



Tonsillectomy & Adenoidectomy Instrumentation

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LEARNING OBJECTIVES

1. Identify common instruments found in a tonsillectomy and adenoidectomy tray
2. Review the key inspection areas for instruments in a tonsillectomy and adenoidectomy tray
3. Discuss the function of tonsillectomy and adenoidectomy instrumentation during a procedure

Instrument inspection and testing is one of the core responsibilities of the Central Service/Sterile Processing (CS/SP) technician. Producing patient-ready instrumentation is significant to any successful surgical procedure. It is essential for an instrument specialist to have the knowledge and skills to identify commonly-used instrumentation, recognize important inspection areas and understand the functionality of each instrument. This lesson will describe commonly-used instrumentation found in a tonsillectomy and adenoidectomy (T&A) tray, review vital inspection areas on T&A instruments and explain how instruments are used during a T&A procedure.

OBJECTIVE 1: Identify common instruments found in a tonsillectomy and adenoidectomy tray

Several variations of instrumentation can be found within the T&A tray. The variation of instrumentation can differ from healthcare facility to healthcare facility and is generally selected based upon the surgeon's specific procedure

needs and preferences. The following is a list of common T&A instrumentation:

- Backhaus towel clamp
- Allis clamp
- White tonsil clamp (similar to a curved Allis clamp)
- Schmidt tonsil forceps
- St. Clair-Thompson adenoid forceps
- Foerster-Ballenger sponge holding forceps
- Baum tonsil needle holder
- Metzenbaum scissors
- DeBakey forceps
- #7 knife handle
- Fisher tonsil knife and dissector
- Hurd dissector and Pillar retractor
- Wieder tongue depressor/retractor
- Meltzer triangular punch (straight or curved)
- Yankauer suction
- Andrews-Pynchon suction
- Laryngeal mirrors (multiple sizes)
- Tonsil snare
- Adenoid curettes (multiple sizes)
- Mouth gag with blades (Dingman, Jennings, Davis or McIvor with multiple size blades)
- Medicine cup

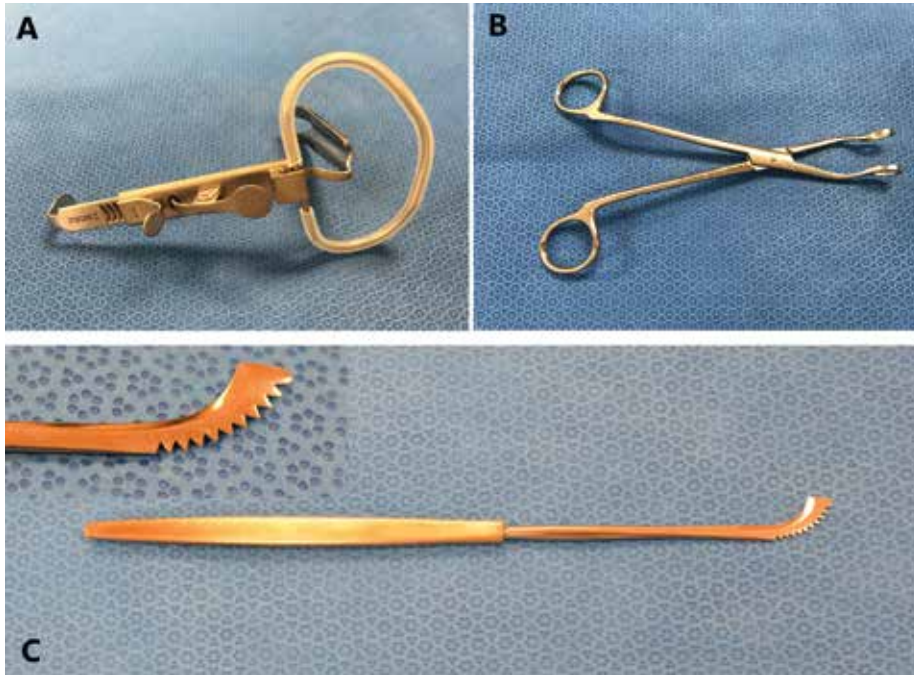


Figure 1: A. McIvor Mouth Gag B. St. Clair-Thompson adenoid forceps C. Fisher tonsil knife and dissector

OBJECTIVE 2: Review the key inspection areas for instruments in a tonsillectomy and adenoidectomy tray

Instrument inspection and testing is an important step in the instrument assembly process. In the assembly phase, instruments should be inspected for cleanliness and tested for functionality. Inspection is important because after the assembly phase the instrumentation will not be checked again until after sterilization, which will be at the point of use. Discovering dirty, damaged or missing instrumentation at the point of use can cause delays or other serious problems that may result in adverse patient outcomes.

