T02-10 : Factors predicting the development of symptomatic lymphoceles after lymph node dissection in robot-assisted radical prostatectomy: monocentric experience and review of the literature.

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Introduction

Pelvic lymph node dissection (PLND) is the gold standard for detection of nodal (LN) staging in prostate cancer. Despite the benefits of staging accuracy and its possible therapeutic role in eliminating microscopic metastases, PLND is also associated with several disadvantages, such as increased morbidity, longer operation time, and higher costs (1,2). The most frequent postoperative complications of PLND are lymphoceles, although not all lymphoceles need further surgical treatment and can be managed conservatively. The incidence of lymphoceles is reported between 2 and 9% of the patients (2). In this retrospective single surgeon study, we wished to analyse predictors of symptomatic lymphoceles (SL) after robot-assisted radical prostatectomy (RARP) in patients affected by localized prostate cancer.

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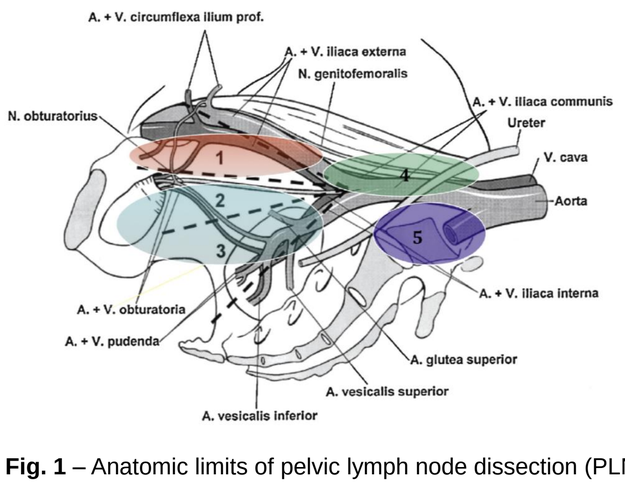

Fig. 1 – Anatomic limits of pelvic lymph node dissection (PLND).

Material and Methods

We retrospectively reviewed the clinical data of a single-surgeon series of 245 consecutive patients affected by prostate cancer and undergoing RARP and PLND between January 2016 and February 2019. The exclusion criteria for study enrollment were: patients with previous treatments for prostate cancer (including surgery, radiotherapy, hormone therapy and/or chemotherapy). The decision to perform PLND was usually based on cancer aggressiveness and in all men with a risk of lymph node metastasis >5% based on the updated Briganti nomogram. Data were collected, including age, body mass index (BMI), pre- and post-operative PSA, prostate volume, pathological data (Gleason score, stage classification), and complications classified according to the Clavien-Dindo classification. The occurrence of SL was identified in patients undergoing imaging as a result of symptoms suspicious for lymphocele, such as fever, abdominal pain, lower extremity swelling or hydrocele. All PLNDs were performed after radical prostatectomy. Following RARP, one gravity drain was placed monolaterally into the paravesical space. No hemostatic sealants were used for prevention of lymphocele formation. Drains were removed after a mean of 2.4 (2-6) days postoperatively when drainage was less than 70 ml within 24 h.

Results

RARP was carried out utilizing a transperitoneal approach in all patients. Robotic PLND was performed in 138 (56.3%) of patients [53 (38%) unilaterally and 85 (62%) bilaterally]. Mean age at surgery was 63.7 (43-83) years and median PSA was 7.3 (1.3-18.5) ng/ml. The median prostate volume was 42 (23-105) ml. The median BMI was 26 (19-40) kg/m2. The median operation time for RARP with PLND was 255 (220–355) min. The median estimated blood loss from RAP with PLND was 240 (20-900) ml, and 5 (2.1%) patients received a blood transfusion. Of the 138 patients, 6.5% and 26% had LN metastases, unilaterally vs bilaterally respectively. The incidence of LN metastases was correlated with Gleason score and tumor stage. Overall, a median of 22 LNs (7–53) were removed from all patients. Complications associated with LND occurred in 12 patients (8.7%). Clavien Grade 3 complications were observed for SL in 2 (1.5%) patients who underwent percutaneous drainage for SL by an interventional radiologist. SL was found in 5 patients (3.6%) and 3 patients were treated conservatively. Lymphedema was observed in 4 patients (2.9%), which resolved after assumption of diuretics drugs and physical treatment. Presence of LN metastases did not show any statistically significant impact on the formation of SL. There was a significantly higher incidence of SL in patients who had a higher number of LNs removed ($p < 0.001$). Interestingly, high BMI did not show a significantly higher incidence of SL. Patients affected by SL showed a median of BMI 23.6 (22-26) kg/m2.

Patients (PLND), n (%)	138 (56.3)
Number of nodes removed, median (range)	22 (7-53)
Lymph node dissection, n (%)	
Unilateral	53 (38)
Bilateral	85 (62)
Number of lymph nodes removed, median (range)	
Unilateral	12 (7-39)
Bilateral	24 (10-53)
Lymph node metastases, (%)	
Unilateral	6.5
Bilateral	26
Operating time (min), median (range)	255 (220-355)
Blood loss (ml), median (range)	240 (20-900)
Haemoglobin at discharge (g/dl), median (range)	12.8 (9.1-13.6)
Transfusion rate, n (%)	5 (2.1)
Hospital stay (days), median (range)	3.8 (2-21)
Conversion rate to open surgery, n (%)	0
Adjuvant RT, n (%)	12 (8.7)
Clavien-Dindo grade of complications, n (%)	
Grade I	4 (3.6)
Grade II	5 (2.2)
Grade III	3 (1.5)
Grade IV	0
Grade V	0

Table 1: Findings of patients undergoing PLND.

