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## EDITORIAL

### ALL YOU ALWAYS WANTED TO KNOW ABOUT SCARLESS SURGERY AND NEVER DARE TO ASK

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*"It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change". Charles Darwin*

Urology has always been driven by a "minimally invasive" spirit. Nowadays, the majority of the most common urological procedures are already performed by using endoscopic techniques. Laparoscopy has also represented a major paradigm shift for specific urologic surgical indications and robotic urologic surgery is spreading rapidly, despite a never ending debate about its advantages and disadvantages. Focal therapies are being developed and are likely to play a major role in the urologic surgical armamentarium.

The visionary concept of performing a surgical procedure without scars is also not exactly novel in our surgical specialty. Notably, urologists have been in the forefront of the experimental development of natural orifice transluminal endoscopic surgery (NOTES). The vaginal extraction of an intact surgical specimen following laparoscopic radical nephrectomy was described by Breda in 1993 (1). The first experimental application of NOTES was reported by Gettman et al. describing a successful transvaginal nephrectomy in the pig (2). Indeed, this work predated the acronym NOTES as well as the first recognized NOTES report by Kalloo et al. in the gastroenterology literature (3). The bladder was successfully used for the first time by Lima et al. as a NOTES portal in experimental porcine models (4). The first "pure" NOTES simple nephrectomy in a human has been more recently reported by Kaouk et al (5). When coming to laparoendoscopic single site surgery (LESS), Hirano et al were the first to report urologic single incision surgery in 2005 (6). In 2007, two groups independently reported the first LESS transumbilical nephrectomy (7, 8). Since

## EDITORIAL

then, clinical series have been reported, with almost the entire spectrum of urologic procedures described (9). The introduction of LESS and NOTES has also refurbished the interest of urologic surgeons for other techniques aiming at maximal scar minimization, such as minilaparoscopy/needlescopy/microlaparoscopy.

The widespread adoption of all these scarless techniques requires many scientific and non-scientific issues to be addressed and new tools and instruments to be developed. We may be a long way from their routine clinical applications, but we are making steady progress. Presently, our task is to perform diligent laboratory research and to undertake appropriate clinical trials, awaiting the data confirming which the way of the future is.

As guest editors of this monographic issue, we have invited recognized opinion leaders to give their contribution in order to provide a comprehensive and critical overview on the current status and future perspectives of minimally invasive urologic surgery. We sincerely thank the Editors of *Archivos Espanoles de Urologia* for giving us the opportunity of leading this prestigious scientific endeavor. The readers will enjoy these selected articles and find almost everything they wanted to know about the exciting field of scarless surgery.

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