At first glance, instrumentation may appear to be clean, but closer inspection of the entire instrument may reveal areas that were not cleaned properly. Tools such as lighted magnifiers, digital cameras, microscopes and borescopes can improve visualization and help

ensure instrumentation is cleaned properly.

Testing instrument functionality is also an important step in the assembly process. Before testing functionality, it is important to always review the manufacturer’s instructions for use (IFU). The T&A tray contains several types of instrumentation with different inspection areas, including ringed forceps, forceps, scissors, suction and more. When testing ringed forceps, it is important to inspect and test the following areas:

- Jaws – Two or more opposable parts that open and close; used for holding or crushing something between them
- Serrations – Parallel grooves in the jaws of surgical instruments
- Box lock – Point where the two jaws or blades of an instrument connect and pivot
- Shanks – The straight, narrow part of a tool that connects the working part with the handle.

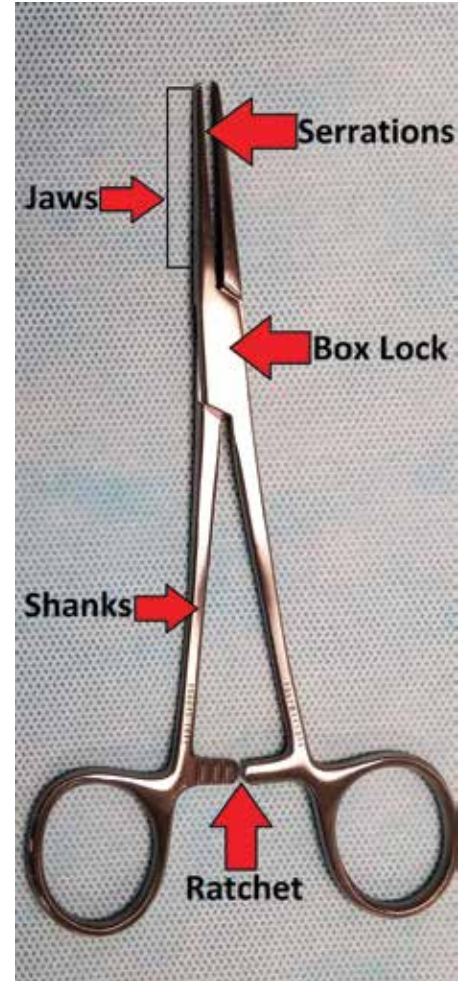


Figure 2: Key inspection points for forceps

- Ratchet – The part of a surgical instrument that locks the handles in place

The jaws of the ringed instruments should align and approximate when closed. The serrations in the jaws should be inspected for cleanliness and damage. The box lock can be one of the most challenging areas to clean on the instrument. Residual bioburden in the box lock can damage the instrument and make it difficult to open and close. Stress fractures are commonly found in the box lock area, which can be caused

