Report of Radical Prostatectomy at the Urology Department of the Hopital General de Grand Yoff (HOGGY)

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Abstract: *Goal*: To show the importance of radical prostatectomy and to evaluate the carcinogenic and functional results of radical prostatectomy (RP) at the Department of Urology of the Hôpital General de Grand Yoff.

Patients and Methods: This is a retrospective descriptive study involving 52 patients that had prostate cancer and had gone through RP. The study was held at the Department of Urology of the Hôpital General de Grand Yoff in Dakar over a period of 9 years starting from 1st January 2005 to 31st December 2014. The parameters covered in this study included: Age, existence or non-existence of history of prostate cancer in siblings, circumstances of diagnosis, clinical examination, diagnostic data with histology, therapeutic aspects and prognosis. All data was analyzed using CSPro and EXCEL software with the level of significance at ($p < 0.005$).

Results: The average age of our patients was 61.2 years, ranging between the ages of 50 years and 69 years. In total, 51 patients had a preoperative Gleason score. Amongst them, 26 patients had well differentiated tumors (3+3 =6) and 7 patients had poorly differentiated tumors (4+4 =8) whilst 18 patients showed intermediate tumor differentiation between the two preceding groups (3+4 =7).

Histological examination of the specimen among the patients with a preoperative Gleason score of 7 (3 + 4), only 4 of the predicted patients had a definite score of 7 (4 + 3) while 1 patient had a Gleason score of 8. Postoperative Gleason score was evaluated only in 23 of the patients. Post-operative complications included 30 cases of urinary incontinence (56%), one case of ED in 20 cases (37%) and ureteral-bladder stenosis in 4 cases (7%). Biochemical recurrence (BR) was found in 11 patients. We noted clinical recurrence (CR) in 4 of the patients. Among patients with an RB, the resection margins were positive in 2 patients and lymph node invasion in 2 patients. It was equally noted that there was a seminal vesicle invasion in 5 patients in the biochemical recurrence.

In the 31 patients being followed up, quality of life was evaluated. Among patients with erectile dysfunction, 15 patients (48.4%) had good erectile functioning while 16 patients (51.6%) were evaluated as satisfactory. Continence was good in 11 patients (38.7%), average in 16 patients (51.6%) and poor in 3 patients (9.7%).

Conclusion: Radical prostatectomy gives patients a better chance for cure. The proposition for a PSA of the patients over 50 years of age would increase early diagnosis and would improve the prognosis of the cancer.

Keywords: Prostate cancer, localized, radical prostatectomy and evolution.

INTRODUCTION

Cancer of the prostate (CAP) is defined as a malignant neoplasm developing from the prostate. We are observing a decrease in the mortality rate due to CAP. This can be explained by the early detection and management of prostatic pathology as well as the efficiency of treatments. The management of pathology is largely dependent on the stage of the tumor at the time of diagnosis. However, age, heredity and race are defined risk factors of the disease [2]. To the concerned individuals, CAP has a silent evolution but it can be cured when diagnosed it its localized stage. Several therapeutic approaches have been proposed. Amongst which includes the radical prostatectomy (RP) which remains the treatment of choice for localized prostate cancer. The aim of this study was to show the importance of RP in patients with localized prostate cancer, as well as to evaluate the carcinoma and functional results of radical prostatectomy at the department of urology at the Hôpital General de Grand Yoff.

PATIENTS AND METHODS

This is a retrospective descriptive study involving 52 patients that had prostate cancer and had gone through RP. This study was conducted at the Department of Urology of the Hôpital General de Grand Yoff in Dakar over a period of 9 years starting from 1st January 2005 to 31st of December 2014. The parameters studied included: age, past medical history, systematic screening, symptoms of the lower urinary tract, were evaluated as well as the aspect of the

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prostate on rectal exam, the level of the specific prostatic antigen (PSA), supra pubic prostatic ultrasound, born scinitgraphy, CT scan, MRI, the histological type and the preoperative Gleason score.

We had firstly noted the surgical approaches we would use, the postoperative Gleason score, the different complications observed, the patients evolution data and the quality of life for the patients after RP.

The continence was considered good in patients who had no leakage of urine, average in patients with moderate urine leakage, especially on effort requiring the use of at least four protections per day and poor in patients with permanent urine leaks requiring four protective wear per day. It was considered satisfactory for patients that presented a normal erection during sexual intercourse and satisfactory for patients who presented one erection on IPDE5 allowing satisfactory sexual intercourse.

