

# CONCORDANCE BETWEEN BONE SCAN AND CT SCAN AT CLINICALLY T3 OR N1 BREAST CANCER AT PRESENTATION FOR DETECTING BONE METASTASES AND THE POSSIBILITY OF OMITTING BONE SCAN

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**BACKGROUND**

The standard staging workup for patients with clinically T3 or N1 breast cancer includes both contrast-enhanced computed tomography (CT) and bone scintigraphy (BS). Modern CT technology offers high-resolution imaging of the bony structures in addition to soft tissue. This necessitates a re-evaluation of the additive value of BS in the era of advanced cross-sectional imaging

**OBJECTIVE**

To evaluate the diagnostic correlation between bone scintigraphy and contrast-enhanced CT scan in detecting bone metastases in patients with clinically T3 or N1 breast cancer, and to assess whether bone scintigraphy can be safely omitted without compromising diagnostic accuracy in this subgroup.

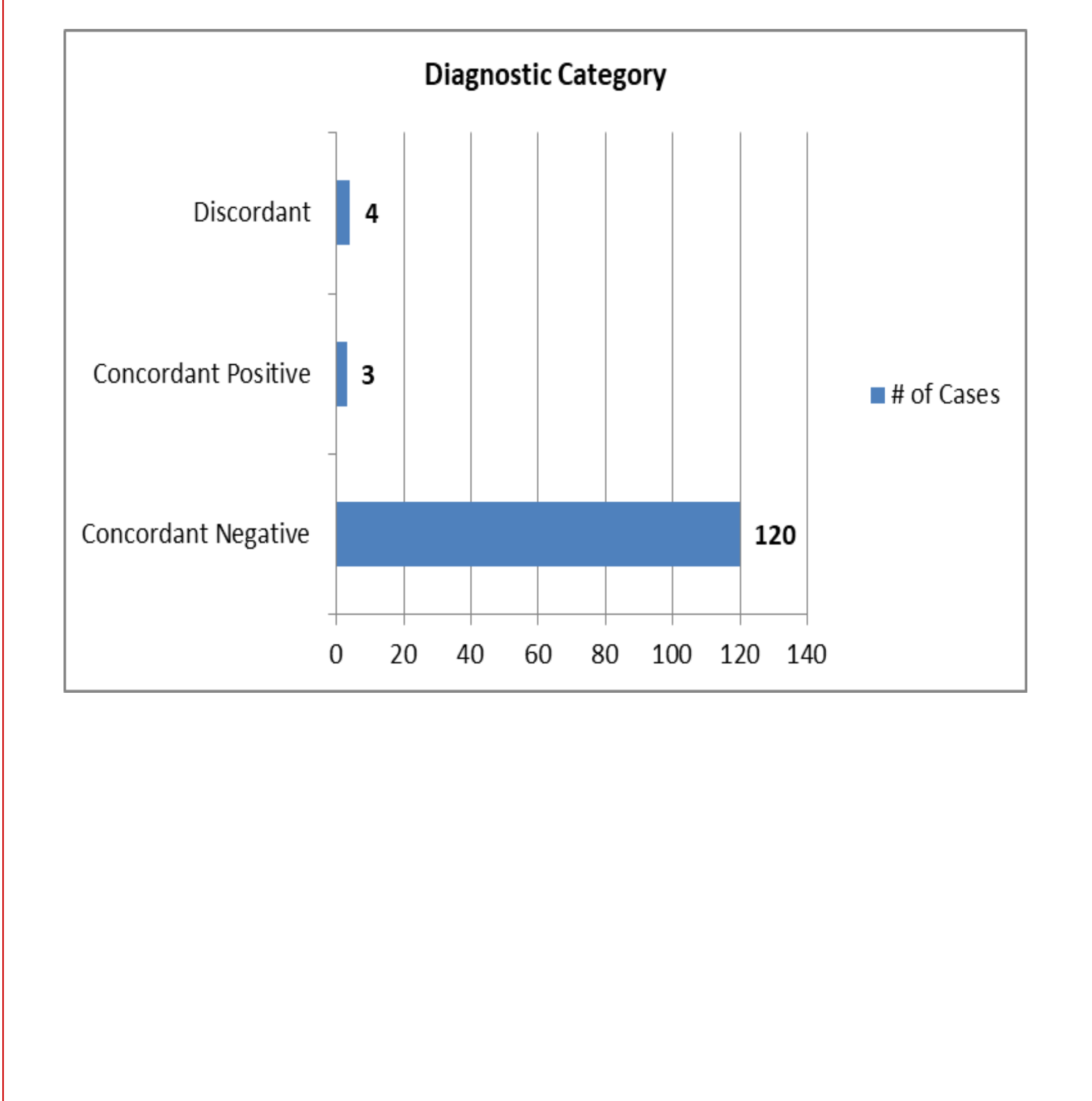
**METHODS**

We conducted a retrospective analysis of 127 patients with newly diagnosed, clinically staged T3 or N1 breast cancer. All patients underwent both contrast enhanced CT (chest, abdomen, pelvis) and whole-body BS as part of their initial metastatic workup. The diagnostic correlation was categorized as: (1) Concordant Positive (metastases detected on both), (2) Concordant Negative (no metastases on both), or (3) Discordant (metastases detected on only one modality). The negative predictive value (NPV) of CT was calculated.

RESULTS		
Finding	No of patients	%
TOTAL PATIENTS	127	100.0
Overall Concordance	123	96.9
– Concordant Negative (CT– / Bone–)	120	94.5
– Concordant Positive (CT+ / Bone+)	03	2.4
Discordant Findings	04	3.1
– CT Negative / Bone Scan Positive	04	3.1
– CT Positive / Bone Scan Negative	0	0.0
Negative Predictive Value (NPV)		96.8

**RESULTS**

Analysis of 127 patients revealed a high diagnostic concordance between CT and bone scan. The overall concordance rate was **96.9%** (123/127). Specifically, **94.5%** of cases (120/127) were concordant negative, and **2.4%** (3/127) were concordant positive. Discordant findings occurred in only **3.1%** of cases (4/127), all of which were positive on bone scan despite a negative CT. The negative predictive value (NPV) of CT for ruling out bone metastases was **96.8**



**CONCLUSION**

There is a strong diagnostic correlation between contrast-enhanced CT and bone scintigraphy in patients with T3/N1 breast cancer. The exceptionally high negative predictive value of CT suggests that in the presence of a negative CT scan, bone scintigraphy is highly unlikely to reveal occult bone metastases. Therefore, omitting routine bone scintigraphy in this specific patient subgroup when the CT is negative appears to be a safe strategy that would not compromise diagnostic accuracy, while reducing resource utilization and patient burden.