Laparoscopic Harvest of an Extended Right Gastroepiploic Lymph Node Flap With Double Level Inset in Patients With Extremity Lymphedema

Pedro Ciudad, MD, PhD; Oscar J Manrique, MD; Ketan M Patel, MD; Federico Lo Torto, MD; Mouchammed Agko, MD; Hung-Chi Chen, MD, PhD.

INTRODUCTION: Lymph node flap (LNF) transfer has shown promising results and its becoming one of the mainstay treatment options for extremity lymphedema.[1,2,3] However, there are concerns regarding donor site morbidity following LNF harvest.[4,5] Also, some observations have been made with regards of the effect of LNF on areas of the extremity away from the transferred flap. Herein, we describe the extended right gastroepiploic lymph node flap (RGE-LNF)[3] via laparoscopic approach with a double level flap inset for patients with upper and lower limb lymphedema.

MATERIALS AND METHODS: Between 2012 and 2015, patients with grade II and III upper or lower extremity lymphedema were selected for LNF transfer. Preoperative and postoperative limb circumference and lymphoscintigraphy were obtained. All patients underwent laparoscopic harvest of the extended RGE-LNF. In all cases, a double inset was performed at a distal and mid-limb level of the affected limb by dissecting a single flap in two. In addition, etiology of lymphedema, OR time and complications were analyzed.

RESULTS: A total of 7 patients were analyzed. The etiology was due to mastectomy and axillary lymph node dissection for breast cancer (n=4) and after hysterectomy and radiotherapy for gynecological cancer (n=3). The survival rate of the flaps after microsurgical transfer was 100%. The average operating time for flap harvest was 37 ± 4.7 minutes; The average time for flap preparation was 8.7 ± 0.8 minutes. The average total operating time including harvest and insets was 245 minutes. The average follow-up period was 14 months. The mean circumference reduction rate of the lymphedematous limb during follow-up was 43.4 ± 4.0% (range, 38.3% to 48.9%). Postoperative lymphoscintigraphy showed improvement of the lymph flow on the affected limb in all cases. No donor-site morbidity was encountered during the follow-up period.

CONCLUSION: The laparoscopic harvest of the extended RGE-LNF with a double level flap inset has been showing promising results. Due to the reduction of overall limb volume and symptomatic improvement, this approach may be a new potential treatment option for patients with extremity lymphedema. In addition, minimally invasive approach achieved reduction in donor site morbidity.

REFERENCES:

1. Raju A, Chang DW. Vascularized lymph node transfer for treatment of lymphedema: a comprehensive literature review. Ann Surg. 2014 Jun 19.
2. Ciudad P, Maruccia M, Socas J, Lee MH, Chung KP, Constantinescu T, Kiranantawat K, Nicoli F, Sapountzis S, Yeo MS, Chen HC., The laparoscopic right gastroepiploic lymph node flap transfer for upper and lower limb lymphedema: Technique and outcomes. Microsurgery, 2015.
3. Sapountzis S, Singhal D, Rashid A, Ciudad P, Meo D, Chen HC. Lymph node flap based onthe right transverse cervical artery as a donor site for lymph node transfer. Ann Plast Surg. 2013 Oct;73(4):398-401.
4. Vignes S, Blanchard M, Yannoutsos A, Arrault M. Complications of autologous lymph-node transplantation for limb lymphoedema. Eur J Vasc Endovasc Surg 2013;45:516–520.
5. Massey MF, Gupta DK. The incidence of donor-site morbidity after transverse cervical artery vascularized lymph node transfers: the need for a lymphatic surgery national registry. Plast Reconstr Surg. 2015 May;135(5):939e-940e.