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Demonstration in human cadavers of feasibility of ileoproctostomy performed entirely through a transanal route

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Innovative surgical techniques are frequently developed in animal models before of trials in surgical patients. However, these experimental approaches do not permit a perfect evaluation of feasibility due to obvious anatomical differences between humans and animals. The Body Donation Program of the University of Padua has recently developed studies of feasibility on human cadavers of new surgical approaches. Natural Orifice Transluminal Endoscopic Surgery (NOTES) is an innovative kinf of surgery which utilizes a flexible endoscope to enter the abdominal, pelvic or thoracic cavities through the body's natural orifices and then through an internal incision. Skin incisions are thus unnecessary and, as a consequence, tissue trauma, postoperative pain, and incision-related complications are minimized and less anaesthesia is required. The aim of the present study was to verify in human cadavers the technical feasibility of a new NOTES technique, i.e., ileoproctostomy performed entirely through a transanal access. This surgical procedure was previously performed only in a porcine model. The procedure was carried out in three human cadavers (two males and a female). One cadaver was fresh. The other cadavers were fixed through infusion of Thiel's solution through the larger arteries. A Transanal Endoscopic Microsurgery (TEM) device and endoscopic instruments were utilized. The study demonstrated that ileoproctostomy through a transanal access is technically feasible in humans. The principal steps of the procedure were: placement of the TEM device; rectal perforation above the peritoneal reflection; peritoneoscopy using a standard gastroscope; grasping the small bowel with retrieval forceps and pulling it through the rectal hole; suturing the ileum and the rectum together with two semi-circular continuous sutures utilizing the TEM device; opening the ileal loop from the rectal side followed by endoscopic exploration. Although still at an experimental stage, ileoproctostomy through a transanal access is technically feasible in humans. In planning new procedures, a fundamental step is represented by feasibility tests on donated corpse.

Key words
Natural Orifice Transluminal Endoscopic Surgery, Body Donation Program, ileoproctostomy.