IMPORTANCE OF PREVIOUS TRANSURETHRAL RESECTION OF THE PROSTATE BEFORE EERPE. SHORT-TERM FUNCTIONAL OUTCOMES IN A SINGLE SURGEON SERIES

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Summary.- OBJECTIVES: Laparoscopic Radical Prostatectomy (LRP) is technically a very demanding procedure and potentially even more challenging in patients with previous trans-urethral resection (TURP). This study evaluates the impact of previous TURP on the short-term functional outcome of patients undergoing extraperitoneal LRP.

METHODS: Retrospective analysis of a prospectively collected database, comprising a single-surgeon cohort of 155 consecutive LRP cases, 19 of which had previous history of TURP. Demographics, clinical and functional outcomes were evaluated and compared among patients with and without previous TURP. Multivariate analysis was performed to identify potential variables independently associated with continence outcomes. Incontinence was defined as the need of more than 1 pad/day. Potency was defined as the ability for sexual intercourse with or without the use of phosphodiesterase inhibitors.

RESULTS: Demographic and clinical variables were comparable among the two study groups. Neurovascular bundle preservation was possible in 26% and 37% of patients with and without previous TURP, respectively. No major complications were recorded and the incidence of minor complications was comparable. Overall continence rate at 3 months was 82.58%, for the entire cohort. Subset analysis demonstrated a 3-month continence rate of 73.7% vs. 83.8% (p>0.05) in patients with and without TURP, respectively. Multivariate analysis demonstrated age, BMI and ASA were variables independently associated with continence outcomes. In the cohort of patients with previous TURP, 2 out of 7 undergoing preservation recovered erections, with a mean follow up of 15.5 months, comparable to the 30% achieved in patients without TURP and nerve sparing procedure.

CONCLUSIONS: Laparoscopic Radical Prostatectomy in patients with previous TURP is feasible, with complication rates and short-term functional outcomes comparable to those in patients without previous resection.
INTRODUCTION

Once laparoscopic radical prostatectomy has been established as a standard of care for organ confined prostate cancer patients, we’re in a period where functional outcomes are the most important concern for surgeons and patients. In our opinion minimal invasive prostatectomy popularized the anatomy of the prostate and its fascias. This, involves an important improvement in functional results of experienced surgeons, regardless of the surgical approach. Nowadays, may be due to the expansion of the robot, there are many papers in the literature, with small modifications of the technique, some of them potentially will improve the results. The increase of the surgeon experience allows him to face the most difficult cases as salvage prostatectomy after radiotherapy or radical prostatectomy after transurethral resection of the prostate (TUR).

The objective of this study is to value the influence of a previous TURp (pre-TURp) in functional outcomes after laparoscopic radical prostatectomy (EERPE). We analyze a consecutive single surgeon sample of patients with clinical organ confined prostate cancer who were operated during the period 2009-2011.

MATERIAL AND METHOD

This is a cross sectional retrospective study of a prospective filled in radical prostatectomy database of patients operated according to the Leipzig technique (1).

Until July 2011 the database contained 252 records. For this study we excluded, patients with previous hormone therapy, radical prostatectomy after radiotherapy, single site laparoscopic prostatectomies, and patients with a follow up lower than 3 months. The first 20 cases were also excluded because they were performed during a mentored training program. Description and results have been already published (5). In each analysis only patients with all variables were included. 155 patients had 3 months continence status, 19 of them had a preTURp.

The intrafascial modification was performed when neurovascular bundles were preserved, and a wide excision procedure when nerve sparing wasn’t considered (2). This technique was only modified in 31 cases where the Rocco Stich was performed (3). Pelvic lymphadenectomy was performed in 76 patients, nevertheless due to the fact that patients were operated in different hospitals, criteria were not standardized and this variable is not included in the study.

In patient with previous TURp (pre-TURp), in order to control urether orifices, two double J catheters were placed in the same procedure, before de radical

Resumen.- OBJETIVO: La dificultad del tratamiento quirúrgico del Cáncer de próstata (caP) se acentúa en los pacientes con antecedentes de resección transuretral de próstata (RTU). En este estudio valoraremos la influencia de la RTU en los resultados funcionales a corto plazo de la prostatectomía radical laparoscópica extraperitoneal.