The patient follow up was achieved by the surveillance of the mictional status (incontincence dysuria); the sexual status (erectile dysfunction), the TNM 2010 classification of the UICC was used for clinical staging of the disease and the D'Amica classification was used to estimate the risk of progression of the disease after treatment. The biological surveillance was achieved by at least a minimum of 2 PSA tests.

The biologic recurrence (BC) was defined by the level of PSA superior to 0.2 ng/ml confirmed by a second test.

Clinical recurrence was defined by a local recurrence or by secondary localization in further investigations which were carried in the presence of clinical symptoms.

All the data was processed using the CSpro and EXCEL software. The Fisher test allowed comparison of the category variables between the study groups with the level of statistical significance of ($p<0.005$).

RESULTS

Epidemiologic Aspects

During our study, we collected 61 files for patients that had gone through RP, 9 patient files were incomplete. An average of five cases was operated on per year with extremes of 2 and 8.

Age

The average age of our patients was 61.2 years, ranging from 50 years to 69 years (Figure **1**).

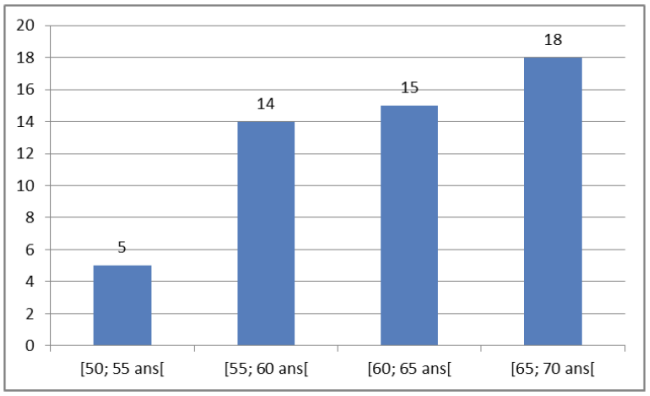

Figure 1: Distribution of patients according to their age groups.

Diagnostic Aspects

The circumstances of diagnosis were: disorders of the lower urinary apparatus involving 43 patients followed by systematic screening in 7 patients and finally the fortuitous discovery in 2 patients. Among urinary disorders: isolated increased micturition frequency was observed in 33 patients; isolated dysuria in 30 patients while the association of dysuria and increased urinary frequency was found in 26 patients.

On rectal examination, 20 patients were clinically classified as T2a (or 38.4%). The clinical stage T2b was found among 11 patients (or 21.1%). Fourteen patients had a clinical stage of T2c (26.9%) and finally 1 patient was classified T3 as reported in our series.

Para Clinical Aspects

The average of total PSA was 12.7 ng / ml, with extremes of 58 and 4,3ng / ml. Seventeen patients (32.7%) had a PSA in the ranges [10-20]. The trans-rectal ultrasonography was performed in 4 patients (7.6%) and facilitated the prostate biopsy.

Preoperative histology was obtained after analysis of prostate biopsies, and all patients had adenocarcinoma of which 3 had prostatic intraepithelial neoplasia grade 3 (PIN3); 2 with PIN2 and 1 with an adenomyoma

Tumor Differentiations: Preoperative Gleason score

In total, 51 patients had a preoperative Gleason score evaluation (Table **1**).

Table 1: Distribution of Patients Depending on their Differentiation Scores (Preoperative Gleason Score)

Preoperative Gleason score	Effective	Percentage
3+3=6	26	51%
3+4=7	18	35%
4+4=8	7	14%
Total	51	100%

As part of the extensive investigation, a thoracic-abdominal pelvic CT scan was performed on 49 patients; magnetic resonance imaging (MRI) showed a capsular invasion in one patient with the seminal vesicle involvement out of ten patients examined by MRI. Scintigraphy was performed in 9 patients, it was normal in all cases.

Therapeutic Aspects

Two techniques were used: the RP by the retropubic technic predominant, performed in 43 patients (82.7%) and the RP by the perineal technic (Figure **2**) in 8 patients (15.4%). Regarding the retropubic aproach 27 out of 43 patients the nervous-vascular bundles were preserved. The bladder neck was preserved in 33 patients. Post-operative histology was performed in 23 patients.

