Combined laparoscopic and transperineal total pelvic exenteration for recurrent rectal cancer – a video vignette

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Dear Sir,

Extended rectal surgery beyond total mesorectal excision is technically demanding because of the handling difficulty within the deep pelvis and complex pelvic anatomy, which results in high morbidity rate. In particular, total pelvic exenteration (TPE) requires highly complicated techniques, especially in the cases of repeated surgery and/or preoperative chemoradiotherapy [1-5].

This video presents a step-by-step procedure describing a combined laparoscopic and transperineal TPE in a 72-year-old man with a local recurrent rectal cancer invading prostate and residual rectum. He had undergone a laparoscopic Hartmann operation (for primary rectal cancer) and an open extended right hepatectomy (for liver metastases), 3 and 2 years earlier, respectively. Furthermore, he had received radiation therapy (total 78 Gy) for prostate cancer 11 years earlier, and the rectal cancer tumors occurred within the irradiation area. In patients who had previous high-dose pelvic radiation, the technical challenge for rectal surgery is due to difficulty in defining the anatomy, especially in mobilizing the mesorectum with post-radiation changes distorting anatomic structures [6]. Total pelvic exenteration for radical resection was recommended by the multidisciplinary board discussion.

First, the laparoscopic approach was initiated. The steps of the procedure included lateral pelvic sidewall dissection up to the endopelvic fascia, and anterior dissection of the bladder along the Retzius space. Next, the transperineal approach was simultaneously proceeded using a GelPOINT platform (Applied Medical, CA, USA). The division of the levator ani muscles was extended from the posterior side to the lateral side using a combined abdominal and perineal approach. Finally, on the anterior side, the dorsal vein complex and urethra were transected *en bloc* along the pubic bone using a linear stapler (Endo GIA tri-stapler, purple cartridge; Medtronic. Dublin, Ireland) through a perineal port, which caused minimum bleeding. Through a lower mini laparotomy, a Bricker ileal conduit was constructed.

The total operation time was 683 min, and the blood loss was 90 mL. Final pathology showed negative resection margins. The patient was discharged at three weeks postoperatively, without any adverse events. To our knowledge, this is the first report of the combined laparoscopic and transperineal TPE for

recurrent rectal cancer following prior radiotherapy. The combined laparoscopic and transperineal approach can be an appropriate choice for TPE in terms of reduced operating time and bleeding control.

Conflicts of interests

Drs. Kenji Kawada, Keita Hanada, Daiju Yokoyama, Shusuke Akamatsu, Takayuki Goto, and Kazutaka Obama have no conflicts of interest or financial ties to disclose.

Author Contributions

Kenji Kawada: Concept, Video production, Writing-original draft, Surgical execution. Keita Hanada: Writing-review and editing, Surgical assistance. Daiju Yokoyama: Writing-review and editing, Surgical assistance. Shusuke Akamatsu: Writing-review and editing, Surgical assistance. Takayuki Goto: Writing-review and editing, Surgical assistance. Kazutaka Obama: Writing-review and editing, Supervision.

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