Role of Nuclear medicine in breast cancer

Sentinel Lymph Node Scintigraphy :

Axial nodal bed status is the most important prognostic marker for newly diagnosed patients with invasive breast cancer, and it is also important for deciding suitable treatment. Because imaging methods for axillary staging are rarely sensitive or specific, nodal involvement must be investigated surgically. Sentinel lymph node status by biopsy (SLNB) was introduced as a less invasive alternative to classic staging approaches such axial lymph node dissection (ALND), which can predict nodal involvement with good accuracy. A histo-pathologically negative sentinel node indicates that the ipsilateral nodal bed is clear of metastatic illness because it is the first relay receiving lymphatic outflow straight from the tumour.

The use of radiolabelled colloids in nuclear medicine planar (dynamic or static) and/or SPECT/CT sentinel node imaging provides surgeons with a visual map to enable correct localization of sentinel nodes and unusual drainage patterns. The identification of the sentinel node is critical to the success of SLNB, and preoperative sentinel node imaging is well adapted for this task, with a detection rate of 94 percent to 100 percent. Sentinel node imaging with SPECT/CT of all tumours may give a more reliable technique to locate and biopsy sentinel nodes for staging in patients with multicentric and multifocal illness whose lymphatic drainage patterns may differ.

Periareolar, peritumoural, subdermal, subareolar, and other radiocolloid injection procedures are used. Intradermal, intratumoural, and subtumoural treatments are available. The periareolar and subareolar injection sites are the two most prevalent injection sites.

(superficial) via the lymphatic-rich subareolar space plexus, which allows for fast drainage visualisation. peritumoural channels with high target count rates (deep), which is capable of tracing additional drainage pattern. Specifically, the intra-mammary chain, which is found in 20–30% of women. There is evidence that the injection location is because time-to-visualisation rates appear to be influenced rather than determined, it is thought to be rather adaptable. Rates of false negatives. Variables are also mentioned in the literature. The ability to forecast is influenced by lymphatic drainage patterns. which lymphatic arteries would be responsible for draining the tumour and thus should be taken into account when selecting an injection technique.