"Pseudo-thyroid lobe": A diagnostic conundrum caused by ossified anterior longitudinal ligament on bone scan

Maseeh Uz Zaman, Nosheen Fatima[1], Zafar Sajjad, Unaiza Zaman[2], Areeba Zaman[2], Rabia Tahseen[2]

Department of Radiology, Aga Khan University Hospital, [1]Department of Nuclear Medicine, Dr. Ziauddin Hospital, [2]Dow University of Health Sciences, Karachi, Pakistan

ABSTRACT

Radionuclide bone imaging is one of the most commonly performed nuclear medicine procedure around the world and characterized by its high sensitivity and relatively low specificity. False positive findings on a bone scan are very common; however, dense uptake over unilateral ossified anterior longitudinal ligament appearing as single thyroid lobe on a bone scan has not been described in the literature.

Keywords: Bone scan, ossified anterior longitudinal ligament, pseudo-thyroid, thyroid uptake

A 75-year-old male, clinically asymptomatic diagnosed case of carcinoma prostate since 2000 has had a radionuclide bone scan with 740 MBq of ^{99m}Tc-methylene diphosphonate (^{99m}Tc-MDP) for disease surveillance. Delayed spot images showed an elongated area of abnormal tracer uptake over right thyroid bed mimicking a thyroid lobe [Figure 1]. There was also evidence of degenerative changes over right shoulder, mid-cervical region on the left side and focal uptakes over right body of mandible and upper jaw due to associated dental infections. No gastric or salivary glands tracer uptake suggestive of free pertechnetate due to inadequate labeling was noted. Subsequently, a computed tomography scan was performed which revealed ossification of right anterior longitudinal ligament (OALL) involving (C4-T1) with fractures and associated pseudo-articulations [Figure 2]. There was no evidence of ossification of posterior longitudinal ligament (OPLL) and spinal stenosis. OALL is scarcely described in the literature as it is rarely symptomatic and dysphagia being the most common complication.[1,2] OPLL with radiculopathy is more common entity than OALL.[3]

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OALL is most commonly seen in the thoracic spine followed by cervical and lumbar regions. In this case, it was found on the right side which is postulated to be due to the protective effect of the pulsatile aorta on the left of the thoracic spine.[4] Uptake of ^{99m}Tc-MDP by the OALL over lower cervical and upper dorsal spine could create a diagnostic conundrum and must be included in the differential diagnosis of abnormal radiotracer uptake over thyroid bed in a bone scan.

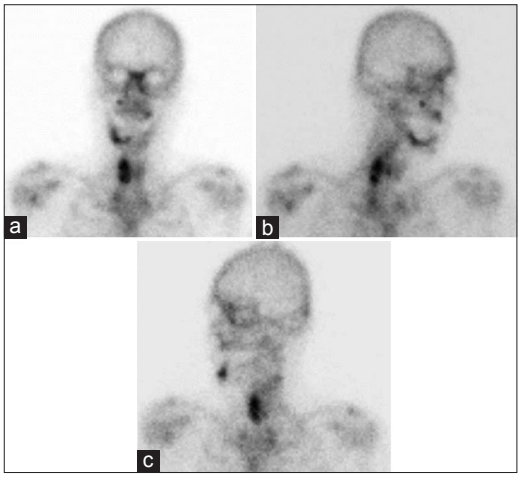

Figure 1: Three hours delayed anterior bone scan images (a: Head straight; b and c: Head rotated to left and right, respectively) showing an elongated area of increased tracer uptake over right cervical region mimicking right thyroid lobe (pseudo-thyroid) with focal uptakes over jaws secondary to dental infection and arthritic changes over right shoulder

Address for correspondence:
Dr. Maseeh Uz Zaman, Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan.
E-mail: maseeh.uzzaman@aku.edu

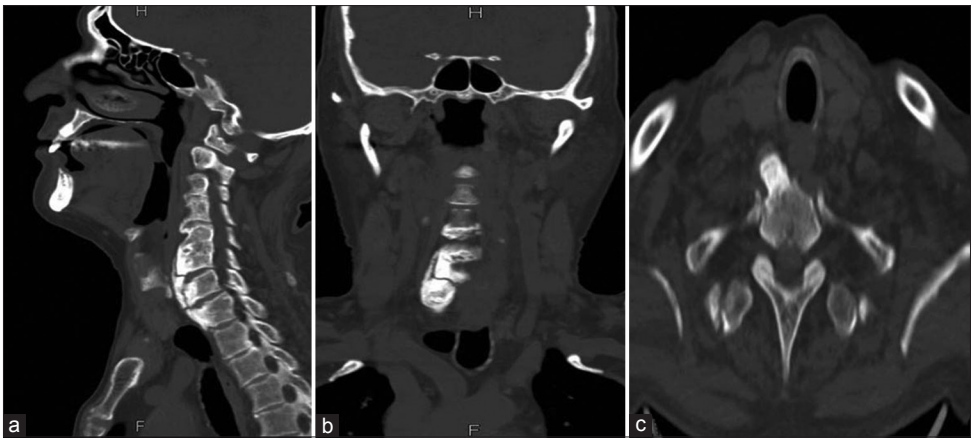

Figure 2: (a) Sagittal, (b) coronal, and (c) axial nonenhanced computed tomography scan images showing right-sided ossified anterior longitudinal ligament extending from C4 to T1. There are also fractures and evidence of pseudo-articulation (arrows). Note the relationship to the thyroid gland and cartilage that lies immediately anterior to the bulky osteophytes

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