

## ANATOMICAL DISTRIBUTION OF PROSTATIC PERIPHERAL NERVE TISSUE – A NOTABLE PORTION LOCATED ON THE DORSAL SURFACE OF THE APEX

### Hypothesis / aims of study

The performance of a successful nerve sparing (NS) radical prostatectomy (RP) depends on the best knowledge of the nerve distribution surrounding the prostate. Recent literature is focused predominantly on the anterior aspect of the prostate, whereas the aim of this study was to evaluate and interpret the nerve distribution of the entire prostate surface.

### Study design, materials and methods

From 17 patients' RP specimens (10 uni- and 7 non NS) 24 non NS aspects of whole mounted serial sections were analysed microscopically stained with PGP-9.5. Dividing the prostate half into 12 sectors, each ventral – ventrolateral – dorsolateral - dorsal and apex – mid - base, respectively, extra capsular nerves were counted sector wise, subdivided into small and big (>500microns) nerves.

### Results

The findings of the 12 investigated sections are demonstrated for big and small nerves (big/small) in Tab. I. Mean values of each sector were demonstrated as percentages along basal – apical distribution beside the total prostate half's distribution from ventral to dorsal.

|               | Total Prostate Half | Apical         | Mid part      | Basal         |         |
|---------------|---------------------|----------------|---------------|---------------|---------|
| Ventral       | 8,4/7,2*            | 29,94/19,87    | 47,31/36,45   | 22,75/43,68   | 100/100 |
| Ventrolateral | 22,5/23,4*          | 15,46/18,15**  | 29,69/29,69** | 54,85/52,16** | 100/100 |
| Dorsolateral  | 60,7/58,0           | 34,83/25,57    | 31,28/23,55   | 33,89/50,88   | 100/100 |
| Dorsal        | 8,4/11,4            | 45,49/41,31*** | 27,87/19,80   | 26,64/34,89   | 100/100 |
|               | 100/100             |                |               |               |         |

### Interpretation of results

Investigations of the whole mounted prostate sections confirmed the recently discussed notable amount of anterior localized nerves (\*). From the base to apex, only in the ventrolateral course the amount of nerves decreased obviously (\*\*), however a notable concurrent increase of nerve fibres in the dorsal localisation was detectable (\*\*\*).

### Concluding message

The dorsolaterally located accumulation of nerves (the bundle) seems to be superimposed by a caudal-dorsally directed nerve course, predominantly in the location of the apex and a ventralward hump in the mid part of the prostate is obvious. This finding, especially with regard that the apical prostate does not have a true capsule, might even improve further the functional outcome of continence and erection after NS RP.

### References

European Urology (2007) 51; 105-11  
Journal of Urology (2004) 172; 1032-35  
Urology (2005) 65; 136-42

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