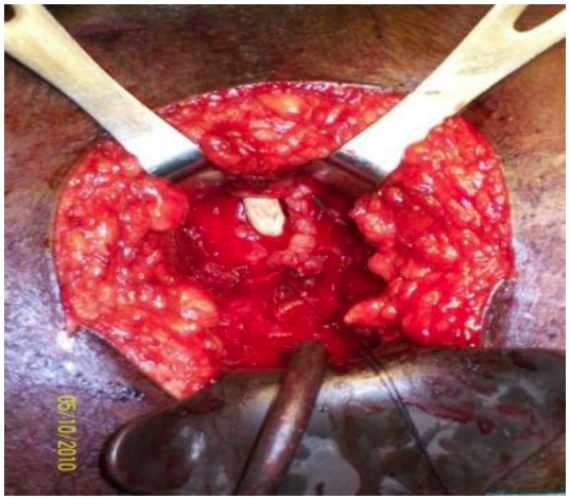

Figure 2: Perineal approach: cervical-urethral anastomosis.

Classification Based on Postoperative Gleason Score

After the RP and pathological review of specimens among patients with a preoperative Gleason score of 7 (3 + 4), 4 patients had a predominant grade of 4 (4 + 3) and 1 patient a Gleason score of 8. Postoperative Gleason score was evaluated in 23 patients.

Complications

Post-operative complications such as rectal damage were encountered in three patients after the perineal approach RP. This complication was immediately repaired. Late postoperative complications included 30 cases of urinary incontinence (56%), an ED of 20 cases (37%) and a vesicle urethral stenosis in 4 cases (7%).

Overall Results after Treatment

Altogether 31 patients (or 68.4%) were monitored over a period of about 9 months while the rest of the patients were lost from view.

The BR was found in 11 patients. We noted the CR in only 4 patients. Among patients with a BR, the limits of surgical margins were positive in 2 and negative in 4 patients. It was also noted that in 5 patients that had a biochemical recurrence there was invasion seminal vesicle. Two patients who had a BR had a ganglionic invasion. Among patients with the RB, 7 were high risk according to the classification of D'Amico (Table **2**).

Table 2: Distribution of Patients having a Biological Recurrence Based on the Classification of Amico

	Biological Recurrence		
Classification of Amico	Yes	No	TOTAL
Low Risk	1(14,3%)	6(85,7%)	7
Intermediate Risk	3(33,3%)	6(66,7%)	9
High Risk	7(46,7%)	8(53,3%)	15
TOTAL	11	20	31

The differentiation of the prostatic tumor in patients with biopsy was reported based on the BR, 6 patients had a good differentiation (Table **3**).

Capsular invasion was observed in 7 BR patients. pT3A and pT2 pathological staging in another eight and three BR patients respectively.

Quality of Life (QOL)

Quality of life was assessed in 31 patients following the questionnaires IIEF-17 and ICS. Among the patients suffering from erectile dysfunction, 15 patients (48.4%) were functional; and 16 patients (51.6%) had a

satisfactory erectile functioning. Urinary continence was good in 11 patients (38.7%); average in 16 patients (51.6%) and bad in 3 patients (9.7%).

Table 3: Distribution of Biological Recurrence Based on the Pathological Stage

BIOLOGICAL RECURRENCE			
Stage pT	**Yes**	**No**	**TOTAL**
NTL	3 (14.3%)	18 (85.7%)	21
pT3	8 (80%)	2 (20%)	10
TOTAL	11	20	31

DISCUSSION

Epidemiological Aspects

The incidence rate of CAP is growing, in the USA there were 238 590 estimated cases in 2013 [3]. In France, there was an estimate of 8.5% increase per year between 2000 and 2005 due to the aging of the population combined with the improvement of the techniques for early detection of the disease especially with the dosage of the PSA usage which is widely distributed around the world [4]. In our study there was an average of 5 cancers operated on per year, which reflects the advanced stage of cancer of the prostate at the time of diagnosis in sub-Saharan Africa (5).

Age

Prostate cancer is a rare condition before the age of 50 (less than 0.1% of the cases). However, its incidence increases rapidly so that over 75% of new cancer cases are diagnosed after 65 years in developed countries [6]. In Africa, the lack of programs that allow for the early detection of prostate cancer and the difficulty in accessing health services make this disease less known and results in late diagnosis. The majority of the patients were seen at diagnosis with an advanced stage of the disease.

