Dear Sir

We read with interest the paper of Veronesi et al. (1) which reports investigation into the complete mapping of regional node involvement, in particular concerning the internal mammary node chain, to stage breast carcinoma.

We congratulate the authors for the great value of this paper; however, as radiologists, we would like to highlight the potential role of non-invasive cross-sectional imaging techniques, in particular Diffusion Weighted Magnetic Resonance Imaging of the breast, as a potential alternative to surgical exploration of the internal mammary chain.

Magnetic Resonance (MR) imaging, in particular with the use of gadolinium enhancement, has been reported as a well established modality in characterizing breast lesions and evaluating local extent of disease (2); however, a wide variety of dynamic MR findings have also been reported (3) and the modality is not sufficiently accurate in differentiating between malignant and benign breast lesions. In addition, even showing...
additional role on evaluation of lymph node chains, usual
dynamic sequences after gadolinium venous administration do
not represent a method sensitive and specific enough to
characterize lymph node involvement.

The clinical usefulness of diffusion-weighted MR imaging (DWI)
has been reported in evaluating brain or liver lesions (4) and
detecting acute cerebral infarction (5). In addition, a correlation
between the histological grade of malignant brain tumours and
apparent diffusion coefficient (ADC) has been documented (6).
Recently, several studies have reported that ADC is useful in
differentiating malignant from benign breast lesions (7) and that
there is a relationship between ADC and cellularity (8) (9). A
study (10) concluded that DWI has a high negative predictive
value for excluding mediastinal lymph node metastases from
non-small cell lung cancer and has the potential to be a reliable
alternative non-invasive imaging method for the preoperative
staging of mediastinal lymph node in patients with non-small
cell lung cancer. DWI has also been reported (11) as allowing a
reliable differentiation between benign and malignant cervical
nodes.

We recently performed gadolinium enhanced and DWI MR of the
breast in 32 y.o. female with palpable, mammographically
occult, multifocal cancer (cytological confirmation by fine-needle
ultrasound-guided biopsy) of the left breast with known axillary
nodal metastases (cytological confirmation). The gadolinium-
enhanced MR examination demonstrated the presence of
multiple enhancing nodules in the inner quadrants of the left
breast; DWI demonstrated the presence of a restricted diffusion
in omolateral axillary and internal mammary stations (2nd and
3rd intercostal spaces). On the basis of this report a F18FDG-
PET/CT was performed that confirmed the findings: pathologic
F18FDG deposits were present in the medial part of the left
breast and in the nodal stations previously described. The
patient was referred to neo-adjuvant chemotherapy and then
underwent total mastectomy, axillary resection and removal of
the internal mammary nodes at the level of the 2nd and 3rd
intercostal spaces with histological confirmation of the imaging
findings: invasive ductal carcinoma with axillary (20 out of 22)
and internal mammary (2 nodes at the 2nd and 3rd space)
metastasis.

References

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internal mammary nodes in breast cancer. Results on a large

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diagnosis, and staging of breast cancer. Radiology 2001,

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**Conflict of Interest:**

None declared