

# Incidental double neurinoma detected by $^{18}\text{F}$ -choline pet/ct scan in a prostate cancer patient

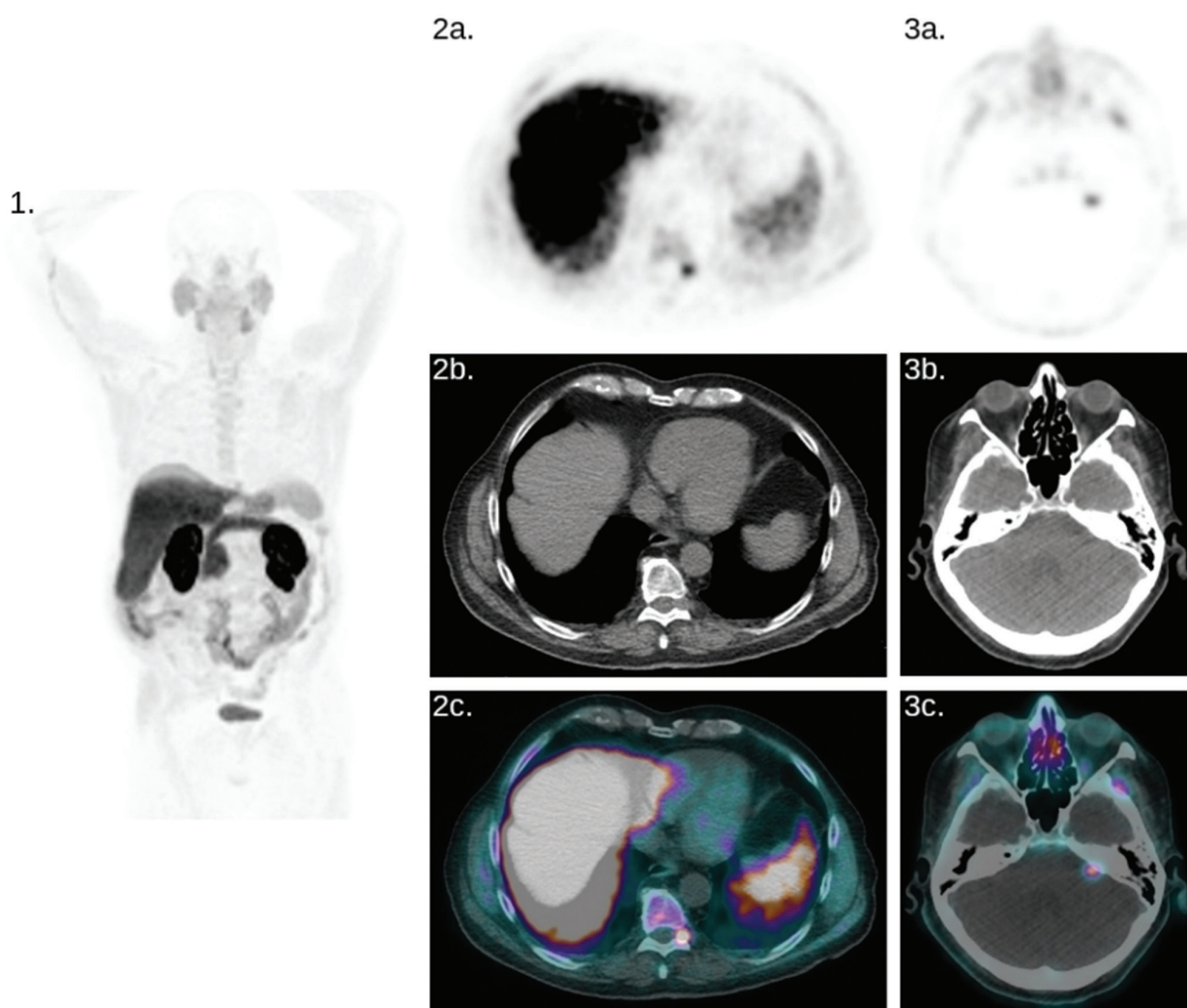
Francesco Dondi<sup>1</sup>, Domenico Albano<sup>1</sup>, Francesca Prandini<sup>2</sup>, Francesco Bertagna<sup>1</sup> , Raffaele Giubbini<sup>1</sup> 

