Clinical Outcomes of Laparoendoscopic Single-Site Surgery: Hiroshima University Experience

Introduction and Objective: The use of laparoendoscopic single-site (LESS) surgery has been increasing. We present our experience of single institution (Hiroshima University Hospital) in LESS surgery.
Materials and Methods: Between November 2009 and March 2012, we performed LESS in 44 patients for various indications including adrenalectomy (n=31), radical nephrectomy (n=12) and bilateral gonadectomy for androgen insensitivity syndrome (n=1). The procedures were performed by the use of SILS port (Covidien, Mansfield, MA, USA), GelPort (Applied Medical Resources Corporation, California, USA) or a homemade single-port device multi-instrument ports inserted through an umbilical and upper abdominal incision in combination with articulating and conventional rigid laparoscopic instruments and laparoscope. Perioperative data were prospectively collected. The analyzed parameters were age, body mass index (BMI), insuffration time, estimated blood loss, time of oral intake, visual analogue pain scale score (VAS), and complications.
Results: There was no conversion to open surgery for any patient. Two patients, however, were switched to a conventional laparoscopic adrenalectomy by the placement of three additional trocars because of severe adhesion and inferior vena cava injury, respectively. The recorded adverse events include one bowel injury (intraoperative closure without the need for stoma), one postoperative bleeding requiring blood transfusion, one prolonged ileus and one wound infection. All complications were graded as minor (Clavien grade II or less). LESS surgery was completed in 42 patients. The mean (range) patient age was 56.5 (35-73), 55.6 (35-75), 17 for adrenalectomy, radical nephrectomy and bilateral gonadectomy, respectively. The mean BMI was 23.5 (18.2-29.9), 25.2 (18.7-31.2), 21.0. The mean insuffration time was 162.0 (61-340), 168.8 (96-238), 44 minutes. The mean estimated blood loss was 36.6 (10-190), 51.3 (10-140), 5 mL. The mean time to oral intake after surgery was 1, 1.1 (1-2) and 1 day. The mean VAS score was 2.8 (0-10), 2.1 (0-4), 3 on the first postoperative day and 1.0 (0-6), 0.2 (0-1), 0 on the seventh.
Conclusions: The outcomes of our experience suggest that LESS surgery is a technically feasible and safe procedure. Prospective comparative studies with conventional laparoscopic surgery are needed to confirm the potential benefits of LESS surgery.