MÉTODO: Revisión retrospectiva de una base de datos de cumplimentación prospectiva de una serie de pacientes intervenidos por un solo cirujano de manera consecutiva. Se compararon las características demográficas, clínicas y patológicas de los pacientes con y sin RTU previa, para posteriormente realizar un estudio multivariante mediante regresión logística para comprobar qué variables se asociaban de manera independiente y significativa a la incontinencia según el criterio (>1 compresa/día). Se consideró potentes a aquellos pacientes capaces de penetrar con o sin la ayuda de inhibidores de la 5 fosfodiesterasa. Se dispuso de la evaluación funcional de 155 pacientes, 19 de los cuales tenían antecedentes de RTU previa.

RESULTADOS: Los subgrupos no diferían en las variables relevantes para el estudio. La conservación de haces neurovasculares se realizó en un 37% de los pacientes sin RTU previa y en un 26% del grupo contrario. No se objetivaron complicaciones mayores, la frecuencia de complicaciones menores no difirió. La tasa de continencia de la serie global, evaluada en los 3 primeros meses, era del 82,58%. En el subgrupo de pacientes sin antecedentes de RTU previa era del 83,8% mientras que en el subgrupo de pacientes con RTU previa era del 73,7%, p>0,05. En el análisis multivariante, se asociaron de manera independiente y significativa a la continencia la edad, el IMC y el ASA. Tampoco se observaron diferencias significativas en la proporción de pacientes que recuperaron la erección en uno y otro grupo (28 vs 30%).

CONCLUSIONES: Los resultados funcionales a corto plazo son aceptables y comparables a los de los pacientes sin resección previa.


INTRODUCTION

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In patient with previous TURp (pre-TURp), in order to control urether orifices, two double J catheters were placed in the same procedure, before de radical
prostatectomy. Catheters were taken out one month later.

Demographic and clinical variables were collected: Age was stratified into (> 70 or ≤ 70 years, and BMI was stratified into three categories (normal < 25, overweight 25-30 and obese >30).

Intraoperative variables like: type of surgery (intrafascial or wide excision), Rocco Stitch (yes/no), water tight anastomosis (tested intraoperatively with at least 240 ml of physiologic) and the subjective appearance of the urethral stump (three categories were given Short, when the perineum was necessary to press in order to reach the urethral stump, normal and extremely long), bladder neck preservation and bleeding. Blood lost was calculated with the difference between preoperative hematocrit and hematocrit in the recovery room.

Pathological variables

Gleason score in the specimen, surgical margin status (R), pathological staging, and prostate weight and cancer longest diameter.

Until January 2011, continence was classified according to the number of pads. After that date, patients are controlled in the functional unit in FIVO with a “24 hour pad test” in the third, six and 12th month. These data are not available for this study. We used two different criteria to consider a patient continent: one security pad in the first three months, and no pads in the same period.

We considered potent, those patients able to sexual intercourse independently of the use of 5PDE inhibitors.

Groups were compared with non-parametric tests (U-Mann Whitney and CHI square test for ordinal variables). Statistically significance was considered when p<0.05. A multivariate analysis with logistic regression was calculated in order to know which variables were associated with incontinence.

RESULTS

The average follow-up was 15 months. The average age of the sample was 65 years, and surgery time was 3 hours 8 minutes (range 1h 40 min and 5 hours).

In the group of patients with preTURp, 6 (31.6%) had an incidental prostate cancer (stage cT1a or cT1b). Time from the diagnosis until the EERPE was 6.3 months (range 4-12 months). The rest, were 2 cT2a and 11 cT1c; 13 patients diagnosed during the follow-up after radical prostatectomy due to an increase in PSA levels and/or suspicion DRE. The average time between the TURp and EERPE was 41 months (range 12-95 months).

There were no statistical difference in most of the variables between preTURp and non preTURp (Table I).

Pre-operative clinical variables

In the preTURp there was a significantly higher rate of patients with diabetes. Patients with previous TURp were older but differences didn’t reach statistical significance. The rate of overweight and obese patients did not differ (Table I).

Intraoperative variables

The length of the surgery differed 15 minutes, the difference in blood lost was also irrelevant.

It was necessary the transfusion of two blood concentrates in one patient with previous TURp (5.3%) and un 3 patients without TURp (2.20%). The intrafascial modification was performed in 37% on the patients with preTURp and 26% of the other group. Mosto of the patients had a water tight anastomosis. 2 patients had an anastomosis insufficiency showed by an important urine leakage in the drain during the first days in the postoperative period.

The intraoperative opinion of the urethral stump didn’t differ significantly in both groups. There were significant differences in the rate of bladder neck preservation, significantly diminished in the group with previous TURp. One patient in each group developed an bladder neck contracture (Table I).

