Case Report

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Robotic surgical management for extremely high-risk prostate cancer: case report and overview of recent literature evidences in the setting

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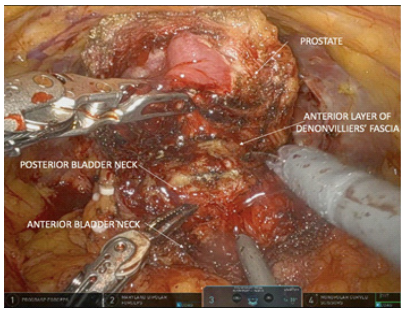
Introduction

Radical prostatectomy is recommended as a part of the multimodal treatment of high-risk or clinically advanced non-metastatic prostate cancer (PCa). In those cases, surgery could be challenging due to the possible cancerous invasion of peri-prostatic tissues that adversely affect the exposition and dissection. Moreover, a prior hormonal therapy may alter the plane between the rectum and prostate, likely resulting in an increased rate of local complications (ie rectal perforation) [1, 2]. According to the EAU Guidelines, the definition of high-risk cancer includes a PSA value exceeding 20 ng/ml. We describe the case of a young man presenting with a PSA value of 188 ng/ml, managed through robotic radical prostatectomy (RALP) at a referral center as a part of multimodal approach.

Clinical Case

A 40-year-old patient underwent urological consultation for an extremely raised PSA value (188 ng/ml). He had no familiar history of PCa nor significant comorbidities. A systematic prostate biopsy pointed out PCa Gleason score 4+4 in 11/12 cores, with 30% to 100% of core involvement. The CT and bone scan ruled out the presence of nodal or distant metastasis. The patient underwent an experimental protocol involving a neo-adjuvant hormonal agent and robotic radical prostatectomy with an extended pelvic nodal dissection. The post-operative course was uneventful and the patient was successfully discharged 3 days after surgery. Pathological evaluation pointed out a Gleason score 5+4 adenocarcinoma involving 80% of prostatic parenchyma, with multifocal areas of extraprostatic extension and seminal vesicle invasion. Metastatic nodal involvement was evident in 2 out of 26 removed nodes. The patient was referred to radiation therapy and continued medical treatment according to his protocol. At 6 months follow up, a full recovery of continence was evident and the patient is still undergoing a rehabilitation protocol for erectile function.



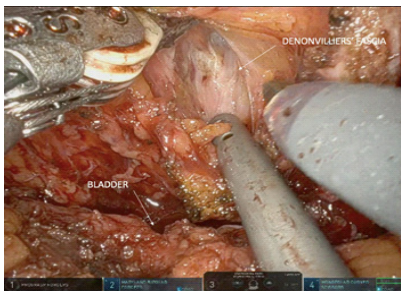


Figure 1-2: Challenging development of the posterior plane from inflammatory and neoplastic infiltration.

Figure 3: The posterior side of prostate apex is firmly attached to the rectum, making challenging the development of the correct plane between tissues..

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Discussion

Radical prostatectomy in high-risk or locally advanced cases is a challenging procedure. A wide resection of tissues surrounding the prostate should be always achieved to ensure the complete removal of the gland; however, the lack of tissue planes and anatomical landmarks due to tumor burden or neoadjuvant therapy may represent a factor impairing the quality and safety of surgical dissection [3]. The robotic approach may provide some advantages, given the better visualization and magnification of anatomical sites that, otherwise, are difficult to reach. A comparison between robotic and open prostatectomy for high-risk PCa concluded that robotics provides a lower blood loss and reduced hospital length [4]. More recently, robotic and laparoscopic approach have been retrospectively compared through a propensity score matching on 232 patients: robotic prostatectomy in the setting of high-risk patients provided less ≤ Grade II complications and superior functional preservation [5]. Indeed, the major part of radical prostatectomies are currently performed robotically, either organ-confined or locally advanced.

According to the most recent literature findings, radical prostatectomy and pelvic nodal dissection in the high-risk setting provides the following benefits. First, an accurate staging based on the availability of surgical specimen: a recent study by Hope et al concluded that also novel imaging modalities (68Ga-PSMA PET) display low sensitivity for the prediction of nodal disease [6]. Second, the removal of regional nodes could have survival benefits in the high-risk setting: a recent study from Lestingi et al found an advantage in terms of biochemical recurrence-free survival for ISUP 3-5 cases when an extended pelvic nodal dissection is performed [7]. Similar conclusions were reported in 2022 by Morizane et al in a retrospective study on 378 patients [8]. Last, according to what is expected in the oligometastatic PCa setting [9], the debulking of the primary disease may result in a lower rate of local events related to tumor progression, ie urinary retention and ureteral obstruction.

In conclusion, radical prostatectomy is recommended as a part of the multimodal treatment of high-risk PCa: prostate and nodal debulking will be likely to provide benefits also on hard oncological endpoints. The recognized advantages of robotic surgery apply also in this setting, with extreme cases being affordable too in referral centers.

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