



Nasopharyngeal cancer: towards the ever elusive goal of standardization

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Nasopharyngeal cancer is unique, not only because it is among the handful of cancer sites with marked patterns of endemicity, but also because the limited role of surgery in the management of this solid tumor. This is both a boon and a curse: on the one hand Nasopharyngeal Cancer can be considered a solid proof of the efficacy of radiotherapy as a curative treatment modality for malignant diseases, but on the other hand it also means that only limited amount of surgical/pathological data is available to guide the radiation oncologist in specifying target volumes as opposed to other sites.

In the absence of such information, the increasingly important determination of “standardized target volume definition” for nasopharyngeal cancer have largely been guided by the collective experiences of major centers and research groups, with great care taken to translate the volumes and doses treated during the conventional radiotherapy era into 3D imaging-based target volume definition (1). Excellent results (2) have been published by various groups during the transition from conventional portals to IMRT for nasopharyngeal cancer, which is encouraging as it means that so far, we have been hitting our targets despite treating a smaller volume. However, it also raises the logical consideration that perhaps our volumes are still too large, as treatment results reported by most groups have been similar despite marked variations in target volume definitions. In the present day this consideration becomes highly relevant considering the degree of conformality we can achieve with our contemporary radiotherapy techniques

and the increasing importance of quality of life for long-term survivors from the disease.

In a joint effort to further optimize our target volume definitions for nasopharyngeal cancer, Lee *et al.* (3) have successfully brought together various approaches and concepts to arrive at a more standardized definition of high-, intermediate- and low-risk clinical target volumes (CTVs) while at the same time recognizing the questions to be answered by future studies on our journey towards better understanding of this disease. Indeed, standardization of target volumes is not a trivial matter, as it can potentially translate into large differences in treatment outcomes (4). It has also been an under-recognized fact that target delineation is still the “weakest link” (5,6) in the entire process chain of radiotherapy. Therefore, in addition to arriving at a joint consensus, another important achievement by the Lee et al has been the much more focused definition of the structures to be considered for inclusion in the target volumes.

Following the newly published guideline, it is reasonable to expect better sparing of normal structures, as the guidelines accommodates more focused definitions wherever plausible. Several major examples of this include the definition of “vomer and surrounding ethmoid sinus” instead of simply “part of the ethmoid sinus”, inclusion of ipsilateral instead of bilateral cavernous sinus in T3-4, a clearer guidance of when to include/exclude the Ib lymph node level, and the possibility of excluding the lower neck in N0/select N1. Considering the good results from reduced

volume approaches (7-10), we also believe that this is a step in the right direction. That selective neck irradiation concept in nasopharyngeal cancer is finally accepted in some selected patients in this current guideline will increase our options for improving the quality of life of our patients.

It should be noted, however, that the guideline covers more than just reducing volumes: better definition of the nasopharynx border, clearer guidance regarding inclusion of the pterygoid muscles, proposal for inclusion of the VIIb lymph node level and more detailed description of pterygoid fossae and base of skull foramina to be included as part of the target volume will also help in reducing variability among clinicians. These areas of major uncertainties in delineation (6) are addressed in sufficient details by the authors, and will help ensure a more homogeneous practice in determination of the cranio-caudal and lateral extents of the target volume.

Another area of burning question related to radiotherapy of head and neck cancer has been the significance of the “intermediate dose” of 60 Gy. The head and neck consensus group (11) assumed a neutral stance on this issue, providing guidelines for both two dose levels and three dose levels. The authors of the current nasopharynx consensus guideline, however, takes a slightly different position: the preferred practice of using three dose levels is still very evident in the way the recommendations have been framed but the authors have taken note of the variation in existing practice in expert centers and recommends 50–60 Gy equivalent as the “intermediate prophylactic dose”, with an “optional low dose level” of 50 Gy. Considering the dearth of data available to demonstrate the superiority of either prescription practice, it is unfortunately an inevitable decision to make.

In addition to the issue of dose prescription, the authors also discussed target volume definition within the context of induction chemotherapy. Acknowledging the scarcity of data on appropriate target volume contouring in nasopharyngeal cancer after induction chemotherapy which has been used in locally advanced stage in many institutions, the current guideline discussed and tried to provide some guidance on this controversial issue. In addition to adopting the general principles of target volume delineation after induction chemotherapy for head and neck cancers, the authors acknowledged the two different ideas for contouring regressing tumors that are in close proximity to the critical normal organs. The considerations of the extent of acceptable target compromise to be made in these challenging cases have been discussed, and should be helpful

for clinicians facing this difficult decision making process.

Admittedly, a significant proportion of the consensus statements were supported by limited amounts of pathology/imaging data especially when compared to the recently published consensus on head and neck cancers. It is important to note, however, that even for breast cancer with the extensive surgical/pathological information, standardization of target volumes is still an ever elusive goal (12,13). We therefore applaud the major efforts of the authors in laying out the foundation towards future refinements in our treatment approach for nasopharyngeal cancer.

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