

Contemporary extended pelvic lymph node dissection for prostate cancer in the UK – an analysis of national practice

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Introduction

Extended pelvic lymph node dissection (ePLND) is the optimal method of lymph node staging in prostate cancer

Since 2014, surgeons performing radical prostatectomy have been expected to submit their outcome data to the British Association of Urological Surgeons (BAUS) national registry as part of a National Health Service (NHS) transparency drive.

Contributing radical prostatectomy outcome data has been recognised as good medical practice and compliance is high.

To date there has been no national review of lymph node dissection practice or evaluation of the new World Health Organisation (WHO) prostate cancer grading systems’ ability to predict lymph node invasion.

We report a detailed analysis of UK ePLND practice and lymph node invasion rates in men undergoing radical prostatectomy

Methods

Individual surgeons / units uploaded their data on radical prostatectomy to the BAUS registry

All patients undergoing radical prostatectomy between January 2014 and January 2016 recorded in the BAUS registry were analysed

Men staged as clinical N1 prior to surgery and missing nodal data were excluded from analysis.

Results

In total 10880 men were pre-operatively staged as cN0. Of these 4366/ 10880 (40.1%) underwent pelvic lymph node dissection

2140/4366 (49.0%) underwent ePLND , median age 65, median lymph node yield 13 nodes (IQR 8, 18)

2226/4366 (51.0%) underwent Pelvic Lymph Node Dissection (PLND), median lymph node yield 5 nodes (IQR 3, 8)

ePLND is performed more commonly as the risk group grading increases in localised prostate cancer

Increasing WHO prostate cancer grade group correlates with an increased risk of lymph node invasion

