



Introduction of minimally invasive inguinal lymph node dissections (MILND) for melanoma

Lukas B. Been, Harald J. Hoekstra

Department of Surgical Oncology, University of Groningen, University Medical Center Groningen, The Netherlands

Correspondence to: Lukas B. Been, MD, PhD. Department of Surgical Oncology, University of Groningen, University Medical Center Groningen, PO Box 30001, 9700 RB Groningen, The Netherlands. Email: l.b.been@umcg.nl

Comment on: Jakub JW, Terando AM, Sarnaik A, *et al.* Safety and Feasibility of Minimally Invasive Inguinal Lymph Node Dissection in Patients With Melanoma (SAFE-MILND): Report of a Prospective Multi-institutional Trial. *Ann Surg* 2017;265:192-6.

Received: 02 June 2017; Accepted: 21 June 2017; Published: 08 August 2017.

doi: 10.21037/ales.2017.06.15

View this article at: <http://dx.doi.org/10.21037/ales.2017.06.15>

The article by Jakub and colleagues describes the adoption of a minimally invasive inguinal lymph node dissection (MILND) for stage III melanoma patients in ten large-volume centers across the United States (1). The SAFE-MILND trial is a prospective multi-institutional trial designed to explore the feasibility and monitor the safety of introducing this new minimally invasive technique.

Inguinal lymphadenectomy is still the treatment of choice for melanoma patients presenting with a positive sentinel node biopsy or palpable nodal disease. This procedure is accompanied by complication rates of up to 70% (2-4). Attempts to tackle these serious complications include prolonged or shortened bed rest, use of antibiotics, use of Böhler-Braun splints, prolonged or shortened drainage and use of fibrin sealants (3,5-7). Despite all efforts, morbidity is still high around the world and in our institution morbidity has remained unchanged around 50% over the last decades (7).

The German DeCOG-SLT trial led to a discussion about the therapeutic effect of a completion lymphadenectomy after positive sentinel node biopsy and we are awaiting the final report of the MSLT-2 trial (8,9). In the years ahead of us, many patients with stage III melanoma will be offered adjuvant immunotherapy after completion or therapeutic lymphadenectomy. With this in mind, this surgical procedure is gradually evolving from a therapeutic procedure to a staging procedure, selecting the patients that may benefit most from adjuvant immunotherapy. An uneventful recovery after surgery is even more important in these circumstances and therefore the introduction of a new

minimally invasive technique is very relevant.

In 2009 Delman presented his first five MILND cases in melanoma patients at the Annual Meeting of the Society of Surgical Oncology and his group reported the extended series in later papers (10-12). The first experiences are very promising. Taken into account all limitations of their study, the minimally invasive approach resulted in less wound complications (infection, seroma and flap necrosis) whilst the oncological outcome seem to be the same compared to open surgery. The authors mention that a randomized trial in their institution is failing to accrue because patients already refuse to consent to open surgery.

Jakub *et al.* conducted their prospective multi-institutional trial in ten high-volume centers. All 12 participating surgeons were somewhat experienced in inguinal lymph node dissections (at least 6 procedures per year) but had no previous experience with the minimally invasive approach. All surgeons underwent training in the new technique, consisting of a video (which can be seen at <http://medprofvideos.mayoclinic.org/videos/minimally-invasive-inguinal-lymph-node-dissection-milnd>) and a hands-on cadaveric training. After this training, surgeons could perform the MILND in their own centers with quality and safety monitoring by the principal investigator.

What this study shows is that this new procedure can be transported into high-volume centers with very acceptable morbidity. In 87 patients that were scheduled for MILND, 77 procedures were completed successfully and 10 (11.5%) were converted to an open approach. The reasons for conversion are not mentioned in the paper, however, 11.5%

conversions seems an acceptable figure in the early stages of adoption of a new technique.

Surgeons performed a median of 6 MILND procedures. This means that every surgeon is still in the early stages of the learning curve for the procedure. For similar procedures (totally extraperitoneal hernia repair and retroperitoneoscopic adrenalectomy) learning curves of at least 40–60 cases are suggested (13,14). It is expected that the complication rates will drop even further with gained experience over time.

With a median of 12 lymph nodes dissected (IQR 6–13), the investigators are in range with what is commonly accepted as an adequate inguinal lymph node dissection and these numbers are also in line with the reported nodal count by Master *et al.* (11). Of course, nodal count is a surrogate marker for adequate oncological resection and the data on oncological outcomes (recurrence rate, disease-free survival and overall survival) have to be awaited.

