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Covid-19 (Sars-CoV-2) salgını sırasında uygulanan robot yardımlı radikal prostatektominin güvenilirliği: Bir pandemi hastanesinin deneyimleri

The reliability of robot-assisted radical prostatectomy applied during the Covid-19 (Sars-CoV-2) pandemic: The experience of a pandemic hospital

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ÖZ

GİRİŞ ve AMAÇ: *Covid-19 pandemisi sürecinde prostat kanseri (PCa) sebebi ile robot yardımlı radikal prostatektomi (RARP) yapılan hastaların sonuçlarını ve deneyimlerimizi sunmayı amaçladık.*

YÖNTEM ve GEREÇLER*: Türkiye Cumhuriyeti Sağlık Bakanlığı ve kurumsal etik onayı (37732058-514.10-2020/19-184) sonrasında Covid-19 döneminde (11 Mart 2020-10 Ağustos 2020) RARP uygulanan hastalar retrospektif olarak aşaştırıldı. Covid-19'un erken döneminde, hastanemiz pandemi hastanesi ilan edildi ve cerrahi müdahaleler için çeşitli önlemler belirlendi. 15 Ağustos 2020 tarihinden sonra hastanemizde covid-19 vakalarının yükü nedeniyle tüm cerrahi işlemler askıya alındı. Cerrahi işlem uygulanan hastalar tek kişilik odalarda tutuldu ve refakatçileri kısıtlandı. Hastalara ameliyat öncesi covid 19 real time PCR testi uygulandı. Bu süreçte tüm işlemler Avrupa Üroloji Derneği covid 19 cerrahi prosedürleri dikkate alınarak yapıldı.*

BULGULAR: *Toplmada 12 hasta çalışmaya dahil edildi. Hastaların yaş ortalaması 62.08±6.57 yıl, vücut kitle indeksi (BMI) 28.58±3.37 kg/m2, Serum PSA 7.24±1.86 ng/mL, prostat volümü 124.83±50.06 cc idi. Tüm hastaların biyopsi gleason skoru 3+3=6 olarak raporlandı. Ortalama takip süresi 3.67 aydı. Hiçbir hastada cerrahi komplikasyon ve covid 19 görülmedi. Hiçbir hastada kimyasal nüks görülmedi.*

TARTIŞMA ve SONUÇ: *Covid 19 pandemisinin geleceği tahmin edilemediği için, RARP çeşitli önlemler ve uygun prosedürlerle güvenle uygulanabilir.*

Anahtar Kelimeler: *Covid 19, Pandemi, Prostat kanseri, Robot yardımlı radikal prostatektomi*

ABSTRACT

INTRODUCTION: *In this study we aimed to present the results of patients undergoing robot-assisted radical prostatectomy (RARP) due to prostate cancer (PCa), and our own experience, during the Covid-19 pandemic.*

METHODS: *Following receipt of approval from the Turkish Ministry of Health and the institutional ethical committee (37732058-514.10-2020/19-184), patients who had undergone RARP during the Covid-19 pandemic (11 March to 10 August 2020) were investigated retrospectively. Our institution was declared to be a pandemic hospital in the early period of Covid-19, and various precautionary measures were introduced for surgical interventions. Due to the burden of Covid-19 cases in our hospital, all surgical procedures were postponed after 15 August, 2020. Patients undergoing surgical procedures were housed in single-occupancy rooms, and restrictions were placed on accompanying individuals. The Covid-19 real-time PCR test was performed before surgery. During this period, all procedures were performed in compliance with European Associatıon of Urology Covid-19 surgical procedures.*

RESULTS: *Twelve patients were included in the study. The patients' mean age was 62.08±6.57 years, and their mean body mass index (BMI) was 28.58±3.37 kg/m2, mean serum was PSA 7.24±1.86 ng/mL, and mean prostate volume was 124.83±50.06 cc. All patients' biopsy Gleason scores were reported as 3+3=6. The mean follow-up period was 3.67 months. No surgical complications of Covid-19 were observed in any patient. No chemical occurrence also occurred in any patient.*

