

# Technique of Harmonic Focus® In Tracheostomy

Kiyoaki Tsukahara<sup>1\*</sup>, Kazuhiro Nakamura<sup>1</sup>, Ray Motohashi<sup>1</sup>, Hiroki Sato<sup>1</sup>

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**\*Corresponding author:** Kiyoaki Tsukahara, Tokyo Medical University Hachioji Medical Center 1163 Tatemachi, Hachioji, Tokyo 193-0998, Japan, Tel: +81 42 665 5611; Fax: +81 42 665 5639; E-mail: [tsuka@tokyo-med.ac.jp](mailto:tsuka@tokyo-med.ac.jp)

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particularly in minimally invasive surgery, but the use of HS in open surgery has been limited as the design of the device is uncomfortable for the surgeon [4,5]. However, with a similar form to Kelly forceps, HF is suitable for open surgery, and its usefulness in terms of decreased

hypo pharyngeal cancer in 5 cases, mesopharyngeal cancer in 2 cases, laryngeal cancer in 2 cases and maxillary sinus cancer in 1 case. The procedure was conducted under general anesthesia in 8 patients and under local anesthesia in 2 patients.

A skin incision was made in the inferior margin of the cricoid cartilage, and FOCUS was used from treatment of subcutaneous fat onwards. FOCUS was used both to dissect the subcutaneous fat (Figure 2), as well as the anterior muscles of the neck and anterior jugular vein, and to seal these parts (Figure 3). The pyramidal lobe of the thyroid gland was transected (Figure 4) at a height directly below the cricoid cartilage, and the trachea was reached (Figure 5).

The time taken to reach the trachea from making the skin incision was measured. The study was approved by the ethics committee of Tokyo Medical University's Hachioji Medical Center. We have no financial disclosure in this study.

## Results

The mean time taken to reach the trachea was 93.1 s (range, 63-115 s) (Table 1). No complications were observed in any patient.

## Discussion

HS has been used in laparoscopic surgery and its application expanded to open surgery. HS has been extensively used as an alternative surgical tool for dissection and achieves perfect hemostasis,

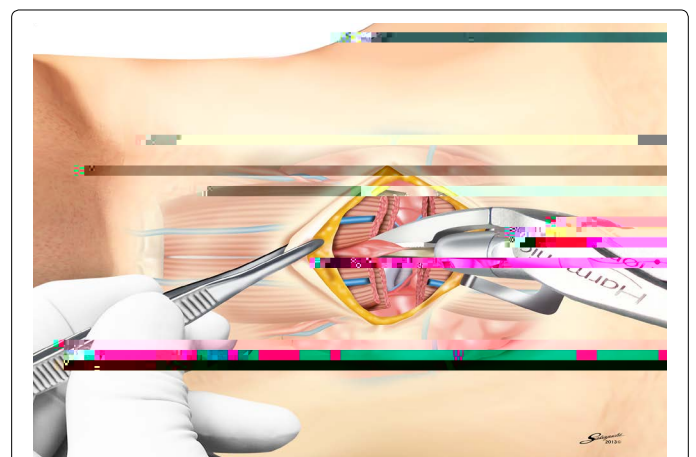


Figure 4:

hemorrhage and shortened operation time has been widely reported in areas such as thyroidectomy, liver transection, and breast cancer [5-8]. In a randomized study of 200 patients who underwent thyroid operation, Ortega et al. [7] reported a 15-20% reduction in operation time. HF is also suited to tracheostomy. In the current subjects, mean procedure time was 93.1 s. In cases in which the urgency of securing the airway is great, every second of operating time counts. This is therefore an important result.

The tissues at the height of the anterior trachea and inferior cricoid cartilage are fat, the anterior jugular vein, anterior neck muscles and the pyramidal lobe of the thyroid gland. With the use of HF to dissect and seal these tissues, no dysarthria, swallowing defects, or other functional damage will result, and use of the HF for this purpose allows an airway to be secured within a short period of time. However, it is important to confirm the thyroid cartilage and trachea by palpation when using the HF. Resection of the anterior surface of the trachea will usually cause no complications, but a risk of damage to the recurrent laryngeal nerve does exist with blind dissection of paratracheal tissue with the HF. This approach is effective in cases where palpation reveals displacement of the trachea due to lesions such as large thyroid tumor. The present study examined the time to reach the trachea from the inferior margin of the cricoid cartilage, but tracheostomy at any height would be possible by splitting the thyroid with HF. Gohoda et al. [8] noted that hepatectomy using the HF was performed safely even when the surgeon was a trainee. Based on the present procedure, the HF could be used safely in tracheostomy to secure an airway within a short period of time by large numbers of surgeons.

## Conclusion

The HF is useful for tracheostomy and enables an airway to be secured within a short period of time.

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