Jakub and colleagues have conducted a nicely organized trial. The study shows that the introduction of the minimally invasive technique is possible in experienced centers with a well-organized training. Even in the early stages of adoption of this new technique, morbidity is already lower compared to open surgery and their results are in line with the data by Master *et al.* (11). It is our own experience that patients still experience some postoperative wound complications after MILND procedures, however it is striking that the severity of the toxicity seems lower than in the open population (unpublished data). We believe that the minimally invasive inguinal lymph node dissection is the future for stage III melanoma patients.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Annals of Laparoscopic and Endoscopic Surgery*. The article did not undergo external peer review.

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/ales.2017.06.15>). The authors have no conflicts of interest to declare.

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.

Open Access Statement: This is an Open Access article distributed in accordance with the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International License (CC BY-NC-ND 4.0), which permits the non-commercial replication and distribution of the article with the strict proviso that no changes or edits are made and the original work is properly cited (including links to both the formal publication through the relevant DOI and the license). See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

References

1. Jakub JW, Terando AM, Sarnaik A, et al. Safety and Feasibility of Minimally Invasive Inguinal Lymph Node Dissection in Patients With Melanoma (SAFE-MILND): Report of a Prospective Multi-institutional Trial. *Ann Surg* 2017;265:192-6.
2. van Akkooi AC, Bouwhuis MG, van Geel AN, et al. Morbidity and prognosis after therapeutic lymph node dissections for malignant melanoma. *Eur J Surg Oncol* 2007;33:102-8.
3. Chang SB, Askew RL, Xing Y, et al. Prospective assessment of postoperative complications and associated costs following inguinal lymph node dissection (ILND) in melanoma patients. *Ann Surg Oncol* 2010;17:2764-72.
4. Poos HP, Kruijff S, Bastiaannet E, et al. Therapeutic groin dissection for melanoma: risk factors for short term morbidity. *Eur J Surg Oncol* 2009;35:877-83.
5. Mortenson MM, Xing Y, Weaver S, et al. Fibrin sealant does not decrease seroma output or time to drain removal following inguino-femoral lymph node dissection in melanoma patients: a randomized controlled trial (NCT00506311). *World J Surg Oncol* 2008;6:63.
6. Stuiver MM, Westerduin E, ter Meulen S, et al. Surgical wound complications after groin dissection in melanoma patients - a historical cohort study and risk factor analysis. *Eur J Surg Oncol* 2014;40:1284-90.
7. Stuiver MM, Westerduin E, ter Meulen S, et al. Surgical wound complications after groin dissection in melanoma patients - a historical cohort study and risk factor analysis. *Eur J Surg Oncol* 2014;40:1284-90.
8. Faut M, Heidema RM, Hoekstra HJ, et al. Morbidity After Inguinal Lymph Node Dissections: It Is Time for a Change. *Ann Surg Oncol* 2017;24:330-9.

9. Leiter U, Stadler R, Mauch C, et al. Complete lymph node dissection versus no dissection in patients with sentinel lymph node biopsy positive melanoma (DeCOG-SLT): a multicentre, randomised, phase 3 trial. *Lancet Oncol* 2016;17:757-67.
10. Delman KA, Kooby DA, Ogan K, et al. Feasibility of a novel approach to inguinal lymphadenectomy: minimally invasive groin dissection for melanoma. *Ann Surg Oncol* 2010;17:731-7.
11. Master VA, Jafri SM, Moses KA, et al. Minimally invasive inguinal lymphadenectomy via endoscopic groin dissection: comprehensive assessment of immediate and long-term complications. *J Urol* 2012;188:1176-80.
12. Martin BM, Etra JW, Russell MC, et al. Oncologic outcomes of patients undergoing videoscopic inguinal lymphadenectomy for metastatic melanoma. *J Am Coll Surg* 2014;218:620-6.
13. van Uitert A, d'Ancona FCH, Deinum J, et al. Evaluating the learning curve for retroperitoneoscopic adrenalectomy in a high-volume center for laparoscopic adrenal surgery. *Surg Endosc* 2017;31:2771-5.
14. Choi YY, Kim Z, Hur KY. Learning curve for laparoscopic totally extraperitoneal repair of inguinal hernia. *Can J Surg* 2012;55:33-6.

doi: 10.21037/ales.2017.06.15

Cite this article as: Been LB, Hoekstra HJ. Introduction of minimally invasive inguinal lymph node dissections (MILND) for melanoma. *Ann Laparosc Endosc Surg* 2017;2:121.