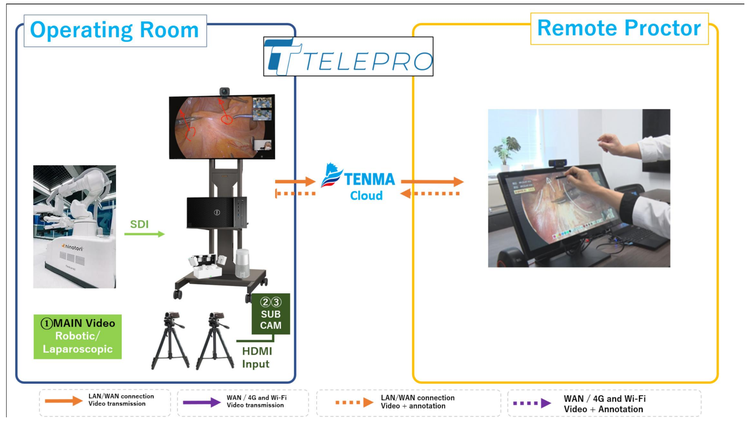
WIRELESS PROCTORING BY TELEPRO SYSTEM: FROM BESIDE TO INTERNATIONAL

SAGES 2025

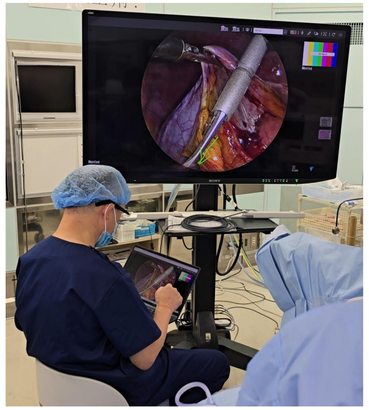
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Introduction With the advent of laparoscopic and robotic surgery, it has become possible to instruct without scrubbing the surgical field. In fact, it is common to instruct while looking at the monitor without scrubbing, but writing on the monitor is a complicated process. With the Telepro System (TENMA Co., Ltd, Japan), it is possible to write with a pen on a touch-sensitive laptop in the proctor's hand, enabling teaching. The Telepro System allows the user to sit beside the surgeon and write on the monitor to provide sensitive guidance with a pen. And because the latency of this system is extremely low, the instructor is wireless and can move freely, even via WiFi. This means that teaching can be done remotely, even from another country.

Materials and methods



The PC has a high-spec CPU and GPU for compressing the Video ➡ 4G is enough

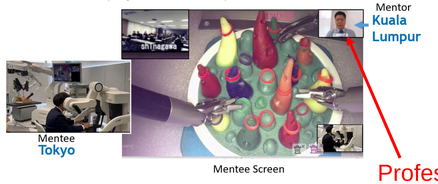


Usual usage of Telepro System
Just beside the patient

International usage of Telepro System

Test Drive

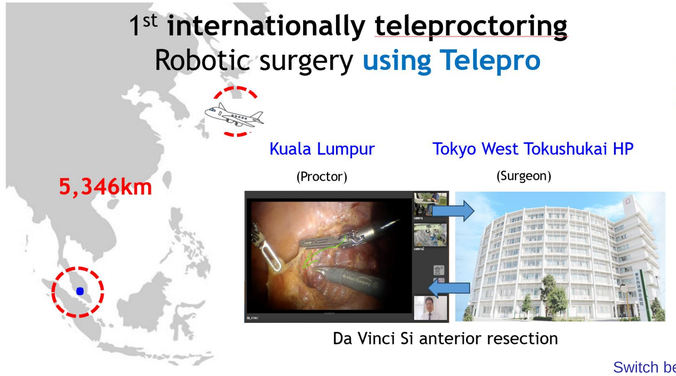
- 1st time of using TELEPRO for international connectior
- **Hinotori(Japanese Robot)**



Professor Kim Seon Hahn

Cases

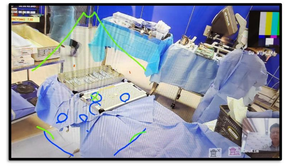
- 1 Malaysia to Tokyo West Tokushukai Hospital (Proctor of DaVinci)
- 2. Malaysia to Haibara General Hospital (Resident)
- 3. Australia to Nagoya Tokushukai General Hospital (Certificated Dr. of DaVinci)
- 4. Malaysia to Haibara General Hospital (Certificated Dr. of DaVinci)



Da Vinci Si anterior resection



Case Presentatin + Port Position



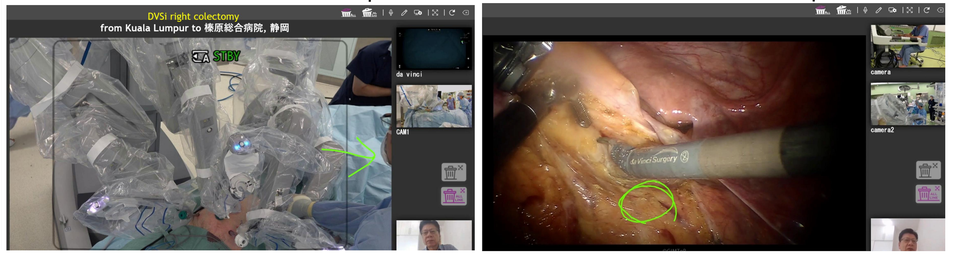
Green color: Prof.Kim
Blue color: Operator

Switch between two inputs

Arm Position setting
From external camera input

⟺

DaVinci annotation
From DaVinci camera input



Discussion In fact, we have used this system for teaching not only beside surgeon, but also between hospitals in different parts of the country and even overseas. The instructions are written into a laptop monitor in Malaysia or Australia that transmits the da Vinci Surgeon's Console with instruction voice by awareness delay (< 0.05 sec. average). This international tele proctoring system was used four times, and the proctoring was given without delay, as if the instructor were just behind the operator. We usually use this system as the beside instruction system during operation and use the domestic instruction system within Japan. We experienced the possibility of teaching regardless of the distance, and it turned out that in the future, it will be easy to teach even across national borders, and we will be able to receive instruction as if there were a surgeon behind us without long distance invitation of proctor surgeon.

Conclusion This proctoring system could become a new international proctoring system.