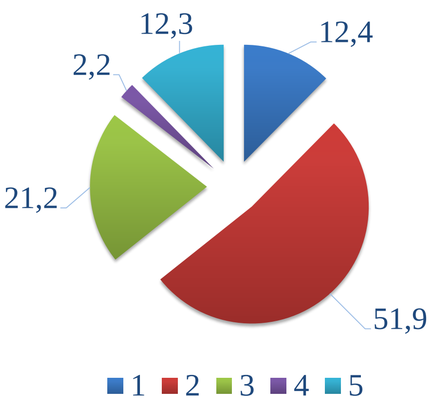

Table 2: Prostate prognostic grade group**.**

Patients characteristics (PLND) (n:138)	*Lymphocele (+) (n: 5)*	*Lymphocele (-) (n:133)*	*P*
Age (years), median (range)	62.8 (52-73)	63.4 (43-83)	NS
PSA (ng/ml), median (range)	6.8 (1.3-15.2)	7.2 (2.8-18.5)	NS
BMI (kg/m^2), median (range)	23.6 (22-26)	23.9 (19-40)	NS
Prostate volume (ml), median (range)	41 (23-80)	43 (26-105)	NS
N° LNs removed, median (range)	31 (19-53)	19 (7-35)	< 0.001

Table 3: Distribution of clinical characteristics in patients undergoing PLND.

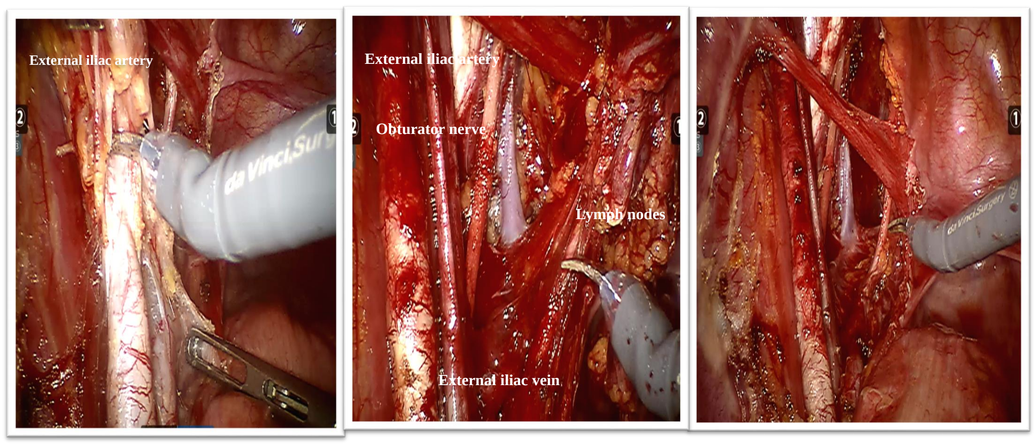

Fig. 2: Surgical steps for RARP with bilateral pelvic lymph node dissection.

Discussion and Conclusions

The primary purpose of PLND is to obtain improved locoregional staging of prostate cancer to better assess the risk of progression after radical prostatectomy, and to identify patients who may benefit from adjuvant treatment. However, a PLND may be therapeutic rather than simply a staging procedure. Retrospective evidence shows that an extended PLND may give a survival benefit not only for patients affected by prostate cancer with LN-positive disease but also for those with LN-negative disease (1-3). Lymphocele formation remains the most common complication related to lymphadenectomy, occurring as a result of lymph leakage from afferent lymphatic channels transected during resection. Recently, Briganti et al. reported that lymphocele rate was significantly higher after extended PLND compared with limited LND, at 10.3% vs 4.6% (1). The majority of laparoscopic and robotic-assisted approaches are transperitoneal. As peritoneal windows are one form of treatment for symptomatic lymphoceles, one would expect a lower rate of lymphocele in patients in whom this approach is used (3). Indeed, Solberg et al. have reported a lower rate of lymphocele in patients undergoing laparoscopic PLND as compared with open PLND (2). The radiologically detected lymphocele rate ranges from 25% to 61%, with only 2 – 9% becoming clinically symptomatic (1,3). The incidence of SL was 3.6% in the present study; a lower result compared with most published series. The most common sign/symptom seen was infection, leg edema, deep venous thrombosis and hydrocele. Data analysis of literature suggests three plausible factors that could have an impact on the rate of lymphocele development: the surgeon, transperitoneal vs extraperitoneal approach, and number of LNs removed. In this study we observed an inverse correlation of BMI and the formation of SL. The first report about a BMI-related incidence of SL in patients underwent radical prostatectomy was observed by Mundhenk et al (3). However, the reason why patients with lower BMI are at an increased risk for SL after RARP remains unclear. In conclusion we can say that PLND during RARP can be performed effectively and safely.

References:

1. *Briganti A et al. Eur Urol 50:1006–13,2006.*
2. *Solberg A et al. Scand J Urol Nephrol 37:218–21,2003.*
3. *Mundhenk J et al. Urol Int 90:270-6,2013*