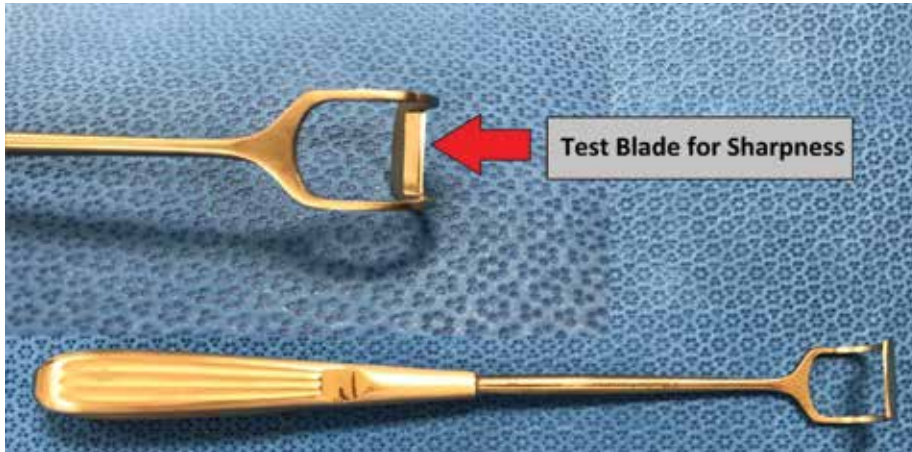


Figure 3

It is essential to test the sharpness of scissors. Red testing material should be used for scissors 4.5" and larger, and yellow testing material should be used for scissors 4" or smaller. Before being considered functional/acceptable, scissors must demonstrate the ability to cut through the testing material cleanly several times.

The suction device is an important instrument used in a T&A procedure. The primary function of the suction is to remove blood, body fluids and irrigation solution from the operative site. Visual inspection of the inside of the device is just as important as inspecting the outside of the device. Tools, such as the borescope, can be used to visually inspect the innerworkings of the device.

Other important instrumentation on a T&A tray includes curettes and mouth gags. Curettes should be inspected for nicks and burrs in the blade area and tested for sharpness using a plastic dowel rod. See Figure 3. The mouth gag has two main areas of interest for inspection. First, when inspecting the spring-action locking mechanism that secures the blade while in use, the spring should move freely without hesitation. Second, the silicone guard should be intact without tears or gouges, and the screws should be secure and not loose. See Figure 4.

OBJECTIVE 3: Discuss the function of tonsillectomy and adenoidectomy instrumentation during a procedure

After the patient is anesthetized, the patient is draped for the procedure. A head drape is used and secured with a towel clamp. After the patient is fully draped, a mouth gag retractor is used to open the mouth, which is the operative site, and to secure the tongue. It is important that the mouth gag stay in place throughout the procedure; therefore, checking the spring function and lock mechanism is critical. The

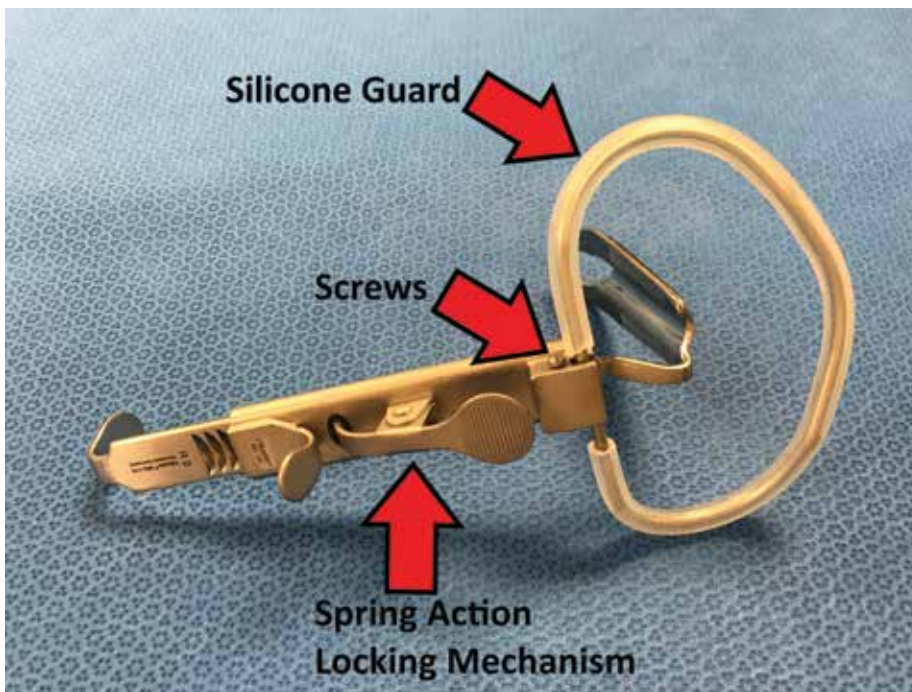


Figure 4

by over use or improper sterilization in the closed position. The shanks should be symmetrical and undamaged. The ratchet area should be tested to ensure the instrument stays closed after being ratcheted. If the ratchet springs opens while testing, the instrument is damaged and should be sent for repair. Some

needle holding forceps have tungsten carbide jaw inserts (indicated by gold ring handles) that can be removed when they become worn from use or damaged.