<sup>1</sup>Nuclear Medicine, University of Brescia, Spedali Civili Brescia, Brescia, Italy

<sup>2</sup>Neuroradiology, Spedali Civili Brescia, Brescia, Italy

A 73-year-old patient with a previous history of prostate adenocarcinoma (Gleason Score 4+4, T3bN0M0) locally treated with radiotherapy and actually on therapy with abiraterone, underwent

a 18-fluorine ( $^{18}\text{F}$ )-choline positron emission tomography/computed tomography (PET/CT) restaging scan to re-evaluate treatment response on abdominal nodes. PET/CT images were acquired

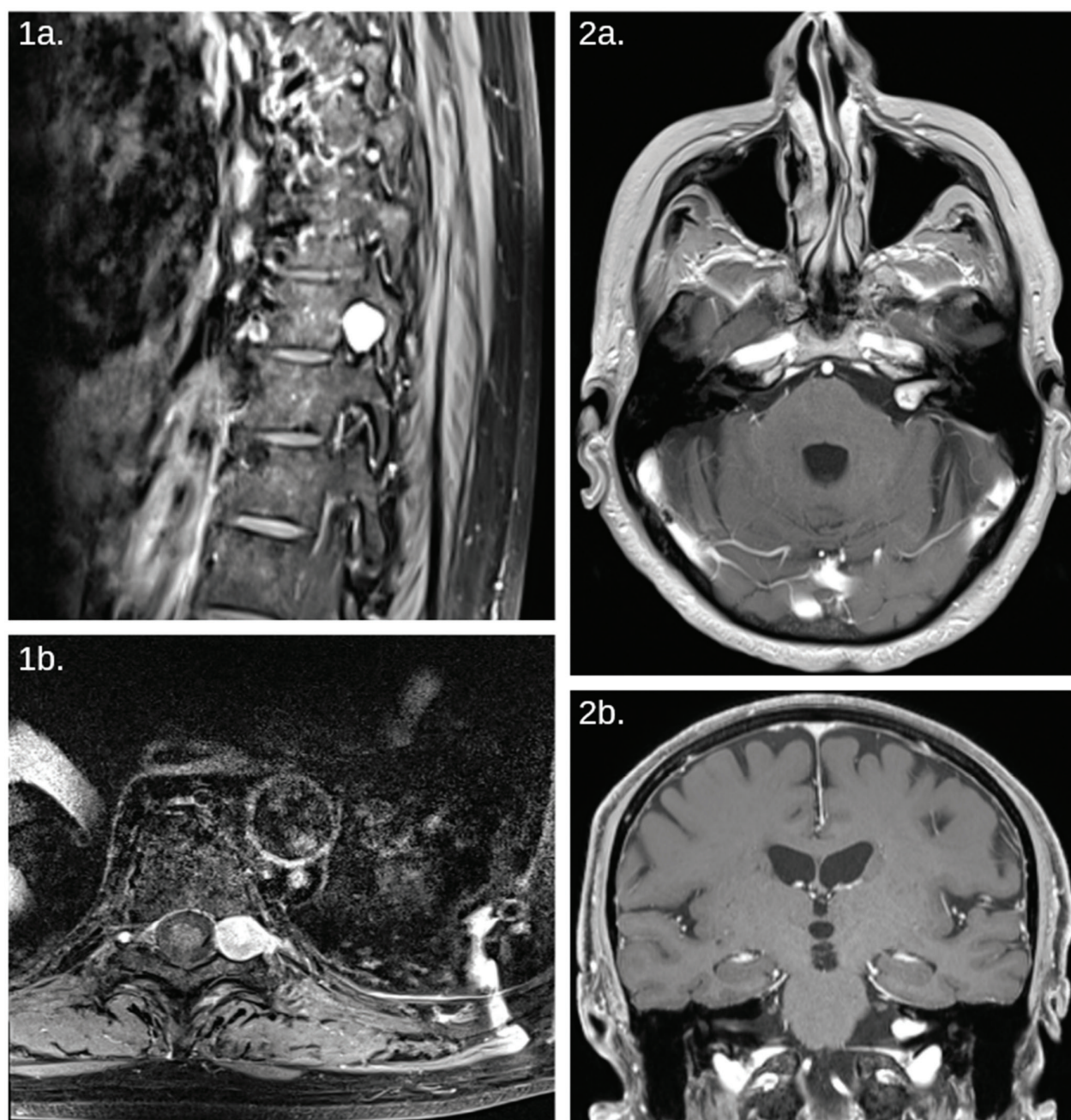


**Figure 1.** Maximum Intensity Projection (MIP, 1) of PET/CT scan. Axial PET (2a), axial CT (2b) and axial fused PET/CT (2c) images showing  $^{18}\text{F}$ -choline uptake in the left intervertebral foramen between 9<sup>th</sup> and 10<sup>th</sup> dorsal vertebra, in correspondence of new growing tissue. Axial PET (3a), axial CT (3b) and axial fused PET/CT (3c) showing focal uptake between left temporal bone and left cerebellar lobe

Correspondence to: Francesco Dondi, Nuclear Medicine, University of Brescia, Spedali Civili Brescia, Brescia, Italy  
e-mail: [f.dondi@outlook.com](mailto:f.dondi@outlook.com)

60 minutes after intravenous injection of 3.5 MBq/Kg of  $^{18}\text{F}$ -choline on a Discovery 690 tomograph (GE; Milwaukee, Wis; 64-slice CT, 100 mA, 120 kV; 2.5 min/bed; 256 matrix, 60-cm field of view). PET/CT scan demonstrated a moderate uptake at abdominal nodes, reduced compared to previous scan. Moreover, PET/CT revealed two incidental uptakes: one on a tissue growing in the left intervertebral foramen between 9<sup>th</sup> and 10<sup>th</sup> dorsal vertebra and the second