PSA, risk stratification, tumor volume and margins status

The average of the PSA in patients with preTURp was a bit higher, with smaller prostate weight. Nevertheless it was only a tendency not statistically significant. The largest diameter of the tumor nodule, the distribution in risk classification groups, and pathological Gleason score, didn’t reach statistically difference either. The rate of positive margins was higher in the preTURp, but the difference didn’t reach the statistically significance too (Table I).
Functional outcomes

The continence rate in the whole sample, evaluated in the first 3 months was 82.58%. In the subgroup of patients without TURp was 83.8% while in preTURp group was 73.7%, p>0.05. If we considered the second and stricter definition, differences were still not significantly. (64.7% vs 57.9%, p>0.05).

In the multivariate analysis, the only variables which were independently associated with incontinence (more than one security pad in the first three months) were the age, BMI and ASA. According to our data history of previous TUR prostate was not associated with incontinence in the logistical regression analysis (Table II).

In the cohort of patients with previous TURP, 2 out of those 7 undergoing preservation recovered erections, with a mean follow up of 15.5 months, comparable to the 30% achieved in patients without TURP and nerve sparing procedure.

DISCUSSION

Radical prostatectomy is a standardized procedure non-exempt difficulty. Cases study in this paper can be a challenge, even for the most experienced surgeons. Recently most of the groups with tradition in laparoscopic radical prostatectomy, have published their series (6-9). Methodology consisted in match paired analysis or descriptive series the discuss complications, functional and oncologic outcomes (Table III).

The study is influenced by the Leipzig group. In fact the first two cases, of EERPE with an history of previous TURp where performed in this academic centre, during a mentored training program (5). Thus in order to avoid complications we follow up all the advices given and previously published by the german group (10).

Procedures in preTURp group underwent without major complications.

Other groups have described difficulties such as Colombo et al. They couldn’t resect the whole prostate specimen “in block” in 26% of the cases (11). This group argue

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<th>Table I. Sample Characteristics</th>
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<th>Variable</th>
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<td></td>
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<td>%</td>
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<td>Follow-up (months)</td>
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* p<0,05
that the extravasations of the saline liquid during the TURp could cause inflammation and fibrosis (11). Most of the experts recommend a waiting period of, at least 2-3 months, before the radical prostatectomy (6,7).

In our sample, patients with an incidental diagnosis, who decided to go to surgery waited at least 4 months (average 6,3 months) until the EERPE. Maybe the radicality of the TURp and the eventual perforation of the gland capsule are a handicap. 17 of the 19 patients were resected in the same institution as where the radical prostatectomy was performed, but by different surgeons. In our experience it wasn’t necessary to convert to open surgery any procedure. Menard et al. described that they needed to convert two of 46 procedures to open surgery (12).

Another risk in radical prostatectomy after TURp is the urethral injury described by Colombo et al. (11) and Jafe et al. (7). There is no evidence about the requirement of double J stents before the radical prostatectomy. Some groups use them routinely (6), others use them depending on an previous endoscopic revision (11) and others doesn’t use them at all. (13 14). In our opinion it’s an innocuous procedure, which minimizes the risk of meatus injury, it didn’t take more than 10-30 minutes and catheters can be taken out with a flexible cystoscope a month later. One patient required the ureteroscopic retrieval of an ascended double J stent.

Operating time is in range with those reported in the largest published series (Table IV). Differences both groups (preTURp and non preTURp) are irrelevant and are justified by the dorsal reconstruction of the bladder neck.

Transfusion rate are very low and are described as the main advantage of the laparoscopic and robotic surgery with respect to open surgery (15). Jaffe et al. reported two re-interventions due to an important bleeding.

We didn’t observed any difficulties in the urethrovesical anastomosis. Watertight anastomosis was achieved in most cases, nevertheless a large dorsal reconstruction was necessary in all patients with preTURp. One patient suffered bladder neck stricture in this group. After a mechanical dilatation, 24 months later has not any sign of recurrence.

In the subgroup of patients without preTURp, with a follow-up period of 15 months, one diabetic patient developed a severe bladder neck contracture which required surgical approach and an artificial sphincter.