DISCUSSION AND CONCLUSION: *Since the future of the Covid-19 pandemic is unpredictable, RARP can be safely performed with various precautionary measures and appropriate procedures.*

Keywords: *: Covid-19, Pandemic, Prostate cancer, Robot-assisted radical prostatectomy*

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INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was given the name coronavirus disease 2019 (Covid-19) by the World Health Organization (WHO) and was recognized as a pandemic on 11 March, 2020 (1,2). The first case in Turkey was seen on 11 March, 2020, after which precautionary measures were rapidly introduced (3).

Prostate cancer (PCa) is the most common form of cancer in men in developed countries, with an annual incidence of 1.3 million, and an annual death rate of 419,000, the second highest after lung cancer (4,5). Despite this prevalence, the Covid-19 pandemic resulted in delays in treatment of non-metastatic PCa, as with all other forms of cancer (6,7). These delays in treatment will probably result in progression of the disease, subsequent functional problems, and patient accumulation. The patient group whose operations were postponed because of the Covid-19 pandemic in order to avoid the risk of infection to both health workers and the patient must be closely followed-up in terms of the course of their disease. This group must also be treated in compliance with the literature in the most appropriate hospital setting during this prolonged process.

While postponement of low and moderate risk PCa during Covid-19 is recommended, there is no consensus regarding high-risk PCa, some surgeons recommending surgery, while others advise delay (8,9).

PCa operations were postponed due to our hospital becoming a pandemic hospital in the early period of Covid-19, and as with all other branches, urologists also began actively combatting Covid-19. Patients whose operations were postponed underwent robot-assisted radical prostatectomy (RARP) when the hospital burden declined. The purpose of this study is to describe the management and outcomes of patients undergoing RARP during the Covid-19 pandemic, together with our own experience.

MATERIAL AND METHODS

Patients undergoing RARP after the detection of the first case of Covid-19 in Turkey (11 March to 10 August, 2020) were included in the study. All surgical procedures were postponed after 15 August 2020, due to the burden of Covid-19 cases in our hospital, and PCa surgery was also delayed after that date.

Following receipt of approval from the Turkish Ministry of Health and the institutional ethical committee (37732058-514.10-2020/19-184), the demographic characteristics, preoperative tumor characteristics, postoperative complications. and surgical and functional outcomes of PCa patients undergoing radical prostatectomy in our institution during the early period of the Covid-19 pandemic were investigated retrospectively.

Once our institution had been declared a pandemic hospital, requisite procedures and safety measures for all departments were defined and adopted in line with the recommendations of the Ministry of Health and the provincial pandemic committee. In addition to the provision of single-occupancy rooms physically detached from the pandemic hospital complex, the numbers of accompanying individuals were limited, and controlled entrance to the hospital was introduced for infection control. The patients had already been diagnosed and had been on the waiting list for extended periods. Surgical procedures were performed on patients with life expectancies exceeding 10 years. Covid-19 PCR tests were routinely performed prior to surgery, and patients were again asked about exposure to or symptoms of Covid-19 after surgery.

Surgical consent forms and Covid-19 information and consent forms prepared by ourselves were signed by all patients. Patients whose operations had previously been postponed for a minimum of six months underwent appropriate procedures in line with the European Association of Urology robotic urology section guideline recommendations for health worker and patient safety. Nobody was permitted inside the operating room other than the anesthetist, anesthesia technicians, the surgical nurse, assistant personnel and the surgeon. Patients discharged in

the postoperative period were advised to self-isolate at home for 14 days.

Patients were evaluated in terms of age, comorbid diseases, PSA, pre- and postoperative pathological findings, complications and functional outcomes.

Statistical Analysis

The research data were entered onto and analyzed on Statistical Package for the Social Sciences (SPSS) version 20 for Windows software. Categorical variables were expressed as number and percentage, and numerical variables as mean plus standard deviation.

