

SENTINEL NODE BIOPSY AFTER PREOPERATIVE SYSTEMIC THERAPY FOR BREAST CANCER IS AN ELIGIBLE INDICATOR FOR AXILLARY PRESERVATION BY 3D-CT LYMPHOGRAPHY



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Background: In advanced breast cancer with axillary node metastasis, the preoperative systemic chemotherapy (PSC) can shrink the tumor size and can decrease metastasis in axillary nodes (AN). AN dissection causes many complications such as contracture of the shoulder joint, lymph edema, and paralysis of the upper extremities. Sentinel node (SN) biopsy provides us an information about no need to dissect axillary nodes for node-negative patients. However, SN biopsy cannot be applied for axillary preservation after PSC, because of many false negative studies. Three-dimensional computed tomographic (3D-CT) lymphography (LG) can show the individual precise lymphatic pathway not only from the breast tumor to SN but also from SN to venous angle. We have performed SN biopsy with 3D-CT LG on 160 patients. We applied 3D-CT LG to improve the accuracy of SN biopsy after PSC for preserving AN.

Materials and Methods: PSC was performed on the patients with AN metastasis diagnosed by the fine needle aspiration biopsy under ultrasound-guide. PSC was performed as 4 cycles of 5-fluorouracil 500 mg/m²/3w + epirubicin 100 mg/m²/3w + cyclophosphamide 500 mg/m²/3w and 12 cycles of weekly paclitaxel 90 mg/m²/w. 3D-CT LG was performed on the day before the surgery to mark SN on the skin. Above the tumor and near the areola, 2 ml of Iopamidol 300 mg/dl was injected subcutaneously over the tumor and near the areola. A 16-channel multidetector-row helical CT scan images were taken at 1 min after injection for SN detection, and at 3 and 5 min for observing advancement of lymph flow into venous angle. They were reconstructed to produce a 3D image of lymph ducts and lymph nodes by shaded volume rendering method. Their location was marked on the skin surface with an oil-painting pen using a laser pointer of CT the day before the surgery. SN biopsy and AN dissection (levels I and II) were performed by dye-staining method endoscopically.

Results: 3D-CT LG was performed on 30 patients with SN biopsy after PSC. The patient's age was 54.4 years old (26 - 82). The tumor size was 4.0 cm (1 - 10). The therapeutic effects of PSC were Grade 1a: 7, G1b: 12, G2: 7, and G3: 4, respectively. Seven patients underwent mastectomy. 23 patients underwent the endoscopic breast conserving surgery. Before PSC, the axillary status was N1 on 11, and N2 on 19 patients. After PSC, SN metastasis was observed positive in 11 patients and negative in 19 patients. Only SN metastasis was in 6 patients (54.5%). One patient had the false negative study (8.3%), but she had metastasis only in level III axillary node group. 3D-CT LG showed enhanced SN in 25 patients. The typical metastatic patterns were goblet-like appearance in 5, club-stick-like in 3, and partial enhancement in 5 patients. The SN without enhancement in the other 5 can be identified by the detour of enhanced lymph ducts just in front of it. The micrometastasis was observed in 6 patients with totally enhanced SN.

Conclusions: 3D-CT LG will predict most of metastases in SN, and can help more precise SN biopsy, and can become an applying indicator for axillary preservation.

