

# Primary Hepatic Paraganglioma Mimicking Hepatocellular Carcinoma

Michael K. Konstantinidis<sup>1</sup>, Dimitrios Vlachos<sup>1</sup>, Dionysios Prevezanos<sup>1</sup>, Ioannis Giannopoulos<sup>1</sup>, Anastasios Stofas<sup>2</sup>, Nikolaos Machairas<sup>1</sup>, Georgios C. Sotiropoulos<sup>1</sup>

1. Department of Liver Transplantation and Hepatobiliary Surgery, Laiko General Hospital of Athens, National and Kapodistrian University of Athens, Athens, GRC
2. First Department of Pathology, National and Kapodistrian University of Athens, Athens, GRC

## INTRODUCTION

- Primary hepatic paraganglioma (HPGL) -> exceptionally rare neuroendocrine tumor
- Mimics more common hypervascular liver tumors -> particularly hepatocellular carcinoma (HCC) -> due to non-specific clinical and radiological features.
- Preoperative diagnosis is highly challenging, and definitive diagnosis is usually established postoperatively through histopathology.

## CASE PRESENTATION

- 72-year-old female with history of hypertension
- Asymptomatic – incidental detection of liver mass
- CT/MRI: 2.5 cm hypervascular lesion in segment IVb
- PET/CT: moderate FDG uptake
- No evidence of extrahepatic disease
- Tumor markers and liver function: normal
- Evaluated in multidisciplinary tumor board
- Presumed diagnosis: primary hepatic malignancy (HCC)
- Surgery: open wedge resection of segment IVb

## KEY INTRAOPERATIVE FINDING

- Marked intraoperative blood pressure fluctuations during tumor manipulation
- Suggestive of occult catecholamine secretion
- Important diagnostic clue for paraganglioma

## PATHOLOGY FINDINGS

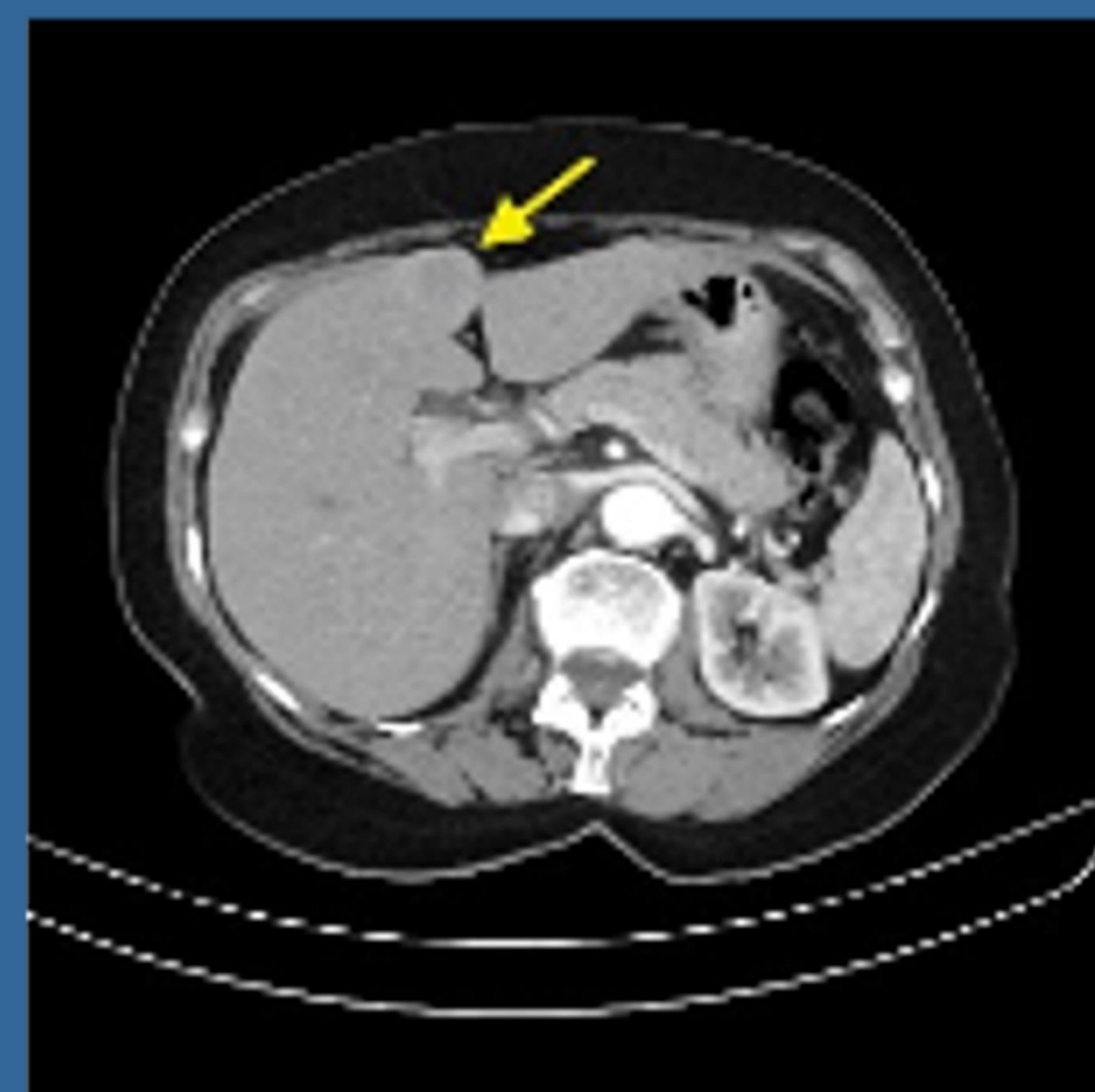
- Tumor with characteristic organoid architecture with rich vascular network
- Immunohistochemistry:
  - Synaptophysin (+)
  - CD57 (+)
  - Chromogranin (-)
  - Ki-67 ≈ 5%
- Findings consistent with paraganglioma

