

Harmonic Scalpel in Superficial Parotidectomies; Our Experience at a Tertiary Care Centre

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Abstract: ***Aims and Objectives:** To compare operative time, intra operative and postoperative blood loss, length of hospital stay and post-operative pain between harmonic scalpel and conventional groups. **Materials and Method :** This study was conducted at Department of Otorhinolaryngology, Head and Neck Surgery of Government Medical College, Srinagar from 2013 to 2015. Patients undergoing superficial parotidectomies (n=30) were included in this study. **Results:** Harmonic scalpel proved better in all aspects for superficial parotidectomies as compared to conventional method. Average intraoperative blood loss in superficial parotidectomy patients was significantly less for harmonic group (37.9ml) than conventional group (49.1ml), p value <0.05. Furthermore, average hospital stay for superficial parotidectomy patients was significantly shorter in Harmonic group (1.22 days) than in Conventional group (1.77 days), with a p value <0.05. Average postoperative pain in patients undergoing superficial parotidectomies less in Harmonic group than conventional group but statistically significant only at 24 HRS. **Conclusion:** Use of Harmonic Scalpel is recommended in superficial parotidectomies.*

Keywords: Harmonic scalpel, superficial parotidectomies, Blood loss, operative time, Hospital stay

1. Introduction

In the endeavour for advancement of surgical methods the introduction of harmonic Scalpel provides an exciting opportunity. Ultrasonic shear technology has long been used for various surgical procedures, such as laparoscopic cholecystectomy¹, fundoplication², laparoscopic hysterectomy³ and liver resection⁴, it has also been used in thyroid surgery⁵. The ultrasound dissection using high-frequency mechanical energy for cutting and coagulating was established in the early 1990s⁶. The dissection of tissue with ultrasound techniques is a further possibility that permits preparation and haemostasis at the same time. Reports on ultrasonically activated devices in thyroid surgery suggest a reduction of the operation time compared to the conventional technique^{7, 8, 9}.

However the role of harmonic scalpel in salivary gland surgeries remains understudied. Review of literature yields on a few studies^{10,11,12,13}.

2. Materials and Methods

This prospective study was conducted in the Postgraduate Department of Otorhinolaryngology & Head and Neck Surgery of Government Medical College, Srinagar from April 2013 to October 2015 after clearance from the ethical committee. Sufficient informed consent and agreement in accordance with the Helsinki declaration was obtained from the patients' in their own language.

Superficial parotidectomies were done using standard modified Blairs incision after which flaps were elevated to anterior border of masseter and facial nerve was routinely identified.

3. Results

Table 1: Average Operative time for superficial parotidectomies in the study

Average (min)	Harmonic(min)	Conventional (min)
55.9(4.3)	50.1(4.40)	61.1(3.0)

Average operative time for superficial parotidectomies for harmonic group (50.10 min) was significantly shorter than Conventional group (61.7min), p<.05 as shown in the above table and figure below.

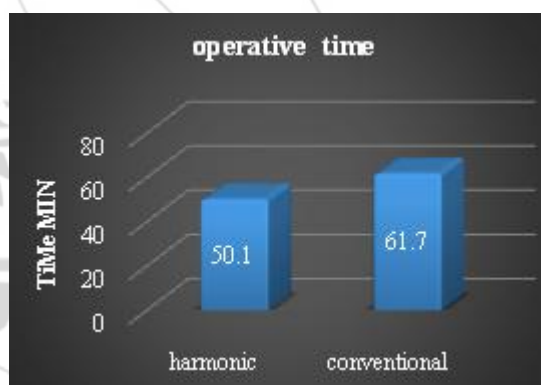


Table 2: Average Intraoperative Blood Loss in Superficial Parotidectomies

Average (ml)	Harmonic (ml)	Conventional (ml)
43.5(5.6)	37.9(4.70)	49.1(5.7)

Table 3: Postoperative Hospital stay for superficial parotidectomies shown in the following table.

Average	Harmonic (DAYS)	Conventional (DAYS)
1.47 days(1.2)	1.22(1.4)	1.77(.90)

