Wearable Surgical Lighting System



Community Hospital

Dr. Makoto Maemura

Superintendent of Chiba Shiroi Hospital, Hakushokai Medical Corporation

Chiba Shiroi Hospital, situated in Shiroi City, Chiba Prefecture, is a designated emergency hospital featuring 100 beds and offering community-based medical care. Annually, it conducts between 150 to 200 gastroenterological surgeries. For this interview, we spoke with Dr. Makoto Maemura, the hospital's superintendent. Dr. Maemura performs a range of gastroenterological procedures, from digestive tract to hepatobiliary and pancreatic surgeries. He provided insights into the conditions of operating room lighting in small to medium-sized community hospitals, the reasons behind the adoption of OPELAII system, and shared his experiences with its use.





Enhancing Operating Room Lighting: Overcoming Challenges with Innovative Solutions

At our hospital, two surgeons perform general gastrointestinal surgeries, but these procedures are conducted under the illumination of only one operating light. Unfortunately, this often fails to provide sufficient lighting for complex tasks requiring intricate details. Moreover, the lighting from a single direction proves inadequate, necessitating frequent adjustments by nurses, which disrupts the workflow. Although adding another overhead light was considered, the required ceiling modifications

would have been both costly and time-consuming, rendering the operating room unusable during installation. During a period of indecision, I discovered OPELAIII at an exhibition booth in an academic conference. It was unlike anything I had seen before. It had the quality of a ceiling operating room light while also worn on the head like a surgical headlight. Believing it might be the solution we needed, I decided to proceed with the purchase. In practice, the OPELAIII has proven

to be exceptionally effective. It provides ample brightness where needed most, which eliminates the tedious task of adjusting the overhead light. I usually use it for surgeries lasting 3 to 4 hours without causing discomfort or feeling heavy. Importantly, it not only substitutes for traditional operating lights but also enhances visibility for both the surgeon and assistants. This brilliant equipment significantly alleviates stress and reduces the physical burden on the surgeon, assistants, and nurses (Fig. 1).





Fig. 1 | Dr. Maemura conducting surgery using OPELAIII in combination with single-arm operating room light.

OPELAII's Wide Range of Application in Gastrointestinal Surgery Makes It Appealing

A substantial portion of our gastrointestinal surgeries involves intricate procedures on the digestive tract. OPELAII is exceptionally effective during these open surgeries, especially notable in laparotomy and gastric surgeries where visibility is crucial. It particularly enhances visualization in the perisplenic area, where standard lights fail to adequately illuminate the deep surgical fields. With OPELAII, the surgical field is brightly illuminated, enabling precise manipulation which reduces risk of

inadvertent damage. But even in case of bleeding, the device facilitates easy hemostasis due to improved visual verification, enhancing safety and accuracy of the operation (Fig. 2).

In colorectal surgery, I particularly appreciate its benefits when detaching the anterior/posterior wall of the rectum through perineal manipulation. Although such cases are not very common, it also proves useful during anal manipulations for ileal and colorectal anastomosis. Moreover, we





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use OPELAIII not only during open abdominal surgeries but also during laparoscopic surgeries. With our setup of two surgeons, we often perform procedures under laparoscopic assistance rather than fully endoscopic, and it is extremely valuable during anastomosis and reinforcement

of the anastomotic site. I typically wear the device from the beginning but only turn it on during reconstruction procedure through a small incision. In the hepatobiliary and pancreatic area, I use it in pancreatoduodenectomy, and it is particularly effective during bile duct jejunostomy at the time of reconstruction. Recently, when I performed the same procedure at another hospital, I thought to myself, 'If only I had OPELAIII with me, I wouldn't have to operate in a dark surgical field.' The operating room had overhead lights configured with dual arms, a main light and a secondary light, but I still wished for OPELA III. I think the confidence level in performing surgery is considerably different with and without OPELAIII.





Fig.2 | A scene from total gastrectomy procedure where deep surgical field is vividly illuminated by OPELAIII

OPELAII: A Valuable Addition to Traditional Overhead Lights

While it might seem useful only in environments with limited lighting, the fact that OPELAII provides illumination in alignment with the surgeon's line of sight proves its worth, regardless of the number of conventional lights present. My experience spans a variety of surgical settings — from inside a ship to small community hospitals and larger university hospitals — and I can assert with absolute certainty that optimal lighting is of significant importance in surgery. While energy devices are vital, visibility is paramount; without it, safe operations are compromised. Traditional lights often fail to evenly and thoroughly illuminate complex surgical fields, leaving critical areas covered with shadows and obscured. Here, OPELAIII excels, offering immediate, effective lighting without the need for labor-intensive installation. It is portable, thus allowing adaptability to outpatient surgeries and treatment room procedures for minor cases. While not inexpensive, its utility and value far exceed its cost. Due to our circumstances at the time, we purchased our unit outright, but a rental option is available in Japan now for facilities to test and experience its advantages firsthand before committing to a purchase. OPELAII is not a special lighting system designed solely for large hospitals. I believe it offers numerous benefits even for small and medium-sized community hospitals like ours.



Dr. Maemura expressing numerous benefits of OPELAII for small and medium-sized community hospitals.

[Manufacturer]

Taiyo Corporation

30-9, SHIBA 5 CHOME, MINATO-KU, TOKYO 108-0014, JAPAN TEL +81(0)3-5440-6273 FAX +81(0)3-5440-2080

https://opela3.com/en

Wearable OR Lighting System Born From Surgeon's Experience







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