



**Supplemental Figure 1.** Cross-traction method.

A. A narrow pelvic cavity and mesorectal fat caused bent the shaft of the needle forceps rendering the tip uncontrollable. B. The longitudinal power direction was introduced without loss and formed good traction with no effect due to shaft stiffness. In the photograph of dissection of left side of TME procedure, cross-traction (D) could make better visualization of surgical field by preventing from bent of the shaft of the needle forceps compared to conventional counter traction (C).

Red arrow: Power direction

LO: the needle forceps in the left hand of the operator

RA: the needle forces in the right hand of the assistant