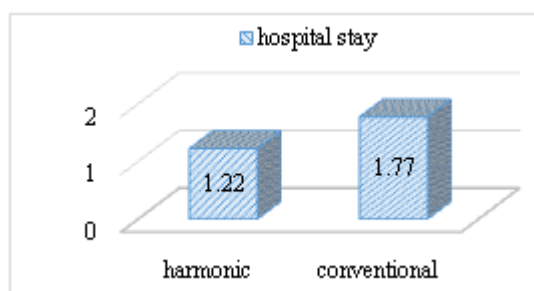


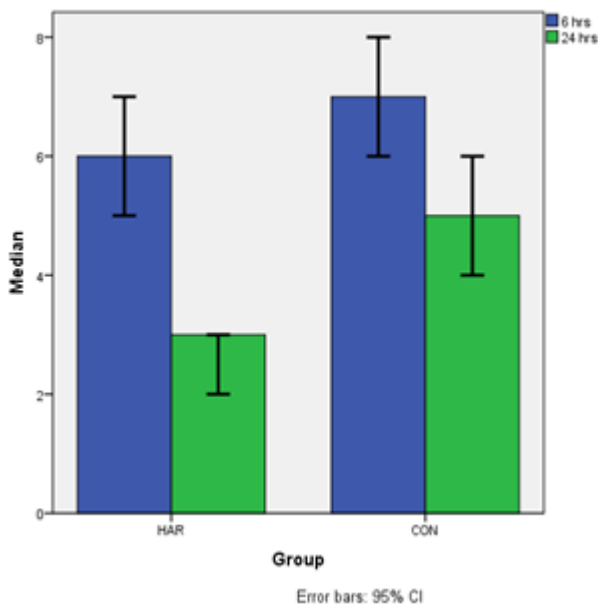
Figure 2

Average hospital stay for superficial parotidectomy patients was significantly shorter in Harmonic group (1.22 days) than in Conventional group (1.77days), with a p value <.05.

Table 4: Postoperative pain using visual analogue scale for superficial parotidectomies showed in following table

Time in Hrs	Harmonic Group	Conventional Group	Average
6	5.9(2.5)	6.9(2.1)	6.7(1.7)
24	2.8(.9)	4.9(1.4)	3.7(1.2)

Average postoperative pain in patients undergoing superficial parotidectomy was less in harmonic group than conventional group but statistically significant only at 24 hrs shown in figure below.

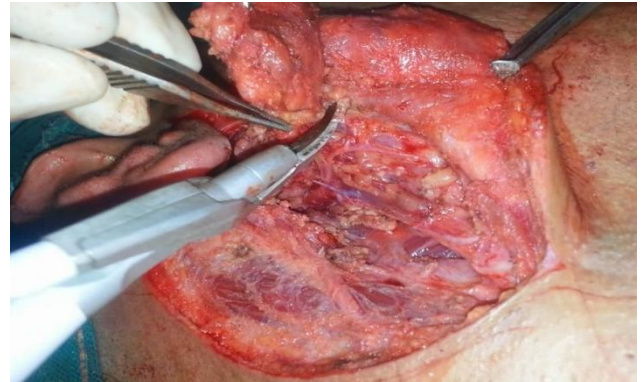


4. Discussion

The present study included 30 superficial parotidectomies 15 of which were done by harmonic scalpel and 15 by conventional method. Sex distribution revealed 16 male patients and 14 female patients. Analysis of data revealed average operative time for superficial parotidectomies for harmonic group (50.10 min) was significantly shorter than Conventional group (61.7min), p value<.05. Average intraoperative blood loss in superficial parotidectomy patients was significantly less for harmonic group (37.9ml) than conventional group (49.1ml), p value<.05.

Furthermore, average hospital stay for superficial parotidectomy patients was significantly shorter in Harmonic group (1.22 days) than in Conventional group (1.77days), with a p value <.05.

Average postoperative pain in patients undergoing superficial parotidectomies less in Harmonic group than conventional group but statistically significant only at 24 HRS.



Right superficial parotidectomy being operated using harmonic scalpel being shown in the above photograph.

Jackson¹¹LL et al studied forty-four patients underwent harmonic scalpel parotidectomy and 41 patients underwent conventional cold knife parotidectomy (control group). Use of the harmonic scalpel was associated with a significant reduction in intraoperative blood loss (38.0 +/- 3.6 mL vs. 66.0 +/- 10.8 mL for controls, P < 0.05) and duration of drainage (31.80 +/- 2.4 h vs. 39.29 +/- 2.21 h for controls, P < 0.05). Use of the harmonic scalpel in superficial parotidectomy (n = 35) compared to controls (n = 37) was associated with a significant reduction in intraoperative blood loss (38.0 +/- 4.23 mL vs. 68.0 +/- 12.0 mL, P < 0.05). Blankenship¹²et al in their study had forty-two patients who were eligible for inclusion. Nineteen patients underwent Harmonic Scalpel parotidectomy (HS) and 21 patients underwent conventional parotidectomy (control group). There were no significant differences between the 2 groups with respect to demographic data, pathology, or tumor size. Use of the Harmonic Scalpel was associated with a significant reduction in length of surgery (167.5 +/- 42.6 min vs. 195.5 +/- 37.4 min for controls, P = 0.03) and intraoperative blood loss (37.5 +/- 25.8 mL vs. 60.0 +/- 37.1 mL for controls, P = 0.03).A. Deganello¹³et al in their study found the admission time was significantly shorter in the HS group than the CI group (3.9 ± 1.2 days and 4.7 ± 1.4 days, respectively, p < 0.01

The results from the present study are in accordance with the literature with regard to less operative time, intraoperative blood loss and hospital stay but actual values differ most likely due to local practice and technique.

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