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Editorial

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

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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.

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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.

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None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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