

# A randomised double blinded study comparing harmonic scalpel tonsillectomy with bipolar tonsillectomy

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## Abstract

**Objective:** To compare the differences in pain, analgesic use and bleeding in children after tonsillectomy using either harmonic scalpel or a bipolar diathermy surgical technique. The harmonic scalpel is a surgical instrument used to simultaneously cut and cauterize tissue. Unlike electro surgery, the harmonic scalpel uses ultrasonic vibrations instead of electric current to cut and cauterise tissue. A retrospective medical chart review of 200 patients who underwent tonsillectomy. 100 patients were operated by harmonic scalpel and 100 patients were operated by electrosurgery. Harmonic scalpel tonsillectomy found to be more advantageous in its efficiency and post operative morbidity.

**Key Word:** Antioxidant, Fibrinolytic, Herbal medicine, Nanoparticles, Turmeric

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## INTRODUCTION

Tonsillectomy/adenotonsillectomy is a commonly performed operation in children in ENT hospitals for chronic tonsillitis, chronic adenotonsillitis and recurrent tonsillitis. Primary bleeding, reactionary bleeding, secondary bleeding, postoperative pain, difficulty in deglutition are common complications of tonsillectomy operation. A lot of trials have been carried out in various institutes by using different techniques to minimise complications of tonsillectomy. We compared harmonic scalpel tonsillectomy with electrosurgery tonsillectomy in our hospital. Harmonic scalpel tonsillectomy is found to be advantageous to minimise complications of operation than electrosurgery tonsillectomy. We compared

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## MATERIALS AND METHODS

The charts of 200 patients who underwent tonsillectomy in Dr. Ulhas Patil medical college hospital during 2 years period from January 2017 to December 2018 in which 100 patients were operated by Harmonic scalpel and 100 patients were operated by electro-cautery were reviewed. Patients were stratified in to 2 groups based on dissecting used instrument (HS vs EC)

Table 1: Age and sex chart

Age in years	No of pts.	Male	Female
5 to 10 yrs.	125	75	50
10 to 15 yrs.	50	30	20
15 to 20 yrs.	25	20	5

Male to female ratio - 5: 3

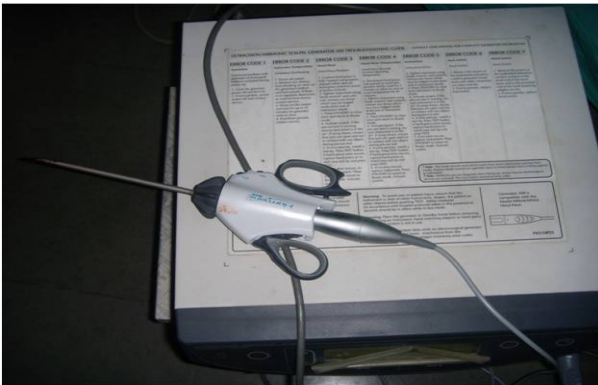
## RESULTS AND OBSERVATIONS

1. Mean operating time with Harmonic scalpel tonsillectomy was within 32 to 40 min. and with electro cautery was within 40 to 50 min

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2. Bleeding with Harmonic scalpel tonsillectomy was minimal in during operation, within 24 hrs. and within 7 days is negligible than electro cautery tonsillectomy.
3. Pain during operation is minimal with HS. than compared to EC.

## DISCUSSION



The Harmonic scalpel is surgical instrument used to simultaneously cuts and cauterize tissue unlike electro cautery the Harmonic uses ultrasonic vibrations instead of electric current to cut and cauterise tissue. The Harmonic scalpel has got many advantages over electro cautery and are as follows

### Advantages of Harmonic Scalpel

- Minimal lateral thermal tissue damage
- Less smoke formation
- No neuromuscular stimulation
- No electrical energy to or through the patient
- Mechanical shears are safe
- Smaller incisions for open surgery

- No need of bleeder ligation up to 3 to 5 mm. diameter
- Operative time is less
- Intraoperative bleeding is less
- Post operative drainage volume is less.
- Minimal rate of complications
- In minimal invasive endoscopic procedures in small operative spaces like in ENT, HS use gives excellent Haemostasis
- Early post operative feeding to patients is possible after 6 hrs.
- Wound infections are not reported

## CONCLUSIONS

In this study We have demonstrated that harmonic scalpel is a useful device in Tonsillectomy Surgery it reduces postoperative pain, blood loss and it shortens operative time improved patient outcome suggests the wider use of harmonic scalpel in Tonsillectomy surgery and justifies its cost over that of Electrocautery.

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