Section of Acta Cirúrgica Brasileira dedicated to sentinel node researches

Seção da Acta Cirúrgica Brasileira dedicada à pesquisa sobre linfonodo sentinela

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The goal of surgical oncology is to remove trapped tumor cells within lymphatic system at a time when tumor burden was so small that the chance of systemic dissemination was believed to be insignificant. Sentinel lymph node biopsy (SNB) has emerged by the end of the 20th Century to detect micro metastasis in one or few lymph nodes. SNB is a minimally invasive procedure that selects patients for complete lymphadenectomy. Only patients with micro metastasis into sentinel node (SN) are submitted to complete lymphadenectomy. Patients without metastasis are preserved, avoiding complications as infection, parestesia and edema. It is one of the most important advances in surgical oncology and has been adopted by American Joint Committee on Cancer since 2002 for melanoma and breast cancer staging. SNB has been checked in others tumors such as those of the gynecological and gastroenterological areas and those of the head and neck region.

Since the landmark report by Morton et al in 1992, it has been confirmed that the sentinel node (SN) status in melanoma patients very accurately reflects the status of the entire regional node basin. The SN pathological status is a powerful prognostic factor, with long term survival rates 30-40% lower in patients who has micro metastasis into the SN and is the main predictor of survival outcome in clinically localized cutaneous melanoma. Therefore, SN assessment is essential for stratification of patients involved in adjuvant therapy studies. This minimally invasive technique and its results are easily reproducible turning it on the standard of care for nodal staging and a worthwhile procedure.

Trials have been designed to address various questions about SNB. The Multicenter Selective Lymphadenectomy Trial is an American trial that will address whether this surgical strategy provides a survival benefit for patients. The Sunbelt Melanoma Trial will determine the role of molecular staging in patients who undergo sentinel lymph node harvest. In another arm of this study, the role of adjuvant interferon Alfa will be examined in patients with minimal disease in the regional basin with just one microscopically positive SLN. The Florida Melanoma Trial will determine whether all patients with a positive SLN really need to undergo a complete lymph node dissection. Clinicians await the results of these three trials to define the true role of radio guided surgery in patients with cutaneous melanoma.

Sentinel lymph node procedure involves three phases: 1. pre-operative lymphoscintigraphy; 2. biopsy of the sentinel node – by means of vital dye lymphatic mapping and intra-operative gamma probe detection; 3. histological examination of the SN. Many questions remain unsolved, such as in which cases this technique should be indicated (importance of mitotic rate, vertical growth factor and regression for cutaneous melanoma); what to do with a specific patient with only one compromised SN in a few extenstion; what is the clinical significance of a SN with m-RNA positive thyrosinase by RT-PCR. On the other hand, this procedure has a low but not insignificant complication rate. With increasing follow up, false negative rates are increasing, representing failures of nuclear medicine and/or surgery and/or pathology. More reliable techniques in each of these steps and new knowledge achieved by basic science researches are being investigated objecting to improve the accuracy of SN identification and pathological exam. Experimental models of sentinel node biopsy opened a new frontier in the knowledge of this field such as the lymphodinamic studies, culture of endothelial lymphatic cells and the radiopharmaceutical tests. Recently, sonographic contrast agent has been used to identify SN without operation. Lymphosonography can be used to detect lymphatic drainage pathways and SN in a variety of animal models. Magnetic resonance with Gadomer not only provides excellent visualization of SN, but also provides the potential for targeted therapy of SN. In Brazil, the technique has been practiced since middle of 1990´s and it can be learned in several training centers like Sentinel Node Laboratory of Plastic Surgery of the Federal University of São Paulo (UNIFESP), coordinated by Renato Santos and "Saul Goldenberg Laboratory of Sentinel Node" of Federal University of Ceará (UFC), coordinated by Luiz Porto.

We expect that this new and specific section of Acta Cirúrgica Brasileira, dedicated exclusively to sentinel node researches, could be a new channel for publication of advances in SNB, resulted from activities of researchers located throughout global community. We hope also, that this Sentinel Node Section will contribute to the goal of Acta Cirúrgica Brasileira, to be indexed by the Institute for Scientific Information at the Web of Science.