

# Ahila's Diathermy Round Knife for Endoscopic Ear Surgery

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**Abstract** As endoscopic ear surgery is evolving day by day there is a constant need for improvisation in terms of instrumentation, visualization and clear bloodless surgical field. The applications of Ahila's Diathermy Round Knife for Endoscopic Ear Surgery are presented. The development of Ahila's diathermy round knife will prevent shifting to two handed ear surgery or the need for Endo holders. This new instrument is a game changer in endoscopic ear surgery creating a clean incision and bloodless field to operate. Surgical Instruments represent a major financial asset to the healthcare facility. Careful attention to care, handling and sterilization is essential to avoid costly replacements, enhance patient and surgeon satisfaction, reduce costs and delays in the Operating room and enhance patient safety. Ahila's round diathermy knife may facilitate the performance of surgery and advance the art of Endoscopic surgery to a higher level.

**Keywords** Endoscopic surgical procedures · Otology · Diathermy · Round knife

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## Introduction

As endoscopic ear surgery is evolving day by day there is a constant need for improvisation in terms of instrumentation, visualization and clear bloodless surgical field. Identifying this requirement to address nuances in endoscopic ear surgery can lead to the concept of designing, creating or modifying instrument and eventually patenting the device.

The applications of Ahila's Diathermy Round Knife for Endoscopic Ear Surgery are presented. Senior Author has devised the Ahila's round diathermy knife to facilitate clean incision and bloodless field to operate with a good postoperative healing.

As a surgeon practicing minimally invasive ear surgery, the need is to first identify a new instrument that could perform a certain function in a better way. The need, in turn, can generate ideas or concept which may then lead to the design and development of a new instrument. This patented idea can reach out to many surgeons around the world in the form of article/surgical videos/through instrument companies to facilitate and advance the art of surgery.

## Method

The applications of Ahila's Diathermy Round Knife for Endoscopic Ear Surgery are presented.

## Author's Perspective: The Idea and the Need for This Instrument

I started doing endoscopic ear surgeries approximately 12 years ago. Initial step of elevating tympanomeatal flap by single hand, resulted in bleeding from incision site

**Fig. 1** Ahila's diathermy knife

requiring frequent suctioning/usage of adrenaline soaked cottonoids. This encouraged me to device Ahila's Diathermy Round Knife that could do the job safer, faster and more efficiently maintaining hemostasis and simultaneously elevating the flap with the same instrument without need for frequent suction.

The French and Italian surgeons use monopolar diathermy for making incision for tympanomeatal flap for the past several years without any healing complications [1]. This device is a modification of Rosen's round knife insulated with port at the back end attached to a monopolar cable cord.

Ahila's Diathermy Round Knife is used for ear canal incision with low power diathermy setting at 10 W; suction is used to suck out the fume generated from canal wall diathermy incision. With the same instrument the tympanomeatal flap is elevated single handedly creating an absolutely bloodless field without the need for frequent suctioning.

Several cases were operated with this device over more than 2 years, Senior author has also trained colleagues and demonstrated the application of Ahila's Diathermy Round Knife in live Endoscopic ear surgery in India and Abroad without any complications or postoperative healing complications.

### Safety Issues

The integrity of insulation on insulated instruments is essential to prevent patient injury and/or surgical team. Such instrument should be timely inspected visually for any breaks in the integrity of the insulation. This is best visualized using a lighted magnifying glass. It is recommended to perform insulation testing using a device specifically designed for this purpose. There are several on the market to evaluate the performance, ease of use, cost and capability of the tester. Some units can also test cables and cords which is also desirable. Results of the insulation testing should be documented in a log form and the records saved with the sterilization records [2].

### Sterilization

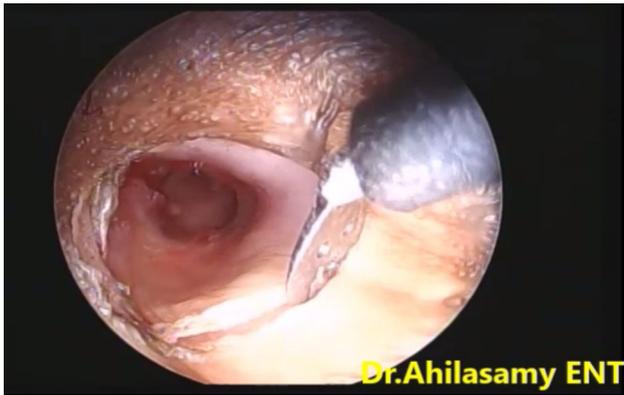
Can be done by removing the assembly of the insulated device and separately sterilizing each part with a contact

time with an enzymatic cleaner for 10–15 min, gentle cleaning the tip of the instrument with brushes/small soft bristle tooth brush and then flushed with distill water or clean tap water. It's recommended to use tip protectors to protect the delicate and sharp end of this instrument to increase durability [3].

### Results

The development of Ahila's diathermy round knife will prevent shifting to two handed ear surgery or the need for Endo holders. This new instrument is a game changer in endoscopic ear surgery creating a clean incision and bloodless field to operate (Figs. 1, 2, 3, 4). Other application of this instrument is in endonasal procedure like septoplasty (septal incision), Dacryocystorhinostomy (Create a posteriorly based mucosal flap to expose the lacrimal

**Fig. 2** Ahila's diathermy knife: picture of the tip of the instrument**Fig. 3** Ahila's diathermy knife entire setup



**Fig. 4** Application of Ahila's diathermy knife in endoscopic ear surgery

bone), Pedicled nasoseptal flap (Hadad-Bassagasteguy flap), creating a clean incision and bloodless field.

## Conclusion

Surgical Instruments represent a major financial asset to the healthcare facility. Careful attention to care, handling and sterilization is essential to avoid costly replacements, enhance patient and surgeon satisfaction, reduce costs and delays in the Operating room and enhance patient safety. Ahila's round diathermy knife may facilitate the performance of surgery and advance the art of Endoscopic surgery to a higher level.

## Compliance with Ethical Standards

**Conflict of interest** The authors declare that they have no conflict of interest.

**Author's Contributions** Ahilasamy Nagalingeswaran: Performed surgery, own surgical technique and patient preoperative and post-operative management and follow up. Rajendran Dinesh Kumar: Preparation of the manuscript, literature review and review of manuscript.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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