Case Report

First da Vinci Robotic Surgery in Carcinoma Prostate: A Case Report

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Case Presentation

A 66 year old male presented with h/o dysuria and obstructive voiding symptoms and was on alpha blockers for 1 year. His PSA initially in May 2022 was 4.7 ng/ml. He was on regular follow up and in June 2023 his PSA increased to 7 ng/ml. His physical examination was normal and digital rectal examination showed nodule in the left lobe of prostate. Laboratory data showed HB - 16g/ml, WBC - 75,000/mm^3, platelets – 250,000, Blood urea – 15, Creatinine – 1, LFT- normal, Chest Xray – normal.

TRUS guided prostate biopsy done which showed prostatic adenocarcinoma Gleason score (4 +3 = 7), 6 out of 10 cores was positive.

MPMRI showed an ill-defined area at the base of the prostate with possible breach in the anterior peripheral zone extending to proximal seminal vesicle s/o of infiltration.

He underwent Robotic radical prostatectomy in July 2023.

HPE showed 84 G prostate, acinar adenocarcinoma prostate

Grade group -4, percentage of tumour involved is 60%. margins are free of tumour, lymphovascular emboli present, perineural invasion present.

Catheter was removed on pod12 and patient had mild stress incontinence.

HISTOPATHOLOGY TEST REPORT

HISTOPATHOLOGY, BIOPSY, LARGE COMPLEX SPECIMENS

IMPRESSION :

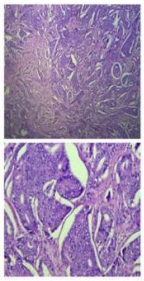
Procedure - Robotic Radical prostatectomy

Prostate size -84g, 5x4x3.5cms.
Histologic type - Acinar adenocarcinoma.
Histologic grade - Primary pattern - 4
Secondary pattern - 3
Tertiary Pattern-5.
Gleason score- 5+3
Grade group -4 (ISUP 2014/ WHO 2016).
Percentage of pattern 4 - 50%.
Percentage of pattern 3 - 30%.
Percentage of Pattern 5-20%
Tumor quantitation - percentage of prostate involved by tumor is 60%.
Intraductal carcinoma - Not identified.
PIN areas - Not identified.
Extraprostatic extension - Not identified.
Right and left vas and seminal vesicles invasion - Not identified.
Inked margins are free from tumor.
Lymphovascular tumor emboli - Present
Perineural invasion - Present

pTNM staging - pT2pNx (AJCC pathologic staging 8th ed.).
AJCC anatomic /prognostic staging - stage IIC (AJCC pathologic staging 8th edition)

GROSS

Received a radical prostatecomy specimen weighing 84g and measures 5x4x3.5cms, with attached bilateral vas deferens & seminal vesicles.Right Vas deferens measures 2.5cms in length. Right Seminal vesicle measures 2x1.5x0.5cms.Left vas deferens measures 2.3cm in length and left seminal vesicle measures 2x1.7x0.7cm. Urethral opening is identified. (27P)



Discussion

Management of intermediate risk prostate is Robotic Assisted Radical Prostatectomy (RARP).

Numerous studies suggest that not all Gleason scores of 7 are created equal, and that GS 3+4 tumors have a better prognosis than GS 4+3 tumors. In 2009, Stark and colleagues published their research, which was based on three study pathologists' blinded standardized review of 693 prostatectomy specimens and 119 biopsy specimens in order to assign primary and secondary Gleason patterns. The researchers collected 20 years of follow-up data on these patients. They found that prostatectomy patients with a standardized GS of 4+3 were 3.1 times more likely to develop lethal prostate cancer than patients with a GS of 3+4 (95% CI, 1.1–8.6). They also reported crude cancer mortality rates per 1,000 person-years of 10.8 for GS 3+4 disease and 45.2 for GS 4+3.

da Vinci robot has revolutionised the surgery of prostate and it has major advantages

RARP (Robot assisted radical prostatectomy) offers many advantages over open /laparoscopic radical prostatectomy like ergonomics and operative precision which leads to improved oncological outcomes (margin free rate) and functional outcome (lower incontinence and lower erectile dysfunction rates) which leads to better cancer specific survival and improved QOL.

Meta-analysis revealed that blood loss, transfusion rate, and positive surgical margin (PSM) rate were significantly lower following RARP compared with LRP (SMD (95% confidence interval [CI]) 0.31 [0.01, 0.61]; combined ORs (95% CI) 5.32 [1.29, 21.98]; 1.27 [1.10, 1.46]) and ORP (SMD (95% CI) 0.75 [0.30, 1.21]; and combined ORs (95% CI) 3.44 [1.21, 9.79]); positive surgical margin (PSM) rates were significantly lower following RARP compared with LRP (combined ORs (95% CI) 1.27 [1.10, 1.46]), but not ORP. Operation time was also shorter for RARP than for LRP. The rates of nerve-sparing, recovery of complete urinary continence, and recovery of erectile function were significantly higher following RARP compared with LRP

The aetiologies of incontinence and erectile dysfunction after radical prostatectomy remain unclear. Several studies reported that various factors, including patient characteristics, surgical techniques, and surgeon experience, were also associated with postoperative incontinence and erectile dysfunction after

radical prostatectomy. A detailed description of pelvic anatomy in relation to radical prostatectomy suggests a positive association between the location of the prostatic apex and membranous urethra in terms of postoperative incontinence. It was suggested that overlap of the urethra by the prostatic apex may be associated with prolonged postoperative incontinence, and overlap may exist anteriorly, posteriorly, or on both sides. Maximal preservation of the sphincter mechanism is widely regarded to be essential for preventing postoperative incontinence.

In our meta-analysis, urinary continence rate and erectile function were significantly better in the RARP group compared with the ORP and LRP groups. However, urinary incontinence and erectile dysfunction are complex multifactorial conditions that require further studies.

Da Vinci has 3D vison and multiple degree of arm motion, so precision of surgery is improved compared to laparoscopy,

Minor disadvantage is cost and the learning curve.

References

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