Many researchers have reported similar continence rates (Table IV). In our series, 82,58% of patients used 0 or one security pad. Although the difference did not reach statistical significance,
we observed that patients with preTURp have a lower continence rate. When the strictest definition is used, again, lower continence rate is observed in the pre-TURp group (57.9% vs. 54.7%). This is in agreement with the findings of Eden et al, who observed a significant difference (61% vs 91%)16, as well as, those from Rassweiler et al (49.1% vs 61.8%)8 and Colombo et al. (74% Vs. 92%)4 series, when applying the same definition criteria. Mihn Do et al did not compare the pre-TURp continence rate with a control Group but they described a continence rate of 81% alter 6 months (6).

Some authors support that time minimizes the differences between the groups (6, 8). We do not have data in our series to verify this tendency. Theoretically our results can be influenced by several variables, such as, the rate of diabetes in the preTURp is higher, patients are also older, and bladder neck preservation is not frequent in this subgroup.

All these variables, play a role against an early recovery of the continence in the preTURp group (8, 17, 18).

In our multivariate study, preTURp wasn’t associated with incontinence, maybe our sample is not large enough to find this potential association. Only Palisaar et al. included this variable in the multivariate analysis and they didn’t find the association either. Nevertheless they evaluated their results a year alter the surgery (14). In our study age and ASA were associated with incontinence. Other studies, considered age and BMI as risk factors for early incontinente (19). ASA may be a bias, because older and obese patients have more anaesthetic risk.

Colombo et al and Ramon et al. observed more difficult in the dorso lateral dissection of the gland in patients with preTURp. Not all groups corroborate this assertion (16, 14).

In patients with preTURp, nerve sparing surgery, may be difficult and success rate is mild. Seven patients relieve a nerve sparing procedure, two were able to sexual intercourse. It is possible than other patients recover erections after a long period.

In most of the published studies, patients with radical prostatectomy after TUR are older than patients without (7, 12, 13, 16).
The average PSA was higher (10,75ng/ml vs 8,7ng/ml), 4 of 19 patients had a pT3 tumor and 10 patients had a gleason score higher than 6. Because of that, we should be careful we recommend a nerve-sparing procedure in preTURp.

Our rate of positive margins in the subgroup preTURp was very high 7/19, at the expense of pT3 patients (4/4), but between pT2 there are 20% of positive margins. Due to the high biochemical recurrence rate between patients with positive margins, this result in our sample is cause of concern (20).

If we stratified for margin position, 5 of 9 positive margins were localized in the apex. May be due to the concern.

Analysis of margin location demonstrates that they are more common at the apex (5/9 cases). Perhaps, this is the result of excessive conservation of the bladder neck and urethral stump, already disrupted in many patients with previous resection. The potentially more difficult anastomosis also conditions a more conservative approach which, may in turn, result in an increased risk of apical positive margins. Indeed, as represented in Table II, we observed that the urethral sump was classified by the surgeon as “extremely large” in 42% of cases with previous TURP, compared to the 32,9% found in patients without previous resection.

Since August 2011, we have implemented the technical modification of non apply a haemostatic stitch to the dorsal venous complex prior to the apical dissection, in order to avoid compression of tissue and further decreasing the risk of a positive margin at this level. So far, we have performed 3 cases with the modified technique in patients with previous TURP, all cases with negative margins. If we include these cases in our series, the positive margin rate would decrease by 2%. Therefore, we advocate that this modified technique may reduce positive margin rates, without any decrease of continence rates. Other groups identified a lower rate of positive margins, Only Katz et al had a 34,28% (12/35 patients) positive surgical margins rate, with a pathological stage distribution similar to our sample (9).

This study represents the first analysis of our radical prostatectomy series in patients with previous TURP. The authors are fully aware of the potential limitations of this study, derived of its retrospective nature. Equally, in these initial cases, we did not routinely include validated questionnaires of continence or sexual function. Finally, this is a single surgeon experience and unavoidably, at least in part affected by the learning curve itself, therefore there is room for future improvements in functional and oncological outcomes.

CONCLUSIONS

Analysis of our own series and review of contemporary published series, would suggest that short- and medium-term functional outcomes are comparable to those patients without previous surgery. In our opinion a previous transurethral resection of the prostate shouldn’t be a exclusion criteria for radical prostatectomy. Laparoscopic Radical Prostatectomy (LRP) in patients with previous Transurethral Resection of Prostate (TURP) is a technically demanding procedure, feasible but not free from potentially severe complications. However, in our opinion, adopting the appropriate precautions, the complication rate is low in these patients. In particular, it is essential to take care with the dorsal-lateal and apical dissections, in order to reduce the positive margin rates.

REFERENCES AND RECOMMENDED READINGS (*of special interest, **of outstanding interest)