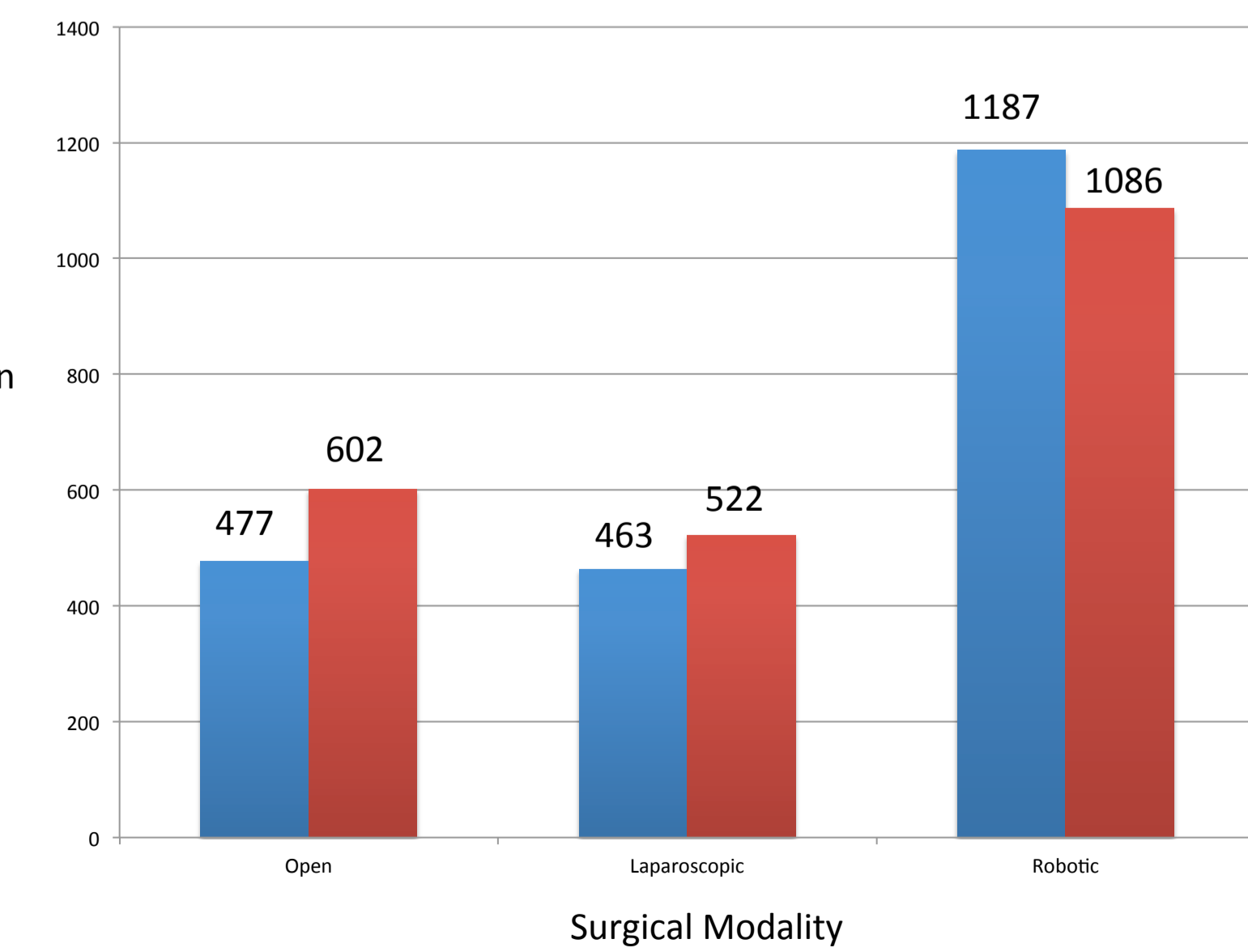


Figure 1: Bar chart illustrating surgical technique of pelvic lymph node dissection

