

Wire Cutter: Improved approach with Basic Instrument.

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ABSTRACT

A good armamentarium is basic to a practicing oral and maxillofacial surgeon. Various instruments and equipment are being improvised on a continuous basis to curtail various inherent problems and disadvantages of these instruments. The wire cutter is one such instrument, which is used in day-to-day oral surgical practice and is not free of disadvantage like blunting of sharp edges as a result of repeated usage and sterilization process. In this article, we discuss about a commonly used basic instrument (nail cutter) which can be efficiently used as a wire cutter.

Keywords: Intermaxillary fixation, Nail cutter, Wire cutter.

INTRODUCTION

Wire cutter is a basic instrument used in day to day maxillofacial surgical practice. Use of these wire cutters in multiple patients necessitates proper sterilization of the instrument. Proper sterilisation protocols are mandatory to prevent surgical site infection. The CDC Guideline for prevention of surgical site infection, published in 1999, details the criteria for defining an SSI. An infection must occur within 30 days after surgery to be classified as an SSI; however, if the surgery includes an implanted device or prosthesis, then the infection window extends out to one year.^[1] Therefore using properly sterilised instruments and aseptic precautions it possible to reduce wound infections in major clean operative procedures to less than 0.5%, in clean contaminated cases to less than 1.0% and in contaminated cases to less than 2.0%, even in high-risk patients.^[2]

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Commonly used sterilization procedures result in loss of cutting efficiency of these wire cutters. A number of sterilization methods have been used to overcome this unavoidable disadvantage, but those are expensive method and increase the cost and moreover are not widely available. Over years, various designs of wire cutters have been introduced and are commercially available to improve the dexterity during the procedure. We

here would like to report use of nail cutter, a basic indigenous instrument which can be efficiently used on a disposable basis for cutting of wire ends in maxillofacial practice.

MATERIAL AND METHOD

We checked the efficiency of nail cutters to cut twisted ends of wires, those placed on cast models. Then the nail cutters were subsequently distributed among 9 residents of department of oral and maxillofacial surgery to compare its convenience over conventional commercially available wire cutters. A subjective assessment based on personal experience and opinion was done. Residents were asked about their experiences for using the nail cutters as a substitute. All the operators reported that the nail cutter is a simple, efficient and untroubled some instrument which can be used for wire cutting during stabilization procedures like wire splinting, arch bar fixation and other intermaxillary wire fixation methods [Figure 1].

DISCUSSION AND CONCLUSION

Blunting of sharp edged instruments is a common disadvantage of sterilization methods available. Physical changes such as reduced hardness, corrosion, and loss of temper has been seen after repeated sterilization of instruments. Matlack stated that even though autoclaving is the standard form of sterilization, it is unacceptable to orthodontists because of the severe rusting and corrosion it causes on pliers' joints.^[3] Based on the amount of risk involved, Spaulding categorized the

instruments as critical, semi-critical, and noncritical. [Table I] According to Guideline for Disinfection and Sterilization in Healthcare Facilities (CDC), 2008, steam sterilization carries a major disadvantage of damage to surgical instruments on repeated exposure and if left wet can cause rusting of the instruments.^[4] Wire cutters routinely used falls under the category of critical items and hence demand a strict sterilization protocol to be followed or should be used on the disposable basis as discussed in [Table-1]. The advantage of nail cutters over conventional wire cutters is its easy availability, cost effectivity and it can be discarded after every procedure. Even after discarding the nail cutters after every procedure, the cost effectivity remains appropriate. This alternative instrument has its advantage to be used in camp or rural setting. To manage the availability of adequately sterilised instrument for repeated use in camp setting are difficult to achieve. Though sterilizable and at the same time cost effective, nail cutters can be utilised as single time use instrument. Therefore, every time a new instrument (nail cutter) can be used in each individual. Wire cutter, though can be sterilized in a similar way as nail cutters but are expensive , and tend to get dull after few procedures which may further increase difficulty during the procedure or and increase cost with change of instrumentation. Various wire-cutting instruments designed and available are side cutting. Small size of nail cutters [Figure 2] makes it easy to control when in use. Though this is an end cutting instrument yet it could be employed to

cut wires during various procedures without difficulty [Figure 3].



Figure 1: showing use of nail cutter to cut twisted free ends of wires



Figure 2: showing side view of cutting edge of instrument.

Table 1: According to Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008

	Critical	Semi-critical	Non critical
Criteria to categorize instruments and medical equipments	Enters sterile tissue or vascular system. Instruments carry high risk of contamination or disease transmission	These items contact the mucosa and or the non intact skin surface. They also carry a high risk of contamination and disease transmission.	These items come in contact with intact skin but not in mucous membrane.
Methods of sterilization, (according to CDC guidelines, 2008.)	use of disposable items, steam sterilization methods or chemical sterilants	Use of Disposable items, dry moist or chemical sterilization. Minimally high level disinfection should be done	Low level disinfection and cleaning is adequate for control of contamination and disease transmission.
ITEMS	surgical instruments, cardiac and urinary catheters, implants, and ultrasound probes used in sterile body cavities	respiratory therapy and anesthesia equipment, some endoscopes, laryngoscope blades, esophageal manometry probes, cystoscopes , anorectal manometry catheters, and diaphragm fitting ring	bedpans, blood pressure cuffs, crutches and computers



Figure 3: Showing top view of cutting edge of instrument.

In our experience, nail cutter being an end-cutting instrument small in size, light in weight is equally effective as wire cutters for use in maxillofacial wiring procedures. Sterilization of nail cutter is similar as wire cutters and disposability and ease of availability of the instrument makes it convenient for use with minimal chances of cross contamination, which is comparatively more with wire cutters.

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