Abstract  The aim of this study is to analyze the current literature on single port radical prostatectomy (LESS-RP). Single port radical prostatectomy laparoendoscopic (LESS-RP) has established itself as a challenge for urological community, starting with the proposal of different approaches: extraperitoneal, transperitoneal and transvesical, initially described for laparoscopy and then laparoscopy robot-assisted. In order to improve the LESS-RP, new instruments, optical devices, trocars and retraction mechanisms have been developed. Advantages and disadvantages of LESS-RP are controversial, while some claim that it is a non-trustable approach, regarding the low cases number and technical difficulties, others acclaim that despite this facts some advantages have been shown and that previous described difficulties are being overcome, proving this is novel proposal of robotics platform, the Da Vinci SP, integrating the system into “Y”. The LESS-RP approach gives us a new horizon and opens the door for rapid standardization of this technique. The few studies and short series available can be result of a low interest in the application of LESS-RP in prostate, probably because of the technical complexity that it requires. The new robotic platform, the da Vinci SP, shows that it is clear that the long awaited evolution of robotic technologies for laparoscopy has begun, and we must not lose this momentum.

Keywords  Single port radical prostatectomy · Single-site surgery · Robotic prostatectomy · Laparoscopic prostatectomy

Introduction

Radical prostatectomy (RP) is the most important standard for the treatment of organ-confined disease in patients with prostate cancer and it has useful life of 10 years more than higher. This therapy has changed exponentially with opening of minimally invasive techniques, is a milestone in the surgical treatment of prostate disease [1].

Techniques minimally invasive have experienced progress constant in time, beginning with standard, evolution mini-laparoscopic trocars and later development of laparoendoscopic single—site surgery (less). The aim was not only to improve the aesthetic result, but also to decrease the morbidity of the procedures, reducing the number and size of trocars [2].

Here, we present a comprehensive overview about development from this technique, which has been facing major challenges not only in the removal of the prostate gland but also in the reconstruction of the posterior urinary tract. A specific emphasis is urethrovessical anastomosis, that is one of the most difficult challenges to overcome due to the proximity of the laparoscopic instruments, which eliminates the principle of triangulation, increasing internal and external collision of instruments, restriction of movement (especially in intracorporeal suture) and hindering access to the structures, so it requires more surgical skills.