medical director sent a letter to all surgeons explaining surgeons are expected to contact Pearce if there is any question of TASS.

“Signs of TASS need to be part of organizations’ and surgeons’ routine screening,” says Conner. Harmer suggests wording the question on the reporting form to state, “Have you had any recognized inflammatory reactions (TASS, TECD [toxic endothelial cell destruction])?" because these are not infectious processes.

**Do it right every time**

The right equipment, the right staff, and the right space add up to the right prevention plan for TASS. Ongoing awareness is also key. “Whether I’m the director or the staff nurse, I have to assume the position of patient advocate, delivering the best quality of care to patients so they can have a good outcome,” says Harmer. “You need to do due diligence for every patient.”

—Cynthia Saver, RN, MS

_Cynthia Saver is a freelance writer in Columbia, Maryland._

---

**References**


Snapshot of TASS

TASS is an acute inflammation of the anterior chamber of the eye after cataract surgery. Signs of TASS, such as blurred vision and severe inflammation, typically occur 12 to 24 hours after surgery. Topical corticosteroid eye drops are used to treat the condition. Patients with mild cases of TASS tend to improve quickly, but severe cases can result in permanent damage.

Causes can be broken into 3 categories:

Extraocular
An example is talc from surgical gloves.

Products
Products inserted into the anterior chamber during surgery can be involved, such as anesthetic agents, preservatives, or miomycin-C.

Irritants
Irritants may be on the surfaces of surgical instruments due to poor instrument cleaning.

Tips for preventing TASS

More tips include:

• Do not allow viscoelastic solution to dry inside instruments. Wipe instruments with a lint-free cloth and place in sterile water.
• Flush phacoemulsifier hand pieces with BSS before removing them from the operative field.
• Use preservative-free medications in the eye.
• Be suspicious of a plugged irrigator/aspirator tip; it may indicate a cleaning problem.
• Use disposable cannulas and tubing whenever possible.
• Avoid flash sterilization.
• Clean ophthalmology instruments separately from other instruments.
• Thoroughly dry instruments by using filtered compressed air that is free of oil and water.
• Do not use glutaraldehyde for sterilizing intraocular instruments.
• Read the Recommended Practices for Cleaning and Sterilizing Intraocular Surgical Instruments from the American Society of Cataract and Refractive Surgery and the American Association of Ophthalmic Registered Nurse (see references).
• Tap into education resources. An online continuing education program about TASS is available at www.tassfacts.com.