RESULTS

Twelve patients were included in the study. The patients' mean age was 62.08±6.57 (49-68) years, mean body mass (BMI) was 28.58±3.37 (24-36)kg/m2, mean serum PSA was 7.24±1.86 (3,8-9,2) ng/mL, and mean prostate volume was 124.83±50.06 (65-240) cc. All patients' biopsy Gleason scores were reported as 3+3=6.

Diabetes mellitus (DM) was determined in three patients at preoperative evaluation, coronary artery disease (CAD) in one and hypertension (HT) in two.

Patients' erectile dysfunction (ED) status was investigated using the International Index of Erectile Function (IIEF). No ED was determined in four (33.3%) patients (IIEF 22-25), while mild-moderate ED was present in five (41.7%) (IIEF 12-16), and moderate ED (25%) in three (IIEF 8-11).

Mean length of follow-up was 3.67 months. No chemical recurrence developed in any patient during follow-up.

Patients' preoperative, perioperative, and postoperative surgical, pathological, and functional outcomes are shown in Table 1.

No perioperative or postoperative complications developed in any patients, and Covid-19 was not observed in any case.

Table 1. Preoperative, perioperative ve postoperative surgical, pathological and functional outcomes

	mean±SD (min-max)
Age (years)	62.08±6.57 (49-68)
BMI (kg/m^2)	28.58±3.37 (24-36)
Serum PSA (ng/mL)	7.24±1.86 (3,8-9,2)
Prostate volume (cc)	124.83±50.06 (65-240)
Biopsy Gleason score, n (%)	
3+3	12 (100)
Preoperative IIEF-5 score, n (%)	
No ED (22–25): n (%)	4 (33.3)
Mild ED (17–21): n (%)	- (-)
Mild-to-moderate ED (12–16): n (%)	5 (41.7)
Moderate ED (8–11): n (%)	3 (25)
Severe ED (5–7): n (%)	- (-)
Mean operative (console) time (min)	155.83±35.60 (120-230)
Mean blood loss (cc)	131.67±37.85 (75-200)
NVB-protective technique, n (%)	
Not applied	-
Unilateral	-
Bilateral	6 (50)
Posterior reconstruction suture, n (%)	12 (100)
Mean length of hospital stay (days)	5.75±2.59 (5-14)
Mean time to removal of urinary catheter (days)	5.50±0.90 (5-7)
Pathological Gleason scores, n (%)	
3+3	5 (41.7)
3+4	5 (41.7)
4+3	2 (16.6)
Positive surgical margin, n (%)	
Total	-
pT2a	-
pT2b	1 (8.3%)
pT2c	-
Pathological T stage, n (%)	5(41.7%)
pT2a	1(8.3%)
pT2b	3(25%)
pT2c	3 (25%)
pT3a	
Mean number of lymph nodes removed, n	26.6±5.03 (22-32)
Urinary continence, n (%)	12(100)
Early continence (from catheter removal), n (%)	3 (37.6)
Third month continence, n (%)	12(100)

NVB: neurovascular bundle, PSA: prostate-specific antigen; BMI: body mass index, IIEF-5: International Index of Erectile Function-5

DİSCUSSİON

The scourge of Covid-19 began in the Chinese city of Wuhan in the province of Hubei in 2020, and subsequently spread rapidly worldwide (10,11). The first case in Turkey appeared on 11 March, and the first fatality occurred on 17 March (3). Precautionary measures were swiftly introduced, with most hospitals being declared to be pandemic hospitals and all operations, apart from emergency surgery procedures, beginning to be postponed.