In our study, the average age of the patients was 61.2 years. This result was relatively the same as the results of Scott *et al*. [7] who found in France most of their patients were at an average age of 71.6 years old.

Diagnostic Aspects

In our series, the revealing circumstances of prostate cancer were highly variable. The symptoms were mainly represented by urinary disorders of the lower urinary tract with 82.7% (43 cases) the dysuria and increased urinary frequency association represented 52.9% of the patients. Mictionnal disorders frequently revealed cancer of the prostate. Ammani and al. [8] had found (increased urinary frequency and dysuria) urinary symptoms in 96.91% of the patients. This predominance of urinary disorders can be found in African literature [9]. The early onset of the disease in black patients can be explained by delays in diagnosis and or treatment [6]

Aspect of the Prostate on Rectal Examination

During the rectal exam, 38.4% of the patients were classified as T2a while 21.1% were T2b, 26.9% T2c and finally 1.92% were T3. The rectal exam was achieved in all patients almost systematically. It is used as a diagnostic of early detection method where any anomaly of the rectum should lead to a biopsy. There is a strong correlation but Catalona *et al*. [10] had demonstrated a predictive value of cancer of the prostate in only 9% of men with an abnormal rectal exam and PSA rate < 4ng/ml.

Para Clinical Aspects

The dosage of the PSA rate is important for a good diagnosis despite the fact that it is not a specific marker for prostate cancer. This dosage was achieved in all patients, and in all cases, the PSA was above normal with an average of 17.71 ng/ml PSA. These values of PSA are not far from those found by Qarro *et al*. **[**-11]. in 30 patients treated by RP with an average of 13 ng/ml PSA.

It is established that there is a strong correlation between the value of the rate of PSA and the clinical stage according to the classification of D'AMICO [12]. Sarr *et al*. [13] found an average rate of PSA at 26,62 ng/ml. Eleven patients had a greater than 2.5 ng/ml PSA rate and three had abnormalities of prostate on rectal exam suspicious of cancer. This study highlights the urgency of early detection of prostate cancer in age groups of 46 to 50 years and would join the AFU recommendations [14] who advocate screening for cancer of the prostate from 45 years if there is an ethnic or familial history.

Histology

After prostate biopsy and histological analysis all patients had an adenocarcinoma including three with a PIN3 classification; two withPIN2 and only one with an adenomyoma. In three patients, we did not find any cancer in the prostatectomy specimen; they are

therefore classified as pT0. This discrepancy between histology found on biopsy and Prostatectomy piece is essentially due to the difficulty to fully study the specimen. In addition, we didn't have sufficient materials allowing us to carry out a study on immunohistochemistry with p63/p504s antibodies that could eliminate all doubt in the suspicious glandular proliferation zones at biopsy [15].

Differentiation of Tumors: Gleason Score

Most of our patients were evaluated using the Gleason score preoperatively (51 patients). Among them, 26 patients had a Gleason score of 6, the majority of the remaining patients had tumors little to moderately differentiated. This is due to the fact that our sample was rigorously selected because the patients were diagnosed at a localized stage. In our series there was the digito-guided prostate biopsy that was performed in the majority of the cases. Yet, the echo-guided prostate biopsy is currently at the center of the prostate cancer therapeutic decision-making process, because in addition to the statement of the diagnosis it will also give prognosis elements, specifying the scope and location of prostatic achievement and possibly peri-prostatic tissue [16]. Regarding the few differentiated tumors, the Gleason score must be given by recalling that it may not be a representative of the score found on Prostatectomy piece [15]. With regards to the postoperative Gleason score in 18 patients that scored 7 (3 + 4), we were able to distinguish definitively 4 patients with a score of 4 and 1 patient with a score of 8. The prognosis for these patients is no longer the same because currently, it is established that within the tumors of score 7, it is best to distinguish those who have a predominant score of 4 (4 + 3) are closer to score 8 tumors, unfavorable prognosis, those who have a predominant degree of 3 (3 + 4) that evolve more like tumors to score 6 [17]. The frequent occurrence of discordance between the Gleason and the specimen biopsy brought, during the ISUP 2005 conference, to an improvement of the Gleason score. Indeed, the grouping of patients in three separate groups (through medium and low differentiated tumors) increased the concordance between the Gleason score and the biopsy definitive score [18]. However, one should note that biopsy Gleason score, is limited especially in cases of low grade tumors, which could explain the discrepancies encountered in our series. According to our results, this data in the literatures shows clearly that there is not always a perfect match between the biopsy Gleason score and the Prostatectomy sample.

