

Increasing Specificity of ^{99m}Tc -HDP Three-phase bone Scintigraphy and ^{99m}Tc Besilesomab Scan in Case of Osteomyelitis Complicated with Necrotizing Fasciitis

Dear Editor,

We studied with great interest the case report "False Negative ^{99m}Tc Hydroxymethane Disphosphonate Three-phase Bone scintigraphy and ^{99m}Tc Besilesomab Scan in detecting Tibia osteomyelitis concomitant with necrotizing fasciitis."^[1] The author has nicely described the case and is correct in saying that due to necrotizing fasciitis, underlying osteomyelitis (OM) is difficult to image and that pericortical tracer accumulation can be an early sign of OM. The mechanism of uptake of ^{99m}Tc -besilesomab in infection is also well described. However, we want to focus on a few techniques that can increase the specificity of the above tests. The fourth phase of bone scanning, that is, delayed static scan at 24 h, increases the specificity of the bone scan in diagnosing OM.^[2] In ^{99m}Tc -besilesomab, a delayed image at 24 h showing increase in tracer activity or increase in the size of uptake in the lesion favors OM.^[3] The uptake of ^{99m}Tc -besilesomab in the right tibia at 5 h would have been better visualized, had the adjoining areas of increased uptake in skin and soft tissue been masked. The masking of area with high tracer concentration is widely used method to see adjacent region of reduced tracer concentration. During image formation, pixel with highest tracer concentration is taken as 100% and other areas are normalized accordingly. If that pixel is masked, the image processing software will take next highest tracer concentration area and normalize rest of the image accordingly. In true terms the uptake will increase in rest of the region. This can be done by image masking tool like ?series reformat processing activity? in Siemens Syngo MI[®] application by Siemens AG, Erlangen, Germany. Lastly, in cases of diabetic status with no history

of trauma, infection by Gram-negative bacilli such as *Acinetobacter* sp. should be considered, which are of low virulence and thus produce not enough bony changes to be strongly positive on bone scan. Tracer uptake in bone scan depends on bone turnover which, in turn, depends on the virulence of bacteria. In Staph. aureus (highly virulent bacteria) osteomyelitis, like in open wound infection, tracer uptake is more as osteoblastic activity in bone is more, than in low virulent organism like acinetobacter. This point also reflects the importance of history taking like in this particular case history of trauma and diabetic status is important.^[4,5] This should be considered while reporting the case. The pericortical accumulation of the tracer as an early sign of OM needs to be further evaluated.

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