Although Covid-19 has caused 29-53% of genitourinary malignancy surgeries to be delayed, emergency cancer surgeries are still being performed (12). The European Association of Urology (EAU) has advised that procedures be performed by more experienced surgeons, and recommends radiotherapy for moderate and high-risk prostate cancer (13).Postponement of surgery is recommended for low-risk prostate cancer (13). Studies have revealed that surgery can be safely performed during the Covid-19 pandemic with appropriate procedures (12). The patients in the present study were in the low-risk group, their operations were postponed for a minimum of six months and a maximum of 11, and they were receiving no additional treatment for prostate cancer. RARP was performed at a time when Covid-19 patient numbers had decreased, and no complications associated with Covid-19 were observed.

Minimally invasive surgical techniques are largely preferred during the Covid-19 pandemic due to the short hospital stays of patients undergoing RARP (14). The mean length of hospitalization among our patients was 5.75±2.59 (5-14) days, and no associations linked to Covid-19 were observed.

The prognosis of prostate cancer postponed during the Covid-19 pandemic is still unclear. Patients with prostate cancer whose treatment is postponed need to be kept under observation (15). Studies have shown high cancer-specific and general survival rates among patients receiving active followed-up (16-18). Fossati et al. showed that postponement of treatment can affect the prognosis in approximately 35% of low-risk prostate cancer cases (19). Despite the advances made in biopsy techniques, no clear information can be obtained about the side of the prostate from which biopsy is not collected, for reasons such as the location of the biopsy, tissue sufficiency, and transfer to the pathology department under appropriate conditions (20). Gleason scores may therefore differ between biopsy and pathology specimens, and may be higher in the pathology specimen (20). Gleason scores were higher in the pathology specimens in 58.3% (n=7) of our patients. No conclusion was reached concerning whether this derived from postponement of surgery or the biopsy.

Risk factors for Covid-19 disease include male gender, advanced age, cancer, cardiovascular disease, chronic lung diseases, HT, and DM (21). Lockdowns for individuals aged over 65 apart from at certain specific times were imposed in Turkey in order to protect the elderly and prevent mortality. Covid-19 resulted in radical changes in urological practice and to the postponement of operations, since urological patients are generally of advanced age and usually have comorbidities. The mean age of the patients in this study was 62.08±6.57 years. DM was present in three patients, CAD in one, and HT in two.

Various precautions are required during surgical procedures in the Covid-19 period. It is recommended that patients undergo the Covid-19 PCR test before surgery and that they be isolated as much as possible, and that surgery be performed in negative-pressure operating rooms (22). Covid-19 symptoms were investigated in all the patients in the present study. Covid-19 PCR tests were performed before surgery, operations were performed in negative-pressure rooms, and patients were isolated postoperatively.

Mortality and morbidity rates are high in surgical procedures involving Covid-19 positive patients, this being attributed to the length of incubation of the disease and to the presence of additional diseases (23,24). In order to prevent complications, we waited for all patients' Covid-19 PCR tests to be negative and for at least five days in order to exceed the incubation period.

Although elective surgical procedures have been postponed during the Covid-19 pandemic, a review of postponed oncology cases in terms of surgery may be planned, particularly when Covid-19 patient

numbers decrease. Soytaş et al. reported no Covid-19 related complications in any patient in surgical procedures performed during the pandemic, although fever occurred in one patient following retrograde intrarenal surgery and bleeding in one patient undergoing transurethral resection of the bladder (25). No complications associated with Covid-19 or surgery were observed in any patient in the present study. This suggests that postponed oncological surgery operations can be safely performed under strict precautionary measures.

The limitations of this study include its single-center, retrospective nature and the low patient number. Nonetheless, we think that the study will make a significant contribution to the literature due to the low numbers of RARP performed due to PCa during the Covid-19 pandemic.

CONCLUSION

The potential spread of Covid-19 disease, the unpredictability of its duration, and uncertainties over how much longer PCa patients will have to wait all mean that operations have to be performed under various precautionary regimens. The Turkish health system and our hospital in particular possess an extraordinary ward and intensive care bed capacity. This facilitated our work during the Covid-19 pandemic. Our data show that surgery for PCa can be performed in an environment complying with committee recommendations.

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