VIDEO COMMENTARY

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Toumai robotic system in uterine cancer surgery: first report of sentinel lymph node dissection in ten steps

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ABSTRACT

Background: In recent years, robotic surgery has gained traction across multiple disciplines, establishing a new minimally invasive paradigm. After the Da Vinci® (Intuitive, Sunnyvale, California) patent expired, several platforms with increasingly digital interfaces entered the market. Robotic surgery may represent a bridge between laparoscopy and digital surgery through interfaces that enable integration with emerging technologies. Among platforms, the Toumai robotic system (Medbot-Microport, Shanghai, China) features a single-arm cart with four arms, a three-dimensional console, and a split-view "picture-in-picture" function enabling communication with image-guided surgical technologies. This functionality is particularly valuable for indocyanine green (ICG)-guided sentinel lymph node (SLN) mapping in gynaecologic oncology.

Objectives: We present for the first time, a step-by-step video demonstration of SLN dissection for endometrial malignancies using the Toumai robotic system.

Participant: A postmenopausal patient with uterine-confined endometrial carcinoma undergoing total hysterectomy, bilateral salpingo-oophorectomy, and bilateral SLN biopsy.

Intervention: The technique includes: 1) ICG injection; 2) robotic trocar placement; 3) docking; 4) pelvic retroperitoneal access; 5) switch to split-view mode; 6) identification of the SLN critical view of safety by developing pararectal and paravesical spaces; 7) introduction of an ICG-capable camera through an accessory trocar; 8) activation of near-infrared visualisation after switching off the robotic light source; 9) SLN identification and dissection; 10) safe extraction.

Conclusions: The digital interface of the Toumai system integrates adjunctive technologies, illustrating how next-generation robotics expand the feasibility of SLN dissection in endometrial cancers.

What is New? The Toumai platform enables SLN dissection even in the absence of an in-house integrated ICG endoscopic camera.

Keywords: Robotic surgical procedures, sentinel lymph node, indocyanine green, endometrial neoplasms, robotics

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Ethical approval: According to institutional policy, formal ethics committee approval is not required for educational video articles describing a single anonymised clinical case performed as part of routine clinical practice.

Informed consent: Written informed consent for participation and video publication was obtained from the patient.

Data sharing: No additional data are available beyond the material presented in the video.

Transparency: The authors affirm that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Video 1. Toumai robotic system in uterine cancer surgery: first report of sentinel lymph node dissection in ten steps: https://youtu.be/VkxWDYkAHYE