



Endocrine Surgery

Dr. Iwao Sugitani

Professor, Department of Endocrine Surgery, Graduate School of Medicine, Nippon Medical University/
Director for Department of Endocrine Surgery, Nippon Medical University Hospital

This is the second of the series in which experienced surgeons evaluate Wearable Surgical Lighting System OPELA^{III} upon using during actual open surgeries. This time, we asked Dr. Iwao Sugitani, the professor of endocrine surgery at Nippon Medical University, to appear on the series. He explains what the challenges are in open surgery of the neck area in the context of light requirement, and how much potential OPELA^{III} holds in improving it. He also shares how effective OPELA^{III} is during the procedures of total thyroidectomy and right cervical lymphadenectomy for papillary thyroid carcinoma.



Nerve preservation can be performed appropriately due to nerves and small blood vessels being clearly visible

Total thyroidectomy was performed against a papillary thyroid carcinoma with a 2.5 cm primary lesion on the right side of the thyroid gland using OPELA^{III}. At the same time, lymph node dissection was performed because there was a lymph node metastasis of more than 2 cm at the right neck.

The thyroid gland is almost entirely exposed when the neck is opened through an approximately 8 cm collar incision, taking minimal esthetic scarring into consideration. However, because the opening above the upper portion is narrow and deep, not enough light from the OR light reaches there. It is an area often difficult to focus the light on and the surgeon's head casts a shadow over it. This is a critical area where the superior thyroid artery passes, and the external branch of the superior laryngeal nerve runs in various patterns. What I really like about OPELA^{III} is that the light reaches deep into the surgical field and illuminates exactly where I want to see (Fig. 1).

Dissection of lymph node in the neck is also a procedure that requires peering into deep parts. Here, too, important blood vessels and nerves run vertically and horizontally.

In a thyroid surgery, it is important to ensure that the recurrent laryngeal nerves are properly located and preserved (Fig. 2). As preserving recurrent laryngeal nerves equals to successfully distinguishing small blood vessels around the nerves, clear visibility of small blood vessels is extremely important (Fig. 3).



Fig. 1 | Upper portion of thyroid gland

* ON means when OPELA^{III} is lit.

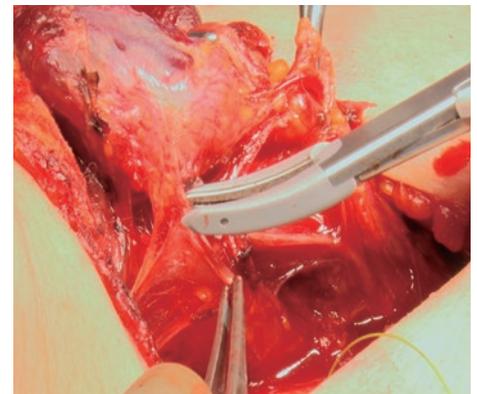


Fig. 2 | Treatment around the recurrent laryngeal nerve

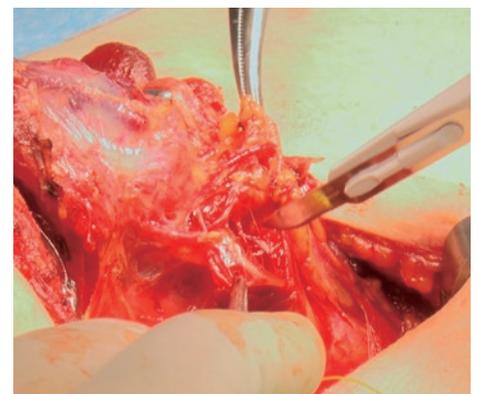
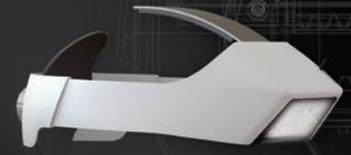


Fig. 3 | Peeling of recurrent laryngeal nerve for preservation



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I did not feel any burden or heaviness with OPELA^{III} even with frequent changes in posture during surgery

Lymph nodes in the upper neck may not necessarily lie along the internal jugular vein but may also lie behind the pharynx. It happens rarely, but in such cases where lymph node dissection in posterior pharynx or mediastinum is required, OPELA^{III} can be particularly helpful. In other words, surgeons may not be able to confidently perform surgery without the assistance of lights that can illuminate the depths.

The headlights I have used in the past felt heavy, and moreover, I had a sense of being pulled from behind by the power cord at the back. I prefer not to use headlights which limit my motion because thyroid surgery requires frequent posture changes, for example, lower my body to treat behind the thyroid gland or look behind the flap. With OPELA^{III}, the weight is negligible, and my movement is not restricted by cords, so I have no issue using it.



Wearing OPELA^{III} during surgery

OPELA^{III} is effective when creating tunnels (flaps) in endoscopic surgery

It was an open surgery for papillary thyroid carcinoma this time, but endoscopic surgery could be an option in the absence of lymph node metastasis or extrathyroidal invasion. Under the endoscope, one may think the light environment does not seem to matter, but when approaching from the precordium to create some room to operate or so-called “digging a tunnel”, good illumination is necessary. There is a risk of heavy bleeding during this procedure if not carefully done. This is where OPELA^{III} comes in handy in providing proper lighting while digging a tunnel.

There are times when patients hemorrhage after surgery and requires immediate treatment by opening the wound right in their hospital room, which happens not only in thyroid gland surgery. It would be very useful to have OPELA^{III} in such instances.

In the operation above, the OR light was turned off during the closing process, and the incision was sutured by using only OPELA^{III}. It felt awkward with the dark surroundings, but the brightness focused on the surgical field looked comparable to the OR light (Fig. 4). As brightness is an advantage even in shallow areas, not to mention deep areas, I believe demand will certainly increase in the

future. Proper illumination of the surgical field is very important for any surgeon, particularly those whose vision begin to deteriorate with age. I sincerely hope that OPELA^{III} will help prolong our career as surgeons.

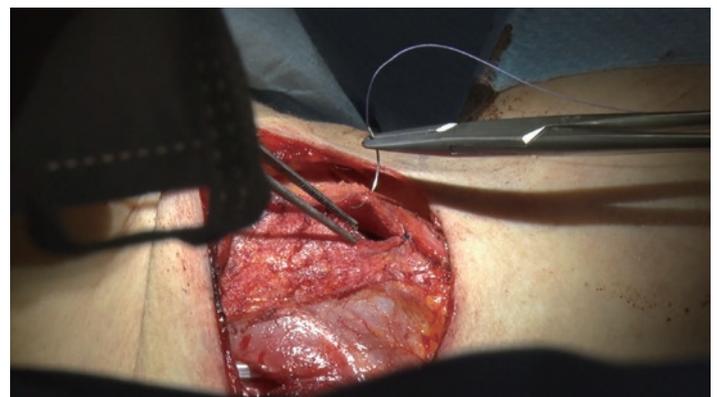


Fig. 4 | Suturing sternohyoid muscles without OR light, just OPELA^{III}

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TAIYO CORPORATION

30-9, SHIBA 5 CHOME, MINATO-KU, TOKYO
108-0014 JAPAN
TEL +81-3-5440-6273 FAX +81-3-5440-2080

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