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NATURAL ORIFICE TRANSLUMINAL ENDOSCOPIC SURGERY (NOTES): DEVELOPMENT AND VALIDATION OF NEW TECHNOLOGIES

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Objective: The idea of a "no scar" surgery is recent, and still needs validation of dedicated technologies. The aim of the research protocol is to perform a transgastric NOTES cholecystectomy, through the development of a magnet device able to retract the gallbladder, a transgastric flexible trocar, a transgastric applicator of the device.

Methods: We first developed a magnetic device attached to the gallbladder by means of a mucoadhesive biofilm; the system was tested ex-vivo in a swine gallbladder and in-vivo in a domestic pig. Then we focused on the instruments validation by an in-vivo test in two domestic pigs: we optimized the correct placement of the overtube through the gastric wall to reach the gallbladder fundus, where the magnetic device is anchored by the transgastric applicator system.

Results: In an ex-vivo setting the magnetic-biofilm device stucked firmly to the gallbladder serosa which could be moved by an external magnet. In-vivo tests we anchored two magnetic devices to allow a sufficient retraction, and the cholecystectomy was completed under laparoscopic conditions. Furthermore the overtube was able to reach the gallbladder wall by retroversion of the gastroscope inserted into the overtube and the suction system was able to capture it. The magnet-biofilm anchoring to the gallbladder serosa was successful, although the biofilm did not stick firmly.

Conclusions: NOTES transgastric cholecystectomy in animal model is practicable, the instruments we developed are effective, but the biofilm needs to be optimized to achieve an efficient gallbladder retraction.

ONEDAY SURGERY TRANSTAR PROCEDURE, SAFETY AND FEASIBILITY STUDY

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Objective: Oneday surgery is an efficacious and cost-effective regimen not only for the system but also for patients. The Transtar procedure (TP) is a safe and effective technique to treat the obstructed defecation syndrome performing a transanal rectal resection. This technique was burdened by a high instruments cost and an hospitalization of no less than 2-3 days. This study was conducted to evaluate the feasibility and safety of the performance of TP in oneday surgery regimen.

Methods: From September 2009 to February 2011 all patients with indication for TP which have no more than 65 and an ASA score I or II and a BMI lower than 35 were included in the study and treated in oneday surgery setting. The presence and the time of presentation of all intraoperative and postoperative complications were carefully investigated.

Results: We performed 89 STARR in oneday surgery regimen and nobody presented major complication or needed the prolongation of hospitalization or readmission.

Conclusions: In selected patients, oneday regimen allows to perform the TP with an acceptable safety level but this procedure must be performed by expert surgeons and in a structure which provides the possibility to extend the hospitalization or to quickly readmit and treat the patients that may have major surgical complications once discharged.

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