



# $^{68}\text{Ga}$ -DOTANOC and $^{18}\text{F}$ -DOPA PET/CT: a site-specific approach to the imaging of paragangliomas of the head and neck and of the abdomen

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Maximum intensity projection and transaxial  $^{68}\text{Ga}$ -DOTANOC (a–d) and  $^{18}\text{F}$ -DOPA (e–h) PET/CT images in a patient with SDHD mutation-related paragangliomas (PGL) and otherwise unexplained and uncontrolled hypertension are shown. Three PGL in the head and neck (HN) region (two at the right and one at the left carotid artery bifurcation) and two paratracheal PGL (b, c) are better appreciated on  $^{68}\text{Ga}$ -DOTANOC PET (left paratracheal  $^{68}\text{Ga}$ -DOTANOC SUV<sub>max</sub> 9.9,  $^{18}\text{F}$ -DOPA SUV<sub>max</sub> 2.7). An abdominal PGL (h) is better appreciated on  $^{18}\text{F}$ -DOPA PET ( $^{68}\text{Ga}$ -DOTANOC SUV<sub>max</sub> 5.9,  $^{18}\text{F}$ -DOPA SUV<sub>max</sub> 20.0).

SDHD mutation-related PGL syndrome type 1 is a rare syndrome associated with a genetic predisposition to the development of multiple or single PGL, mostly in the HN region. The disease is inherited by a “parent-of-origin effect”; therefore, offspring are affected only if the disease is transmitted by the father.

Both  $^{68}\text{Ga}$ -DOTA peptides and  $^{18}\text{F}$ -DOPA have been successfully used for PGL imaging, with results superior to those with conventional procedures (CT, MRI) [1–3].  $^{68}\text{Ga}$ -DOTANOC was found to be superior to  $^{18}\text{F}$ -DOPA in a retrospective series of 20 patients with extra-adrenal PGL, mostly HN PGL [3]. Moreover,  $^{68}\text{Ga}$ -DOTATATE was found to be the most sensitive tool for the detection of SDHD mutation-related HN PGL, due to their often smaller size and failure to concentrate sufficient  $^{18}\text{F}$ -FDOPA [4]. In a very recent meta-analysis the pooled detection rate of  $^{68}\text{Ga}$ -DOTA peptides was superior to that of all the other radiopharmaceuticals used [5]. Current EANM guidelines suggest that  $^{18}\text{F}$ -DOPA be used

preferentially for abdominal PGL and  $^{68}\text{Ga}$ -DOTA peptides for HN PGL [1].

## Compliance with ethical standards

**Conflicts of interest** None.

**Informed consent** Written informed consent was obtained from the patient.

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