

## Utility of MDP Bone Scan in Following Up Patients with Sapho Syndrome

Sir,

Recently, I had the opportunity to read an interesting image article titled “Bone Scan and SPECT/CT Scan in SAPHO syndrome” by Gupta *et al.*<sup>[1]</sup> I congratulate the authors in their depiction of skeletal findings of SAPHO syndrome using traditional bone scan with the addition of single-photon emission computed tomography (SPECT)/CT including volume reconstruction images. In this context and for the benefit of the readers, I would like to add that bone scans can also be used to follow-up these patients and demonstrate imaging-based evidence of response to treatment in conjunction with matched clinical response to acneiform and pustular cutaneous eruptions.

A 16-year-old male patient was referred to us from the medicine department with complaints of progressive acneiform and pustular eruptions involving the malar region of the face and palmoplantar regions, respectively, for the past 12 months. These eruptions were associated with progressive bony pain and pressure tenderness along sterno-manubrium, sternoclavicular joints, bilateral cheekbones, bilateral acromioclavicular joints, left sacrum, right knee, and right forefeet. Biochemical parameters and acute phase reactants were within the normal range. Whole-body bone scan anterior and posterior sweep whole-body images (Figure 1-Baseline) revealed increased tracer uptake along sterno-manubrial joint, bilateral sternoclavicular joints including medial ends of clavicle (Classical “Bull Head sign”), bilateral acromioclavicular joints, left SI joint along inferior 1/3<sup>rd</sup> region, distal end of right femur, and right talus bone. Corresponding computed tomography CT (images not available) demonstrated either normal attenuation or showed mild hyperostosis, sclerosis, and periostitis. In addition, mildly increased diffuse uptake was noted along bilateral shoulder and hip joints, characteristically suggestive of synovitis. The diagnosis of SAPHO syndrome was established based on clinico-imaging findings and modified diagnostic criteria proposed by Kahn for SAPHO syndrome diagnosis.<sup>[2]</sup> These criteria proposed by Kahn and modified in 2003 appear to be most precise and are enumerated in Table 1 for the readers’ benefit.

The patient was then followed and re-referred to us for treatment response evaluation, post 5 months of oral doxycycline treatment (100 mg daily). Whole-body bone scan anterior and posterior sweep whole-body images (Figure 1-post treatment) revealed a significant decrease in tracer uptake along sterno-manubrial joint, bilateral sternoclavicular joints including medial ends of clavicle, bilateral acromioclavicular joints, left SI joint, synovitis along bilateral shoulder and hip joints with

**Table 1: Diagnostic criteria proposed by Kahn for synovitis-acne-pustulosis-hyperostosis-osteitis syndrome diagnosis and modified in 2003 (from Kahn; American College of Rheumatology 67<sup>th</sup> Annual Scientific Meeting, October 2003)**

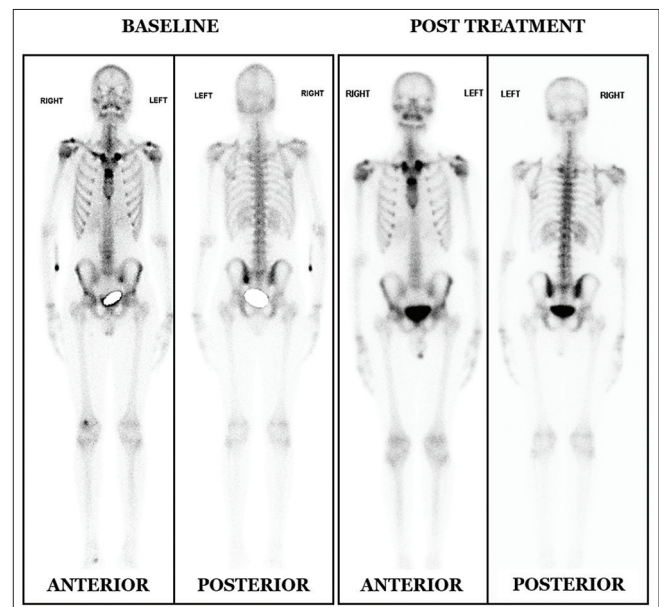
### Inclusion

- Bone-joint involvement associated with palmoplantar pustulosis and psoriasis vulgaris
- Bone-joint involvement associated with severe acne
- <sup>^</sup>Isolated sterile hyperostosis/osteitis (adults)
- Chronic recurrent multifocal osteomyelitis (children)
- Bone-joint involvement associated with chronic bowel diseases

### Exclusion

- Infectious osteitis
- Tumoral conditions of the bone
- Noninflammatory condensing lesions of the bone

<sup>^</sup>Exception: growth of propionibacterium acnes



**Figure 1:** In a patient with suspected SAPHO syndrome, anterior and posterior comparative baseline and posttreatment whole body bone scan sweep images acquired with an interval of 5 months posttreatment showing significant reduction in tracer uptake along sterno-manubrial joint, bilateral sternoclavicular joints including medial ends of clavicle, bilateral acromioclavicular joints, left SI joint, synovitis along bilateral shoulder joints with complete resolution of uptake along distal end of the right femur and right talus

complete resolution of uptake along distal end of the right femur and right talus. The patient also had a significant reduction in the extent of acneiform eruptions, palmoplantar pustules and bone pains involving above-mentioned sites.

Similar efficacy of doxycycline and utility of bone scan as an adjunct to clinical response has also been reported by Ballara *et al.*<sup>[3]</sup> using bone scans. Dong *et al.*<sup>[4]</sup> also reported

similar response evaluation strategies using magnetic resonance imaging, methylene diphosphonate (MDP) bone scan, and fluorodeoxyglucose positron-emission tomography-computed tomography (CT); although, posttreatment images were not provided. Hence, in addition to limited preexisting literature, this case clearly demonstrates utility of bone scan in providing an objective image based evidence of treatment response in conjunction with clinical response to the treating physician.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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