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Open surgery in recent years in the field of breast oncology has increasingly shifted towards small incision even in deep areas because of the emphasis not only on minimal invasiveness but also on more esthetically favorable outcome.

This time, we have asked Dr. Seigo Nakamura from the Division of Breast Surgical Oncology at Showa University to evaluate the effectivity of OPELA^{III} in open surgery of the breast, wherein the postoperative visual esthetic is always considered important.



The brightness of OPELA^{III} penetrates even a deep and narrow surgical field

This was a case of mastectomy where a tumor about 2 cm was palpated at upper-outer part of the left breast and was diagnosed as cancer after a biopsy. The surgical field was an incision of about 15 cm in length.

The flesh closer to the incision could be dissected with relative ease, but as the surgery progressed deeper flaps of tissue began to form. And when the surgical field reached the depth near the end of the breast, OR light alone was no longer sufficient. It was then that OPELA^{III} showed its effectiveness in supplementing the light environment (Fig. 1).

To inflate the breast back to its natural form after mastectomy, it would be ideal to leave as much normal skin as possible, which meant that the flaps need to be larger, essentially making the surgical field deeper and narrower. However, due to its ability to illuminate the depths even with narrow incision, OPELA^{III} overcame this antinomy, demonstrating its usefulness especially from an esthetic standpoint.



Fig. 1 | Deep muscle tissue/ blood vessel can be recognized even when the large flap is formed

OPELA^{III} is useful in axillary lymph node dissection as it illuminates exactly where I want to see

In this surgery, the sentinel lymph node was just below the intercostobrachial nerve, which was another reason requiring deep incision (Fig. 2 and 3).

Also, the subsequent axillary lymph node dissection was carried out while having to peer into a depth of 15 to 20 cm as the patient was rather overweight.

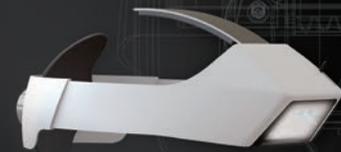
It is extremely challenging to illuminate deep into the axilla with only the OR light. Even when the angle and focus are adjusted properly



Fig. 2 | Deep inside where the sentinel lymph node used to be
*ON means when OPELA^{III} is lit.



Fig. 3 | Deep inside where the sentinel lymph node used to be
It can be clearly identified that the intercostobrachial nerve runs laterally as the surgery progresses
*ON means when OPELA^{III} is lit.



Breast Surgery

at first, the area I want to see keeps changing as I separate the surrounding tissues during operation. So, the angle and focus needs to be adjusted repeatedly.

There are retractors with lights on the tip, but they do not always illuminate where I really want to see.

The advantage of using OPELA III is that the surgeon can adjust the light to illuminate exactly where he/she wants to see at will. I would say it is particularly suitable for procedures such as axillary lymph node dissection.

Nerves and blood vessels are easily distinguished even in the deep, so they can be treated appropriately

The axilla contains the intercostobrachial nerve. Damaging it may result in paralysis of the upper arm. When there is not enough light in the surgical field, it is difficult to distinguish nerves from adipose tissue, so you run the risk of misidentification and potential error. OPELA III enables clear visibility to identify the nerves (Fig. 4).

Moreover, if the surgical field is properly illuminated, not only can nerves and adipose tissue be identified clearly, but also blood vessels can be easily distinguished. In breast reconstruction, a pocket needs to be created under the major pectoral muscle for insertion of expanders or implants. While creating this pocket, it is imperative to visually identify the internal mammary artery perforators to avoid inadvertently causing them to bleed. OPELA III is the perfect tool for



Fig. 4 | View after axillary lymph node dissection (nerves, adipose tissues, and blood vessels are easily distinguishable)
*ON means when OPELA III is lit.

mastectomy and nipple-sparing mastectomy for it provides sufficient brightness required for the procedures.

Future prospects for OPELA III

The biggest feature of OPELA III is that it illuminates the exact area the surgeon wants to see without having to adjust the OR light (Fig. 5). I particularly like the fact that I can get enough light where I want and when I want, due to its proximity to my line of vision. To further enhance this feature, it is my sincere hope that a voice activation system be developed to allow for vertical adjustment or shift the aperture from broad to narrow focused light in the future. In anticipation of further evolution, if the surgeon has the freedom to adjust the light at his/her own will, I believe that smoother surgery can be achieved.

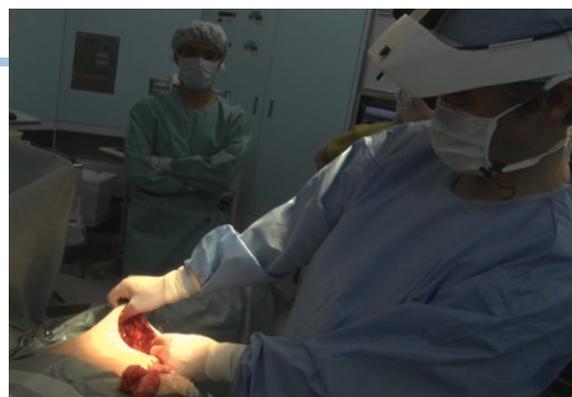


Fig. 5 | Wearing OPELA III. OPELA III can illuminate where you want to see, where OR light cannot illuminate.

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Check the interview video!