Scissors should be inspected in the same manner as ringed instruments (this is done by visually inspecting the key areas previously outlined in this lesson).



silicone inserts or tubing help protect the patient's teeth, gums and lips from injury. Loose screws on the mouth gag retractor have the potential of dislodging and falling into the patient's esophagus or trachea.

Once the mouth gag is in place, a red rubber catheter is placed in the nose and passed through the nasopharynx into the back of the mouth. The red rubber catheter is retrieved and both ends are clamped with a tonsil forceps. This maneuver retracts the soft pallet and allows for access and better visualization of the adenoids. The forceps holding the red rubber catheter must stay in the locked position to keep the soft pallet retracted. Testing the ratchet of the tonsil forceps will help ensure the instrument stays locked.

During the adenoidectomy portion of the procedure, a laryngeal mirror is used to visualize the adenoid tissue, which is located on the posterior wall of the nasopharynx. Mirrors should be checked for stains and cloudy spots that could impede visualization. If a mirror is cloudy or damaged, it should be removed from the tray and replaced. Once the adenoid tissue is visualized, it can be removed with either an adenoid curette, microdebrider or suction electrocoagulator. When using the adenoid curettes, it is important that the curette blade is sharp and free of nicks and burrs that can rip and tear tissue instead of cutting tissue. After the adenoid tissue is removed, any remnants can be removed by using a St. Clair-Thompson forceps or Meltzer triangular punch. These instruments should be sharp, so tissue can be cut cleanly without further ripping or tearing of tissue.

After the adenoids are removed, sponge holding forceps are used with radiopaque sponges to pack the nasopharynx area and help control

bleeding. The ratchet area of the sponge holding forceps should be tested to ensure it stays in place while holding the sponge.


Next, the tonsillectomy procedure is performed. The tonsillectomy can be performed using several different techniques, such as "hot knife" which uses electrocautery, coblation or "cold knife," which uses a #12 blade and the #7 knife handle. During the "cold knife" technique, an Allis clamp or White tonsil clamp, which is similar to a curved Allis clamp, grasps the tonsil tissue. It is important to inspect the jaws of the clamp to confirm it can hold tonsil tissue and withstand the back-and-forth twisting movement that is required during the tonsil dissection. The #7 knife handle and #12 blade are used to make the initial cut from the superior pole to the anterior tonsil pillar. The Fisher tonsil knife and dissector is then used to help further dissect tonsil tissue from the tonsillar capsule. Nicks and burrs in the Fisher knife can also rip and tear tissue instead of cleanly dissecting tissue.

A tonsil wire snare is then placed around the tonsillar tissue and the tonsil is removed. Testing of the snare is vital in this phase. The wire from the snare should pass smoothly and completely through the shaft of the snare, without hesitation. Snare wire that does not pass completely through the shaft can cause excessive bleeding and be difficult to remove, which can cause a delay during this critical portion of the procedure. The tonsil space can then be packed using the tonsil sponge and the procedure is repeated on the next tonsil. After both tonsils are removed, excess bleeding is then controlled with a suction electrocoagulator. A Hurd dissector and Pillar retractor can be used to retract the tonsillar pillar and improve visualization, in addition to suction with a Yankauer or Andrews-Phychon suction to remove

blood, body fluid and smoke from the surgical site. After the tonsil areas have stopped bleeding and the tonsillar spaces appear dry, the adenoid sponges are removed, and a suction electrocoagulator and mirror are used to complete the procedure.

Note: There are several variations in the T&A procedure. Objective 3 covers some but not all surgeon-specific instrument preferences or procedure styles.

Conclusion

Procedures such as the T&A could not be successful without the knowledge of the CS/SP technician. CS/SP technicians who understand the importance of instrument inspection and testing and are familiar with how instrumentation is used during a procedure gain a better understanding and are better equipped to prevent adverse patient outcomes. 

Resources

International Association of Healthcare Central Service Materiel Management. *Central Service Technical Manual, Chapter 10 Surgical Instrumentation*, pp.179-201. 2016.

Alexander's. *Care of the Patient in Surgery, Chapter 25 Pediatric Surgery*, P.1127. 2011.