Radical Prostatectomy

Radical prostatectomy, is the treatment of reference of localized prostate cancer, it's a pretty heavy intervention in urological surgery and is the source of numerous complications [19]. During nine and a half years, 52 radical prostatectomies were conducted. This small number of prostatectomies performed is as a result of eligible patients being too difficult to select or being detected in late stages of the disease. The majority of patients in Africa are detected when the cancer is at an advanced stage and very few are litigants to a radical prostatectomy in contrast to series of the countries of the North where this procedure is commonly performed [20].

Complications

The incidence of erectile dysfunction (ED) after a result of a RP varies from 23% to 91% according to the authors [21]. The conservation of the neuro-vascular bundles Unilaterally or bilateral allows for a large percentage of patients who had a normal erectile function before the intervention to maintain their pre intervention erection status. In our series, after the RP, 20 patients (36.7%) presented with erectile dysfunction. A good erection is therefore maintained in 32 patients (63.3%), this is close to a prospective study [22] with 220 patients who had a good erection preoperative and subjected to a RP with conservation of the bundles. In this study, the erection was maintained at 70% of them. As for our patients were put under the phosphodiesterases inhibitor 5 (IPDE5) which significantly improved erectile functioning.

Urinary incontinence was present in 30 of our patients (55.7%). The rate of incontinence following RP varies between 4% and 35% according to Weldon *et al*. [22], 23% of the patients after RP are continents at 1 month, 56% at 3 months, and 90% at 6 months and to 95% at 10 months. Patients whose bundles have been conserved, have better rates of continence and early recovery compared with those whose erectile nerves were not conserved [23].

Overall Results after Treatment

Cancer confined to the prostate organ progresses in 9% of the cases. It progresses in 26% of the cases if the surgical margins have been invaded or a microscopic infiltration of the Capsule, and in 68% of cases if the seminal vesicles are invaded. The progression occurs also in 11% for the well-differentiated CAP (Gleason 2-4) and up to 49% for

those who are poorly differentiated. Patrick *et al*. found for their part [24] that the majority of patients with a biopsical Gleason score ≥8 had an unfavorable pathological stage and frequently a biological recurrence after Prostatectomy. The overall survival of patients after radical prostatectomy was 100% with a decline of 3 months. Specific survival is also favorable. The majority of our patients were lost of the sight after the 3-month period.

The assessment of the quality of life was made only in 31 patients due to the large number of patients lost of contact. Although this sample is not particularly significant, there was a high frequency of complications related to incontinence and erectile dysfunction. No studies on the quality of life of patients with cancer of the prostate at the localized stage in sub-Saharan Africa to compare our results.

CONCLUSION

The CAP is a common condition in Africa. The introduction of early diagnosis by PSA testing enabled the diagnosis of prostate cancer to occur at early stages. Among the different treatments of the CAP, radical prostatectomy gives patients a better chance of cure.

REFERENCES

[1] Grosclaude P, Monenegoz F, Schaffer P, *et al*. Dépistage du cancer de la prostate. Prog Urol 2004; 7: 647.

[2] Valeri A, Malavaud B, Desrichard O, *et al*. Stratégies de diagnostic précoce et de prévention du cancer de la prostate. Bull Cancer 2010; 97(12): 1499-512.

[3] Siegel R, Ma J, Zou Z, Jemal A. Cancer statistics, 2014. CA Cancer J Clin 2014; 64: 9-29. https://doi.org/10.3322/caac.21208

[4] HAS/ Service des maladies chroniques et dispositifs d'accompagnement des malades. INCa/ Département des recommandations pour les professionnels de santé. Guide ALD n° 30: Cancer de la prostate. Révision Janvier 2012. Consulté le 1er février 2015.

