Blue urticaria: a rare case of adverse reaction during sentinel lymph node biopsy for breast cancer

Urticaria azul: uma reacção adversa rara em contexto de pesquisa de gânglio sentinela axilar

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Abstract

Sentinel lymph node (SLN) biopsy is used to access the axillary region for the presence of metastasis in breast cancer. SLN mapping is better accomplished by using a dual – modality tracing that includes a radioisotope and a blue dye. Although patent blue dye reaches high lymph node detection, it can be associated with allergic reactions. We describe a rare case of a blue urticaria that followed the injection of patent blue dye for SLN biopsy in a woman with breast cancer.

Keywords: Blue urticaria; Blue-dye; Sentinel lymph node; Breast cancer.

Resumo

A biópsia de gânglio sentinela é uma técnica utilizada para estadimento cirúrgico ganglionar da axila em contexto de cancro de mama. Para a sua identificação recomenda-se a utilização de dupla marcação, com um corante azul e um radioisótopo. O azul patente permite uma elevada taxa de detecção do gânglio sentinela, embora esteja associado a reacções alérgicas. Os autores descrevem um caso raro de urticária azul associada ao azul patente.

Palavras-chave: Urticária azul; Corante azul; Gânglio sentinela; Cancro de mama.

INTRODUCTION

Breast cancer treatment has evolved over the years, being conservative surgery and sentinel lymph node (SLN) biopsy the recommend approach for early stage breast cancer. Axillary SLN corresponds to the first lymph node of drainage of the breast and its biopsy aids on the staging of the disease. Ultimately, if sentinel lymph node (SLN) biopsy is negative for metastasis, it will avoid unnecessary lymphadenectomy of the axilla, preventing for major morbidity. In our Center, SLN biopsy is performed using dual modality: radioactive tracer (Technetium 99) and blue-dye. This method allows for a SLN detection rate near 99%[1].

CASE REPORT

We describe a case of a 64-years old woman, with chronic kidney disease stage V, without known medication allergy history, who presented with a left breast node, classified as BIRADS 4A on the mammography, without suspected lymph nodes on the axilla. The core-biopsy revealed a ductal invasive carcinoma, G1, with estrogen and progesterone receptors. A quadractectomy with SLN biopsy was performed. Isotope lymphocintigraphy was performed on the previous day of the surgery

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FIGURE 1. Blue urticaria in the lower limbs.

and the periareolar subdermally injection of the blue dye immediately before surgery (after general anesthesia). On this case, 5 ml of patent blue 2.5% was injected and the patient developed a blue urticaria within 10 minutes that affected the upper and lower limbs, the thorax, the abdomen and the eye-lids (Figures 1 and 2). The patient did not develop respiratory symptoms (bronchospasm) and was treated with hydroxyzine plus hydrocortisone. During surgery, two lymph nodes were dissected, none showing metastasis. Extubation was perfomed in the operating-room as usual and the patient was kept under strict surveillance in the Post-Anesthesia Care Unit and then transferred to an Intermediate-Care Unit, to check for other severe allergic symptoms.

Surgery and post-surgery went uneventfully. The rash progressively disappeared but lasted for 24 hours. At the time for discharge from the hospital (two days after surgery), she had no signs or symptoms regarding the allergic reaction.

FIGURE 2. Blue urticaria in the eye-lids.

DISCUSSION

SLN biopsy is a technique that allows preservation of axillary lymph nodes in case there is no metastasis on that location, for early stages breast tumors. This approach is recommended by the European Society of Surgical Oncology and the U.S. National Comprehensive Cancer Network. SLN mapping should be accomplished using a dual modality tracing with radioisotope and a blue-dye[1]. Patent blue dye was used since the 60 s for lymphocintigraphy because of its high uptake by the lymphatic organs[1]. However, due to adverse effects, namely severe allergic reactions, a different dye was searched. Methylene blue dye is an alternative because of its lower cost, lower incidence of adverse effects and similar detection rate[1].

Allergic reactions to patent blue occur in less than 2% of cases[2], being the most common an isolated skin rash. It is an IgE mediated immune response and the blue hives that appear shortly after subdermally injection are pathognomonic[1,3].

Support treatment (hydration, anti-histaminic agents and corticosteroids) and surveillance in Intensive Care Unit might be necessary in cases of severe respiratory symptoms[3].

Our case reports to a rare condition (blue urticaria) related to the injection of patent blue dye that was not associated with major morbidity. Usually methylene blue dye is used and no allergic reactions are described

in our Center. Some high-risk patients, *e.g.* previous history of severe allergic reactions, might benefit from corticosteroids administered before the blue-dye injection, as it might decrease the severity of the allergic reactions, preventing from the occurrence of respiratory symptoms. However, in our case, the adverse reaction was unexpected.

Although our patient developed a light clinical condition, it prompted the need for the surgical team to be alert to this adverse reaction, in order to make a quick diagnosis and allow immediate treatment.

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AUTHORS CONTRIBUTIONS

Joana Bernardeco: clinical care of the patient including diagnosis, treatment and follow-up; research and writing the manuscript.
Pedro Ferreira: clinical care of the patient including diagnosis, treatment and follow-up; writing the manuscript.
Luís Branco: clinical care of the patient including diagnosis, treatment and follow-up; writing the manuscript.

CONFLICTS OF INTEREST

Authors have no conflict of interest.

INFORMED CONSENT

Informed consent by the patient was obtained.

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