

Lymphoscintigraphic changes after harvesting of the saphenous vein for coronary artery bypass graft

Alterações linfocintilográficas após retirada da veia safena para ponte da artéria coronária

Cleusa Ema Quilici Belczak¹, José Maria Pereira de Godoy², Antonio Fiel Cruz Junior³, Roberto Augusto Caffaro⁴

DOI: 10.5935/1678-9741.20110028

RBCCV 44205-1309

Bridged incisions do not eliminate lesions to the lymphatic vessels and so the identification of risk factors associated to lymphatic lesions is important.

Descriptors: Saphenous vein. Lymphedema. Coronary artery disease.

Study published in this journal reported on complications after saphenous vein harvesting such as paresthesia, lymphorrhea, infection and deep venous thrombosis [1]. Another study in this journal showed that leg wound complications were observed more in the traditional long incision vein harvesting technique ($P=0.0005$). Female gender, obesity, diabetes are associated with an increased incidence of wound problems ($P<0.05$) [2].

We evaluated 44 patients from the Heart Surgery Clinic of Maringá, Brazil who were submitted to coronary artery bypass surgery using one of the great saphenous veins harvested using the bridged incision method. All patients were included in the study by order of arrival in the clinic for revascularization over a three month period, however patients with clinically diagnosed edema due to other causes were excluded.

An intradermal injection of Dextran 70 marked with ^{99m}Tc in the interdigital space (between I and II toes) of both legs was used for the lymphoscintigraphic exam. The activity at both injection points was 1 mCi with a volume of 0.2 mL of

Incisões-ponte não eliminam a lesão de vasos linfáticos e assim a identificação de fatores de risco associados às lesões linfática é importante.

Descritores: Veia safena. Linfedema. Doença da artéria coronariana.

Dextran thus corresponding to 18.5 MBq. Serial scanning images were taken at 15 minutes, one hour and three hours after the administration of the radioisotope. During the first 15 minutes, the patient remained in the dorsal decubitus position and performed dorsiflexion movements of the toes. For imaging, the patient was placed in a dual-head gamma camera (Apex Helix, Elscint, Israel). Between the one-hour and three-hour acquisitions, the patient was requested to walk normally. Water-displacement volumetry was utilized to investigate possible edema.

To analyze the data obtained in this study the volumetric with the semi-quantitative and qualitative lymphoscintigraphic findings were compared between operated and non-operated legs and between operated legs both with and without edema. The sample as a whole (all patients) was considered as were the legs of individual patients.

The data, expressed as means and standard deviations, were analyzed employing the Student t-test according to the variance (F) between groups and subgroups. The measurements used to calculate these means and standard

1. PhD; Professor of Course Post Graduation Lato-Sensu of Lymphovenous Rehabilitation in Medicine School of São José do Rio Preto (FAMERP), São José do Rio Preto, SP, Brazil.
2. Full Professor in Medicine School of São Jose do Rio Preto (FAMERP), São José do Rio Preto, SP, Brazil.
3. PhD; Physician of Diagnosis Nucleus of Maringá, Maringá, PR, Brazil.
4. PhD; Professor in Medical Science School of Santa Casa de São Paulo (FCMSCSP), São Paulo, SP, Brazil.

Work performed at Medical Science School of Santa Casa de São Paulo (FCMSCSP) São Paulo, SP, Brazil.

Correspondence

José Maria Pereira de Godoy, Rua Floriano Peixoto, 2950 – São José do Rio Preto, SP, Brazil – Zip Code:15020-10
E-mail: godoyjmp@riopreto.com.br

Article received on February 17th, 2010
Article accepted on August, 1st, 2011

Table 1. Frequencies of dermal backflow identified by lymphoscintigraphy in the operated and non-operated legs of 44 patients

Lymphoscintigraphic findings	Operated	%	Non-operated	%	P-value	RR	PI
Dermal backflow							
Absent	27	61.4	41	93.2	P=0.00	2.2	8.6
Present	17	38.6	3	6.8			

RR – relative risk; PI – Probability index (or Odds Ratio – OR)

deviations were also correlated, when possible, by applying the Pearson coefficient.

The data expressed as absolute frequencies and percentages were analyzed and compared using the Chi-squared or Fisher exact tests depending on the total size of the groups and subgroups in the study.

Moreover the probability indexes (PI) or Odds ratio (OR) that lymphoscintigraphic alterations occurred were calculated for the operated legs.

The study was approved by the Research Ethics Committee of the Medical Sciences School of Santa Casa in São Paulo (# 137-07 dated April 30th 2007).

Dermal reflow was detected in the operated leg associated to a higher number of incisions used in the surgery ($P = 0.03$ – Table 1). The presence of popliteal lymph nodes in the operated leg was associated with the length of the surgical incisions (21.3 ± 9.6 cm absent and 30.6 ± 9.7 cm present – P -value = 0.01) and collateralization in the operated thigh was significantly greater in women ($P = 0.05$). Of the individuals with single lymphatic vessels in the non-operated leg, 15.8% were women and 84.2% were men. However, of the participants with multiple lymphatic vessels in the operated leg, 42.8% were women and 57.2% were men.

Edema was identified in 25% of the operated patients one year after surgery, in 26.1% in from one to five years and in 46.1% more than five years after the surgery.

The current study associates the type of surgery with alterations in the lymphatic system and the time after the

surgery with the appearance of edema. These reports serve as a warning to guide patients about the care necessary with this technique used to harvest the saphenous vein. Bridged incisions do not eliminate lesions to the lymphatic vessels and so the identification of risk factors associated to lymphatic lesions is important. However, the harvesting technique can not negatively affect in the quality of the vein for grafting and this, plus the resulting revascularization, should be placed in first place. Any resulting edema should be controlled by clinical treatment [3].

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