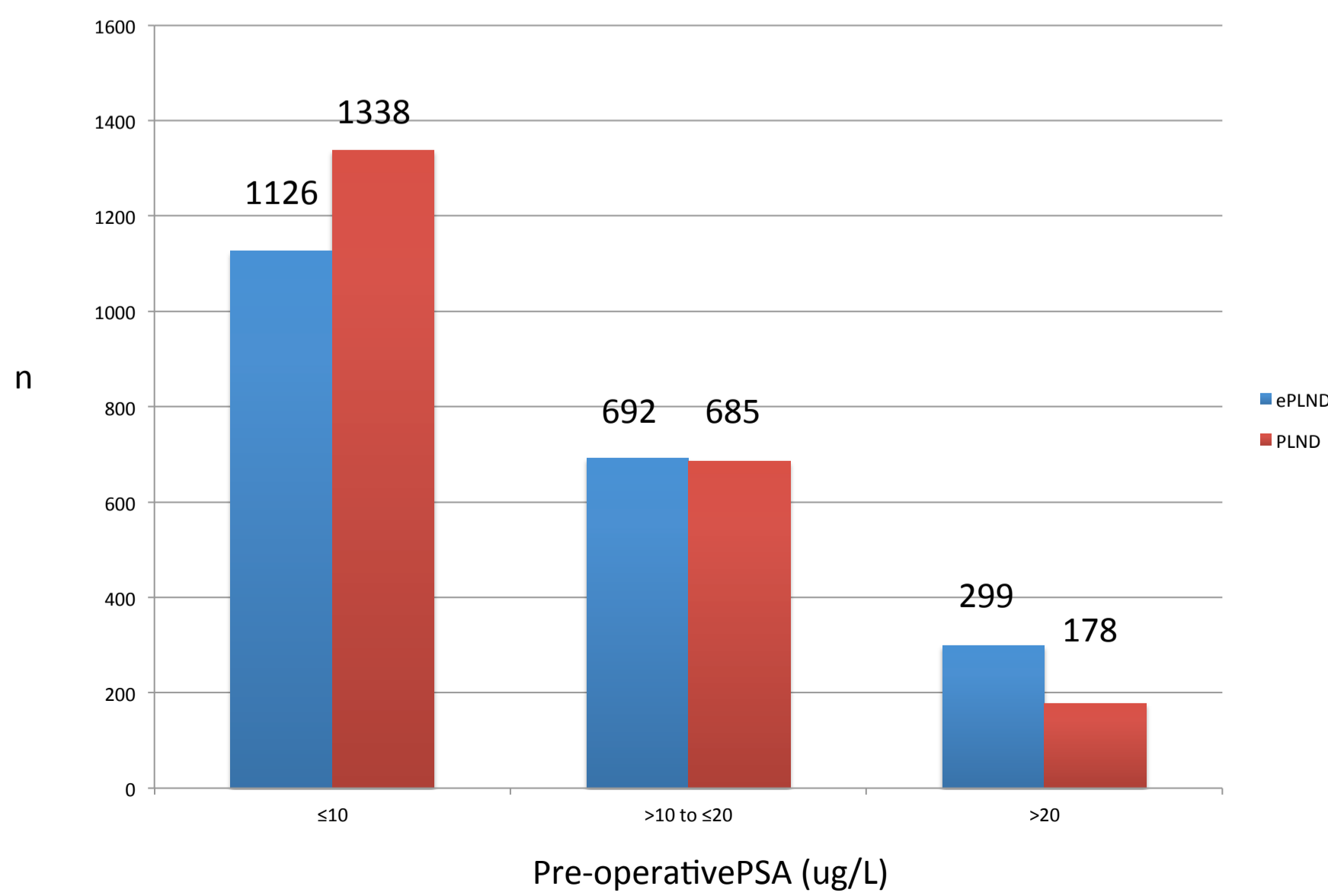


Figure 2: Bar chart illustrating pelvic lymph node dissection stratified by pre-operative PSA

Lymph node invasion	ePLND (n=2140)	PLND (n=2226)
PSA ≤ 10	N = 1126 Yes 102 (9.1%) No 851 (75.6%) Unknown 173 (15.4%)	N = 1338 Yes 43 (3.2%) No 1149 (85.9%) Unknown 146 (10.9%)
PSA >10 to ≤20	N = 692 Yes 97 (14.0%) No 478 (69.1%) Unknown 117 (16.9%)	N = 685 Yes 37 (5.4%) No 578 (84.4%) Unknown 70 (10.2%)
PSA > 20	N = 299 Yes 58 (19.4%) No 201 (67.2%) Unknown 40 (13.4%)	N = 178 Yes 18 (10.1%) No 135 (75.8%) Unknown 25 (14.1%)

Table 1: Lymph node invasion rates in patients undergoing ePLND and PLND stratified by PSA grouping

Lymph node invasion	ePLND (n=2140)	PLND (n=2226)
cT2	N = 1099 Yes 91 (8.3%) No 856 (77.9%) Unknown 152 (13.8%)	N = 1334 Yes 43 (3.2%) No 1131 (84.8%) Unknown 160 (12.0%)
cT3	N = 663 Yes 146 (22.0%) No 425 (64.1%) Unknown 92 (13.9%)	N = 540 Yes 48 (8.9%) No 440 (81.5%) Unknown 52 (9.6%)

Table 2: Lymph node invasion rates in patients undergoing ePLND and PLND, stratified by pre-operative clinical stage

New prostate cancer grading system	Group 1 (G1 3+3=6)	Group 2 (G1 3+4=7)	Group 3 (G1 4+3=7)	Group 4 (G1 = 8)	Group 5 (G1 =9-10)
ePLND Lymph node invasion	N=178 Yes 8 (4.5%) No 146 (82.0%) Unknown 24 (13.5%)	N=814 Yes 66 (8.1%) No 613 (75.3%) Unknown 135 (16.6%)	N=512 Yes 67 (13.1%) No 355 (69.3%) Unknown 90 (17.6%)	N=312 Yes 42 (13.5%) No 226 (72.4%) Unknown 44 (14.1%)	N=306 Yes 74 (24.2%) No 191 (62.4%) Unknown 41 (13.4%)
PLND Lymph node invasion	N=323 Yes 4 (1.2%) No 273 (84.5%) Unknown 46 (14.3%)	N=1043 Yes 39 (3.7%) No 896 (85.9%) Unknown 108 (10.4%)	N=476 Yes 28 (5.9%) No 398 (83.6%) Unknown 50 (10.5%)	N=202 Yes 10 (4.9%) No 169 (83.7%) Unknown 23 (11.4%)	N=156 Yes 20 (12.8%) No 122 (78.2%) Unknown 14 (9.0%)
Lymph node dissection not performed	N=1663	N=3334	N=801	N=161	N=53

Table 3: Lymph node invasion rates in patients undergoing ePLND and PLND, stratified by WHO grading system

Conclusions

ePLND is under-utilised in staging prostate cancer in the UK. Reasons for this lack of adherence to EAU Guidelines and any potential impact on prognosis need further elucidation.