



Response to editorial commentary by G. Siesto “*Seninel node mapping in uterine cancer: is less always more*”

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Regarding comments on “*Combining indocyanine Green and Tc-99 nanocolloid does not increase the detection rate of sentinel lymph nodes in early stage cervical cancer*” by Lührs *et al.*

We are grateful for the interest in our paper. We strongly agree with Dr. Siesto that a surgically and oncologically safe sentinel node procedure (SLN) requires not only a high bilateral detection rate, but also a close to 100% sensitivity to detect pelvic lymph node metastases. As highlighted in the article, to achieve this, strict adherence to an anatomically based surgical protocol as well as a high level of surgical expertise is key (1,2). This is clearly demonstrated when comparing the two largest prospective studies on detection of SLN in endometrial cancer; the SHREC study and the FIRES study where the bilateral mapping was 95% and 52% respectively (3,4). In the SHREC study, all procedures were performed by five surgeons, all highly experienced in robotic surgery and SLN detection, whereas only two of 16 surgeons in the FIRES study had any previous experience in robotic SLN mapping.

Presuming a close to 100% sensitivity to detect pelvic lymph node metastases, an SLN concept has several advantages compared to a full pelvic lymphadenectomy such as reduced perioperative morbidity and lymphatic complications, the latter has been shown to substantially impact the patients’ quality of life. In addition, ultrasectioning and immunohistochemistry evaluation increase the rate of metastasis detection allowing for

an improved oncologic outcome. Due to the inherent differences between robotic and open surgery, especially with regards to visual quality and image magnification, we do not believe that data on sensitivity and safety derived from studies on an SLN concept with the use of indocyanine green in conjunction with robot assisted surgery can be transferred to an open surgery concept.

The results from the LACC study and the US register (SEER) study by Melamed *et al.*, both report an inferior oncologic outcome following minimally invasive surgery (MIS) for cervical cancer compared with open surgery (5,6). Important concerns regarding the use of MIS have been raised, although no clear and obvious explanations of the possible mechanisms for the reported inferior outcomes for MIS have been presented.

The LACC study does not provide data on robotic radical hysterectomies as 84% of MIS was performed laparoscopically. In the SEER study, including 1,225 MIS procedures of which 79.8% were performed robotically, surgeries were performed between 2010–2013, i.e., during a period when robotic surgery was under introduction in the US. In addition, in the SEER study these 1,225 procedures were performed at 357 centers (personal communication with Dr. Melamed) indicating a very low average case load for MIS/robotic surgery at some centers. It is not bold to hypothesize that a novel approach performed at low volume centers would result in inferior outcome. Organization

of care and timing of a study in relation to introduction of a novel approach must, in our opinion, be taken into consideration when interpreting results.

In Scandinavia, surgery for gynecological cancer is centralized to a restricted number of tertiary referral centers, and radical hysterectomies are further centralized within centers due to the rarity of the procedure. Practically all MIS procedures for cervical cancer have been robotic. Two large nationwide studies, one Swedish and one Danish have not been able to show a difference between open and MIS in the rate of recurrence and survival as seen in the LACC and SEER studies (7,8). Therefore, provided a responsible organization of care and adequate surgical volumes we do believe there is a place for robotic radical hysterectomies for cervical cancer. This should, however, be further investigated in additional randomized trials such as the ongoing RACC trial (9).

Nevertheless, any potential risk for an inferior outcome associated with a certain approach must be taken seriously and possible surgical components associated with an inferior result must be sought out and eliminated. The advantages of an SLN concept developed for MIS and whether these advantages are applicable to an open approach, should be taken into account when discussing the future of cervical cancer surgery.

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Ethical Statement: The authors are accountable for all

aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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