Axillary Surgery in Ductal Carcinoma *In Situ*

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Rezumat

Carcinomul ductal *in situ* este o boală neinvazivă. DCIS pur nu este asociat cu riscul de a metastaza. Unele arii al DCIS pot, rareori, să conțină insule invazive. Pentru paciențele care vor fi tratate prin chirurgie conservatoare, biopsia ganglionului sentinelă (SLNB) este recomandată ca a doua procedură, în timp ce toate paciențele care au planificată mastectomia vor fi pregătite pentru efectuarea SLNB. Articolul analizează care paciențe necesită biopsia ganglionului sentinelă și care este cea mai bună tehnică de identificare a acestuia.

Cuvinte cheie: carcinom ductal *in situ*, ganglion santinelă, tehnică, biopsie

Abstract

Ductal carcinoma *in situ* (DCIS) is a noninvasive disease. Pure DCIS is not associated with the risk of metastasizing. Some areas of DCIS may rarely contain invasive islands. For patients who undergo breast conserving therapy sentinel lymph node biopsy (SLNB) is recommended as a second procedure, while all mastectomy patients should undergo SLNB. The paper analyses which patients require primary sentinel lymph node biopsy (SLNB) and what is the best technique to identify the sentinel lymph node.

Key words: ductal carcinoma *in situ*, sentinel lymph node, technique, biopsy

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Ductal carcinoma *in situ* (DCIS) is a non-invasive disease, that by itself does not metastasize. Axillary staging is therefore not required as a routine procedure in patients with DCIS. However, the breast cancer specific mortality for patients diagnosed with DCIS is twofold higher compared to an unaffected population (1). The question, how to identify patients with a higher risk for undetected invasion remains clinically relevant.

In this context two issues must be considered:

Which Patient Requires Primary SLNB?

Axillary dissection is no longer accepted as a staging procedure in primary surgery of breast cancer and has been replaced by sentinel lymph node biopsy (SLNB) due to a high detection rate and an extremely low axillary recurrence rate associated with this minimal-invasive surgical procedure. In view of the fact, that even SLNB is associated with an 8 % lymphedema rate (2) the selection of patients with DCIS who require primary SLNB is crucial. In this context two concepts have been debated in the past:

- Should the indication for SLNB be based on the risk of nodal involvement (grading, extent of the lesion, clinical detection)?

or

- Should the indication be based on the technical feasibility for SLNB?

James et al. evaluated the role of SLNB in 15.422 patients who underwent breast conserving therapy for DCIS (3). Out of these 2698 women (18 %) underwent SLNB. Most of these patients were characterized by higher risk features (e.g., grading). Only 0.9 % of them had histologically involved lymph nodes. Half of these node-positive patients showed only micrometastatic disease. These data demonstrate that weighing up benefits (detection rate for clinical meaningful nodal involvement < 0.5 %) and risks (morbidity, costs) confirms former guideline recommendations, that SLNB is not indicated in patients,

who undergo breast conserving treatment (BCT) for DCIS (4). The rate of 18 % for SLNB in the examined cohort of James et al. indicates, that a high number of patients still undergo unnecessary axillary staging. The German Cancer Society defined the rate of axillary staging procedures in patients who undergo BCT for DCIS as a quality indicator. According to this requirement this rate should not exceed 5 %.

In summary: Risk factors for axillary involvement do not justify an indication for SLNB in DCIS.

In some patients, unexpected invasive disease may be detected in the final histopathologic work-up of the resected specimen. For these cases SLNB can be performed as a second procedure in patients who undergo BCT. However, in patients who are treated with mastectomy, SLNB is not feasible as a second intervention since the continuity of the lymphatics has been destroyed by the primary operation. A similar situation may be applicable in patients whose lesions are located in the extreme peripheral area of the breast (e.g., axillary tail) and who undergo BCT.

In summary: Axillary staging in DCIS is only indicated if a secondary SLNB appears technically not feasible due to surgical discontinuation of lymphatic drainage in patients with unexpected invasive disease.

What is the Best Technique for SLNB

If SLNB is required (mainly in mastectomy patients) the most widely used procedure is still the radioguided technique that is superior to the exclusive use of blue dye with regards to the detection rate and the rate of false-negative findings. The combination (dual tracer techniques) has no additional benefit compared to the use of a radiocolloid alone since the detection rate for the radioguided technique is > 99 % in patients who undergo primary surgery, even in a multicenter setting (5). A lymphoscintigraphy is optional when radioactive tracers are used. A recent

randomized trial showed no benefit for a preoperative lymphoscintigraphy. There was no difference in the detection rate, the number of detected SLNs and the rate of lymph node involvement for patients who were treated with or without preceding lymphoscintigraphy (6).

In view of some drawbacks for radiocolloids that are mainly related to their availability but also to legal requirements, new tracers have been studied in recent years. The most promising alternative is the magnetic technique. In a recent meta-analysis of 7 prospective studies that compared magnetic tracers to standard procedures, the mean identification rate for the standard and magnetic technique were 96.8% (94.2 – 99) and 97.1% (94.4–98) respectively. The number of retrieved SLNs was slightly higher (1.9 vs. 1.8) for the magnetic compared to the standard procedure (7). Other techniques like Indocyanine green (ICG) or contrast-enhanced ultrasound using microbubbles (CEUS) have not shown equivalence with standard procedures (8).

Summary: ALND is not indicated in patients with DCIS. SLNB as surgical axillary staging procedure is only required in patients who undergo mastectomy or in patients with a lesion close to the axillary tail so that a secondary SLNB is not feasible when un-

expected invasive disease is detected after primary resection of the lesion. Radioisotopes and magnetic tracers are associated with the best success rates for SLN detection.

Conflict of Interest

The author declare no conflicts of interests.

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