

available at www.sciencedirect.com
journal homepage: www.europeanurology.com



Sentinel Node Evaluation in Prostate Cancer

Willem Meinhardt*

Netherlands Cancer Institute/Antoni van Leeuwenhoek Hospital, Plesmanlaan 121, 1066 CX Amsterdam, The Netherlands

Article info

Keywords:

Lymph nodes
Lymphadenectomy
Prostate cancer
Radioguided surgery
Sentinel node

EU * ACME
www.eu-acme.org/
[europeanurology](http://europeanurology.com)

Abstract

Objectives: Provide an overview of the use of the sentinel node (SN) technique in prostate carcinoma. The relevance of nodal staging in the several stages of prostate carcinoma, technical aspects of the SN technique, indications, and lessons learned from it are discussed.

Introduction: The lymph node status is relevant in all M0 tumour stages. In early prostate cancer the changes of nodal involvement are so low that invasive diagnostics are superfluous. However, the definition of this early stage is narrowing since the results of extensive node dissection have shown that previously assumed low-risk patients may harbour positive lymph nodes. On the other hand, in locally advanced cases, if the decision for external-beam radiation on the lymph node basins in combination with radiation of the prostate and 3 yr of hormonal therapy has been made, a lymph node dissection seems superfluous.

Methods: SN dissection may be performed in open surgery or as a laparoscopic technique. A radioactive tracer is injected into the prostate and on γ -camera imaging it is decided which lymph nodes are the possible first landing zones for the prostate tumour. During the radioguided surgery, the excision of the SNs, a handheld γ probe is used to identify the radioactive nodes. On introducing the method in a clinic, it is important to do a conformal extensive pelvic lymph node dissection as well to ensure that logistics and the performance are reliable.

Results: SN dissection is as reliable as a diagnostic tool as extended pelvic lymph node dissection. Because it may show cancer-bearing nodes outside of the region of the extended lymph node dissection, such as the presacral area, it may on occasion be even more sensitive.

Discussion: The SN technique is likely to have fewer complications compared to the extended lymph node dissection. On the other hand, an extended lymph node dissection may still be indicated when the SN procedure yields only a few positive lymph nodes and definite cure is still the aim. Weighing the advantages and disadvantages of the laparoscopic versus the open SN technique is not different than in any other procedure. In the near future, sophisticated imaging techniques will identify nodes that are suspicious for micrometastases. This will make minimal invasive methods to confirm the nodal status not superfluous, but more in demand.

Conclusion: When the nodal stage is important for treatment decisions, only extended dissections or the SN method will provide accurate staging. The SN procedure is less invasive and will avoid an extensive node dissection in the majority of cases.

© 2007 European Association of Urology and European Board of Urology.
Published by Elsevier B.V. All rights reserved.

* Tel. +031 (0) 205129111; Fax: +031 (0) 205122554.
E-mail address: w.meinhardt@nki.nl.

1. Introduction

1.1. Brief history

Even 30 yr ago studies showed that prostate carcinoma lymph node metastases have their first landing zones in lymph node areas around the internal iliac artery, obturator fossa, external iliac artery, common iliac artery, and presciatic and presacral areas [1]. However, this was the era of rather late diagnosis and most men with positive nodes had involvement of more than one area. When diagnostic methods improved, the attention shifted towards risk assessment and defining a group of patients in whom a node dissection could be avoided [2].

For patients who were candidates for perineal prostatectomy or external-beam radiation, a strong case was made for laparoscopic lymphadenectomy. After the introduction of laparoscopic pelvic node dissection for prostate carcinoma, studies comparing minilaparotomy with laparoscopic resection were done. The number of nodes excised in these studies and the limitations of the laparoscopic technique in the early days have somehow made a pelvic node dissection synonymous with clearing the obturator fossa only in many urologic practises [3,4]. More recently, publications of urologists who documented their practice of extended lymph node dissection have caused reasons for concern [5,6]. Dissection of only the obturator fossa misses, in some series, up to 75% of the clinically occult metastasis [7].

The sentinel node (SN) concept was first developed by Cabanas and applied to patients with penile carcinoma. With lymphangiography studies he assessed the location of the first lymph node from the lymphatics of the penis. Excision of only this node on both sides was believed to give sufficient proof of lymph node involvement [8]. The SN procedure is a diagnostic procedure. In case of penile carcinoma it was used as a tool to decide if a complete lymphadenectomy was indicated or not. Unfortunately, the method was not reliable enough. Morton described the dynamic SN procedure. By injecting a dye and a radioactive tracer in or near the tumour, the spread of the tracer could be followed on a γ camera and the first landing zones could be visualised. With a handheld probe these nodes may then be identified during surgery [9]. The method proved to be of great use in patients with breast carcinoma and those with melanoma [10,11].

The benefit for the patients was great because many could be spared a regional lymphadenectomy and the disfiguring arm oedema that sometimes

follows. In urology the dynamic SN procedure was pioneered by Horenblas on men with penile cancer, and it developed into a very reliable diagnostic method [12].

The success in penile carcinoma may be attributed to several factors. The tumour as injection site is easily accessible. The first landing zone, the groin, is a superficial area, so the SN procedure is a minor operation. But most of all, the squamous cell carcinoma of the penis never skips the lymph nodes of the groin. Metastases elsewhere without a positive lymph node in the groin are not seen, unless there is a sarcomatoid component in the tumour [13].

Unfortunately, these factors are not present in other urologic cancers. So a lymphadenectomy is still considered the standard diagnostic procedure for bladder and prostate carcinoma by many urologists. Wawroschek showed the feasibility of the SN procedure in patients with prostate carcinoma [14].

1.2. Indications for assessment of the nodal status

The risk assessment of the likelihood of nodal involvement and the practice to refrain from lymph node dissection in the lower risk groups is in doubt since the publication of incidence figures of node involvement in the low-risk groups with extended lymph node dissection [5,6]. The group of patients in whom a node dissection can be omitted safely is probably more limited than generally agreed in recent years. Prostatectomy patients may have a survival benefit from complete node dissection [7,15]. In patients with a low nodal metastatic load this may be simply due to the removal of all tumour. There is also the statistical effect on survival in the pN0 and in the pN+ groups by better allocation of patients with micrometastases. For patients with two or more nodes it might be mainly a prolongation of their progression-free survival. (For a detailed discussion, see Dhar et al [16].)

According to other experts, adjuvant hormonal treatment is indicated in node-positive prostatectomy patients; N1 patients will then have almost the same 10-yr cancer-specific survival as N0 patients, but N2 and N3 patients will still do worse [17].

Another development that makes accurate staging important is the use of radiotherapy in appropriate candidates. Since the introduction of conformal radiotherapy, it is possible and profitable to give very high doses to the prostate. However, when the lymph node basins are to be radiated as well, the radiation dose safely given to the prostate is restricted. To make this type of treatment decision a reliable assessment of the nodal involvement is mandatory.

Download English Version:

<https://daneshyari.com/en/article/3918908>

Download Persian Version:

<https://daneshyari.com/article/3918908>

[Daneshyari.com](https://daneshyari.com)