



## Robotic inguinal lymph node dissection for melanoma: a novel approach to a complicated problem

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### Abstract

Following the interesting reading of the article “Robotic inguinal lymph node dissection for melanoma: a novel approach to a complicated problem”, the authors review the pros and cons of a minimally invasive technique for lymph node dissection, the consequences of complete lymph node dissection and the possible treatments for lymphedema, such as lymph node flap transfer and multiple lymphatic-venous anastomoses. The authors also review the possible benefits of applying the robotic technique to anatomical sites other than the inguinal one.

**Keywords** Malignant melanoma · Lymph node excision · Lymphedema · Robotic surgery

Dear Sir,

We have read with great interest the article entitled “Robotic inguinal lymph node dissection for melanoma: a novel approach to a complicated problem” by Hyde et al. [1]. We found that the article assessed an important problem faced by melanoma patients: the complication encountered after lymph node dissection.

Considering that one of the main complications after complete lymph node dissection is lymphedema [2, 3], we think that a minimally invasive procedure, such as robotic lymph node dissection, might contribute to reducing the risk of lymphedema.

Previous studies have investigated the target number of lymph nodes obtained during inguinal complete lymph node dissection to measure the quality of dissection [4] and the prognosis that might differ depending on the number of lymph nodes obtained [5]. Other studies suggest that six nodes could be the standard [6]. Oftentimes, aiming to dissect a higher number of lymph nodes, performing an open inguinal lymphadenectomy, could implicate a higher rate of

damage to the key structure for lymphatic drainage of the inferior limb [7], increasing the risk of lymphedema. Also, open surgery could cause a higher risk of seroma, surgical site infection and skin flap complication [2, 3], all considered as risk factors of lymphedema.

The article investigated the advantages of robotic dissection for inguinal complete lymph node, and the higher rate of complication after inguinal dissection when compared to the axillary might motivate research for a less invasive procedure. For this reason, we also think that head and neck melanoma, where the sentinel lymph node biopsy is positive in a higher rate [8], could benefit from this technique when lymphadenectomy is needed. In fact, the complex anatomy of this region would benefit from the robotic surgery, to have greater chances of sparing nerves (such as the VII and the XI cranial nerves) and neck vessels. Still, we should face reality, and consider the fact that robotic surgery implies much higher costs and a greater learning curve. This is why, in our department, we are improving the surgical techniques available to prevent lymphedema after complete lymphadenectomy. We are performing multiple lymphatic-venous anastomoses (PMA) during lymphadenectomy, as a preventive method against iatrogenic lymphedema. This technique is a safe procedure that could sensibly reduce the frequency of lymphedema, both in immediate and delayed complete lymph node dissection. We are also performing lymph node flap transfer [9, 10] as a strategy to treat chronic and late stages lymphedema, and this technique showed no concern of causing iatrogenic lymphedema, minimal donor-site

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morbidity and the minimal insult to the abdominal wall thanks to the laparoscopic approach [11]. As a lymphedema treatment center, this paper is a support to further improve our surgical approach to complete lymph node dissection using robotic surgery that we are currently using to harvest lymph node flap for lymphedema treatment [12].

Even though the case series reported in the article represents a limited sample size, the results appear promising. Considering the impact on the quality of life and the costs of lymphedema, and the fact that there is no defined surgical treatment for it, but new clinical reports showing promising results [9, 10], the possibility that a robotic approach to inguinal complete lymph node dissection could lower the morbidity in these patients should encourage future studies.

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### Compliance with ethical standards

**Conflict of interest** None disclosed.

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