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Editorial

# The Surgical Importance of Cave of Retzius

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Retropubic space is a potential avascular space located between the pubic symphysis and the urinary bladder. It is a preperitoneal space, located behind the transversalis fascia and in front of the peritoneum.

The retropubic space is a surgical landmark that has surgical significance in several gynecological and urological procedures. Access to the space is achieved by separating the rectus abdominis muscle at the midline, and bluntly dissecting the tissue in the direction of the symphysis pubis, until reaching the peritoneum [1].

Robotic-Assisted Radical Prostatectomy (RARP) is the gold standard for localized prostate cancer. Several RARP approaches were developed and described over the years, aimed at improving oncological and functional outcomes. In 2010, Galfano et al described a new RARP technique, known as Retzius-sparing RARP (RS-RARP), a posterior approach through the Douglas space that spares the anterior support structures involved with urinary continence and sexual potency. This approach has been used increasingly in many centers around the world comparing its results with those of the most used standard anterior approach.

Recent evidence strongly suggests that RS-RARP is feasible and safe not only in low- and intermediate-risk prostate cancer patients but also in challenging situations such as high-risk settings, salvage prostatectomy, and after transurethral resection of the prostate [1].

Prostate cancer (PCa) is the most common nondermatologic malignancy affecting men with an estimated 191,930 new cases diagnosed in the United States in 2020. One-third of patients with localized PCa receive treatment with radical prostatectomy (RP), which is considered the gold standard for treatment. However, urinary incontinence after RP is a significant and under-reported long-term consequence that substantially decreases quality of life [2].

Although RP has undergone many changes since its first conception, RS-RARP can potentially become the new gold standard for PCa treatment with improved early continence and equivalent oncologic efficacy as S-RARP. Future research and longer follow-up is needed to determine if there is improved sexual function outcomes given the preservation of multiple structures in the anterior pelvis, and also to see if other less studied outcomes such as penile shortening and inguinal hernia rates improve with RS-RARP [2].

Reports from the first multi-center experience of Retzius-Sparing Prostatectomy in high-risk prostate cancer patients showed that this setting of patients generally has the worst functional results. Conversely, 89% of continent patients confirm that this approach helps achieve good functional results. Predictors of Positive Surgical Margins (PSM) and urinary continence were identified [3].

As for Urinary Continence (UC) a method was developed to predict individual postoperative urinary continence rates following RS-RARP, using preoperative clinical and measurable anatomical features on preoperative MRI. Besides providing valuable guidance for counseling, it also draws the attention of the surgeon toward anatomic parameters that are not routinely reported on the Prostate Imaging–Reporting and Data System (PI-RADS) protocol but are included in the prediction model [4].

Urinary incontinence is one of the main concerns for patients after radical prostatectomy. Differences in surgical experience among surgeons could partly explain the wide range of frequencies observed. Studies aim was to evaluate the association between the surgeons` experience and center caseload with relation to urinary continence recovery after Retzius-sparing robot-assisted radical prostatectomy (RS-RARP). In a study: Five surgeons consecutively operated on 405 patients between July 2017 and February 2022. Continence recovery was evaluated with pad count and by employing the short form of the International Consultation on Incontinence Questionnaire (ICIQ-SF), pre-and postoperatively at 1 year. Non-parametric tests were used. The median age was 63 years, 30% of patients presented with local advanced disease; the positive surgical margin rate (over 3 mm length) was 16%. The complication rate was 1%. One year after surgery, continence was

assessed in 282 patients, of whom 87% were pad-free and 51% never leaked (ICIQ-SF=0). Concerning the mean annual number of procedures per surgeon, divided in<20, 20–39 and≥40, pad-free rates were achieved at 93%, 85%, and 84% and absence of urine leak rates at 47%, 62% and 48% of patients, respectively. The postoperative median ICIQ-SF was five, the limitation of a 12-month follow-up and the fact that it was a medium-volume center. There is no statistically significant association between continence recovery, surgeon's experience, and center caseload. However, continence recovery at 1 year after surgery was adequate [5].

Modified Retzius-sparing robot-assisted radical prostatectomy (mRS-RARP) seems to be an oncologically safe approach for patients with anterior PCa. Compared with the conventional approach, the mRS-RARP approach shows benefits in the short-term postoperative UC recovery [6].

The novel anterior approach that involves Retzius space development between the umbilical ligaments is associated with a lower incidence of postoperative inguinal hernia in robotic radical prostatectomy. It can decrease the incidence of Inguinal Hernia (IH) compared to the conventional anterior approach. Prospective comparative studies are necessary to confirm the benefits of this approach [7].

Finally, MRI studies showed the relationship in the space of Retzius for penile implants and the anatomical distances from the external inguinal ring, bladder, and external iliac veins that are in this in-vivo model remarkably close. Future collaborative and multicenter studies would improve the reliability and clinical usefulness of MRI in this setting [8].

In summary, Retzius-sparing radical prostatectomy is a technique that approaches the prostate from below, rather than above the bladder. The space of Retzius is an important anatomic location. Pathology in the space of Retzius is more common than previously believed, especially as more cases are discovered with increased use of cross-sectional imaging.

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