First in human clinical experience using the Maestro collaborative robotics platform

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Introduction

Over the past 20 years, laparoscopic surgeons have experienced the pros and cons of both conventional and tele-robotic approaches, in terms of OR workflow, as well as staff and training requirements. The Maestro System, developed by Moon Surgical, Paris (France) is a collaborative robotic platform designed to overcome the challenges of both approaches by augmenting the surgeon at the bedside and giving them full control over all the off-the-shelf surgical instrumentation used during a procedure. The system allows the surgeon to manipulate instruments without any friction and to position it with complete gravity compensation.
We are presenting the outcomes of the First-in-Human clinical experience using the Maestro System.

Objective

The aim of this study was to demonstrate the feasibility and safety in elective laparoscopic procedures performed with the help of the Maestro device.

Methods

39 patients scheduled to undergo non-emergent abdominal laparoscopic surgery for cholecystectomies, hernias, colectomies, sleeve gastrectomies, and gastric bypasses were enrolled in the approved LIFT OFF study, a feasibility, prospective, single center, single-arm study.
The study primary endpoints were technical feasibility as well as device-related safety. Additional endpoints included procedure duration and ease of use of the Maestro system.

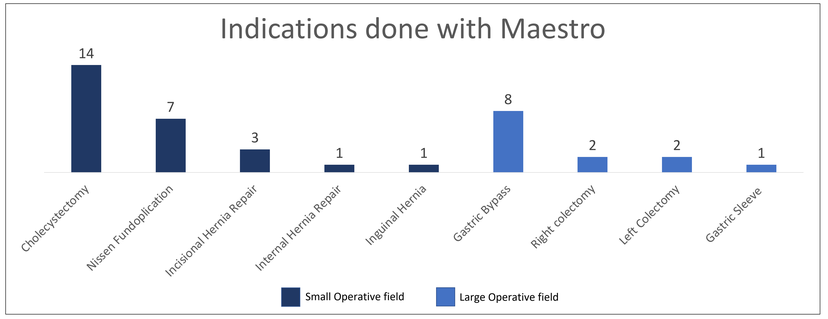
Figures



The Maestro in use for a cholecystectomy



The Maestro System



List and number of indications performed with the Maestro System

Results

All procedures were performed without any device-related adverse event and conducted entirely with the Maestro system. The study commenced after only a short training session, illustrating the system's both simplicity and integration with existing laparoscopic workflow, and adaptability to many clinical situations. The single operator evaluated the device as easy to use, with a short learning curve well inferior to 10 procedures and no visible impact on procedure duration. The procedures did not require a surgical assistant for scope nor retraction management nor any additional operating room staff for study nor device management purposes.
The surgeon felt Very comfortable in 28 cases, Comfortable in 6 cases and Mixed in 5 cases.
The surgeon was Very satisfied with the assistance provided in 26 cases, Satisfied in 9 cases and Mixed in 4 cases.
The transparency of the system enables the surgeon to leverage the power of robotics without changing their usual clinical workflow, including leaving the bedside and the sterile field.

Conclusion

Our first observations provide evidence that performing a minimally invasive non-emergent laparoscopic interventions using the Maestro system is effective and safe, compared to conventional minimally invasive surgery, with minimal training requirements and efficient staff utilization.