[5] Jalloh M, Niang L, Ndoye M, Labou I, Gueye SM. Prostate Cancer in Sub Saharan Africa. Journal of Nephrology and Urology Research 2013; 1: 15-20. https://doi.org/10.12970/2310-984x.2013.01.01.4

[6] Fournier G, Valeri A, Mangin P, Cussenot O. Le cancer de la prostate, facteurs de risque Anatomopathologie. Ann Urol 2004; 38: 187-206. https://doi.org/10.1016/j.anuro.2004.07.001

[7] Soulié M, Beuzeboc P, Cornud F, *et al*. Recommandations de l'AFU en onco-urologie. Cancer de la prostate. Prog Urol, 2007; 17: 1159-230. https://doi.org/10.1016/S1166-7087(07)74785-1

[8] Ammani A, Janane A, Chafiki J, *et al*. Profil épidémiologique du cancer de la prostate dans le service d'urologie de l'hôpital Mohammed V de rabat. J Maroc Urol 2007; 5: 11-14.

[9] Ndoye M, Niang L, Gandaho KI, *et al*. Cancer avancé de la prostate au Sénégal, les aspects cliniques à l'hopital Général de Grand Yoff. Prog Urol 2014; 25(5): 271-5. https://doi.org/10.1016/j.purol.2013.08.317

[10] Catalona WJ, Richie JP, Ahmann FR, *et al*. Comparaison of digital rectal examination and serum prostate specific antigen in the early detection of prostate cancer. J Urol 1994; 151: 1283-90.

[11] Qarro A, Ghoundale O, Bazine K, *et al*. Score de Gleason des biopsies prostatiques et celui des pièces de prostatectomies: Quelle corrélation? Afr J Urol 2012; 18: 183-8. https://doi.org/10.1016/j.afju.2012.06.006

[12] Delahunt B, Miller RJ, Srigley JR, Evans AJ, Samaratunga H. Gleason grading: past, present and future. Histopathology 2012; 60: 75-6. https://doi.org/10.1111/j.1365-2559.2011.04003.x

[13] Sarr A, Sow Y, Thiam I, Fall B, Diao B, Fall PA, *et al*. Détection précoce du cancer de la prostate chez le quadragénaire au Sénégal. Prog Urol 2011; 21: 260-3. https://doi.org/10.1016/j.purol.2010.05.011

[14] Salmon L, Bastide C, Beuzeboc P, *et al*. Recommandations du CCAFU en uro-oncologie 2013: cancer de la prostate. Prog Urol 2013; 24(2 suppl): S23-56.

[15] Fromont G. Difficultés d'interprétation des biopsies prostatiques: introduction. Ann Pathol 2012; 32: 105-6. https://doi.org/10.1016/j.annpat.2012.02.012

[16] Mignard J-P. Prostate biopsy. Prog Urol 2010; 20: 818-21. https://doi.org/10.1016/j.purol.2010.07.006

[17] Chan TY, Partin AW, Walsh PC, Epstein JI. Prognostic significance of Gleason score 3+4 versus Gleason score 4+3 tumor at radical prostatectomy. Urol 2000; 56: 823-7. https://doi.org/10.1016/S0090-4295(00)00753-6

[18] Prost J, Gros N, Bastide C, Bladou F, Serment G, Rossi D. Corrélation entre le score de gleason des biopsies prostatiques et celui de la pièce de prostatectomie radicale. Prog Urol 2001; 11: 45-8.

[19] Nwofor AM, Oranusi CK. Cancer of the prostate: Experience at Nnewi, Southeast Nigéria. Niger J Clin Pract 2004; 7: 65-8.

[20] Stamey TA, McNeal JE. Diagnosis of prostate cancer. In Campbell's Urology. 6th ed. TSL Eds, Washington 2002; pp. 1197-9.

[21] Lance RS, Freidrichs PA, Kane C, *et al*. A comparison of radical retropubic with perineal prostatectomy for localized prostate cancer within the Uniformed Services Urology Research Group. BJU Int 2008; 87: 61-5. https://doi.org/10.1046/j.1464-410x.2001.00023.x

[22] Weldon VE, Tavel FR, Neuwirth H. Continence potency and morbidity after radical perineal prostatectomy. J Urol 1997; (3Pt2): 883-7.

[23] Steiner MS, Morton RA, Walsh PC. Impact of anatomical radical prostatectomy on urinary continence. J Urol 1991; 145: 512-5.

[24] Patrick J, Bastian MD, Mark L, *et al*. Clinical and Pathologic Outcome after Radical Prostatectomy for Prostate Cancer Patients with a Preoperative Gleason Sum of 8 to 10. Cancer 2006; 107(6): 1266.

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