between left temporal bone and left cerebellar lobe (Fig. 1). Subsequently, the patient underwent a magnetic resonance imaging (MRI) scan of the spine and brain. MRI images confirmed the two lesions: the first one was described as oval, 16 × 14mm in diameter, hypointense in T1 sequences and hyperintense in T2 sequences with intense enhancement, highly suspicious of an intraforaminal extradural neurinoma. The second lesion was described

as expansive, involving the internal auditory left conduct and the pontocerebellar cistern for 4.5 mm, isointense in T2 sequences with non-homogeneous enhancement after contrast injection that suggested necrotic-cystic component; again, a possible diagnosis of neurinoma was suggested (Fig. 2). Neurinomas are rare benign neoplasms of the nervous system, arising from Schwann cells. Incidental uptake on  $^{18}\text{F}$ -choline PET/CT are rare findings but possible; recently, Calabria *et al.* pointed out the possible role of radiolabeled choline PET in the evaluation of brain tumors while Arico *et al.* and Malamitsi *et al.* reported two different cases of acoustic neuromas discovered with  $^{18}\text{F}$ -choline PET/CT scans performed in patients with prostate cancer. To the best of our knowledge, this is the first case of two neurinomas accidentally detected by a PET/CT scan with  $^{18}\text{F}$ -choline, especially in intervertebral region.



**Figure 2.** Sagittal (1a) and axial (1b) MRI images showing an expansive lesion suspicious of an intraforaminal extradural neurinoma. Axial (2a) and coronal (2b) MRI images showing tissue involving the internal auditory left conduct and the pontocerebellar cistern, suspicious of neurinoma