## DISCUSSION

- HPGL may remain clinically silent and present as an incidental liver lesion
- Even in asymptomatic cases, intraoperative catecholamine release may occur
- Intraoperative hemodynamic instability can be an important diagnostic clue
- Preoperative biopsy is controversial due to potential risks
- Definitive diagnosis is usually established postoperatively

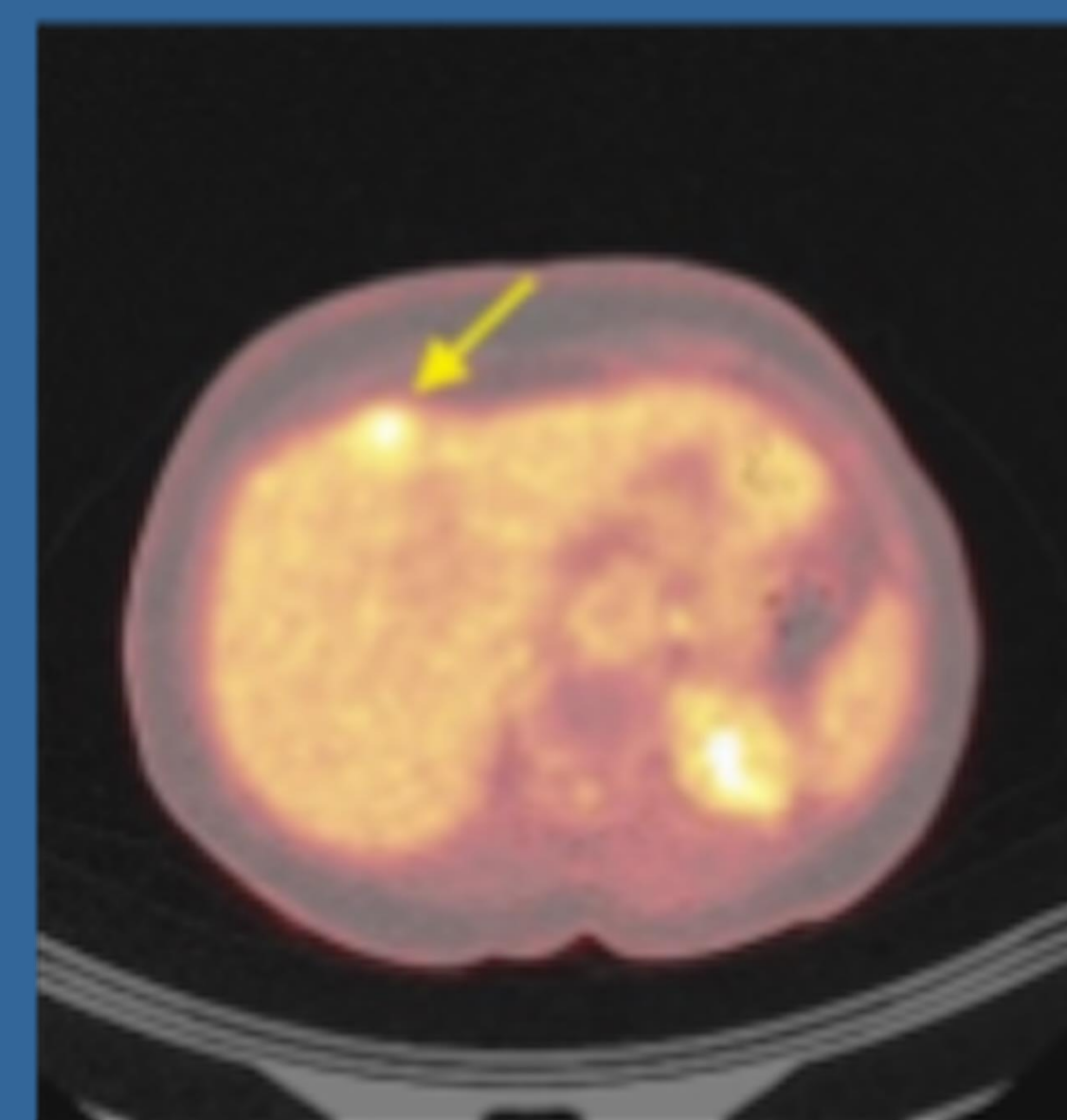
## TAKE-HOME MESSAGES

- Consider HPGL in the differential diagnosis of hypervascular liver lesions
- Imaging alone is insufficient for accurate diagnosis
- Intraoperative hemodynamic instability may serve as a key diagnostic clue
- Long-term follow-up is required due to uncertain malignant potential



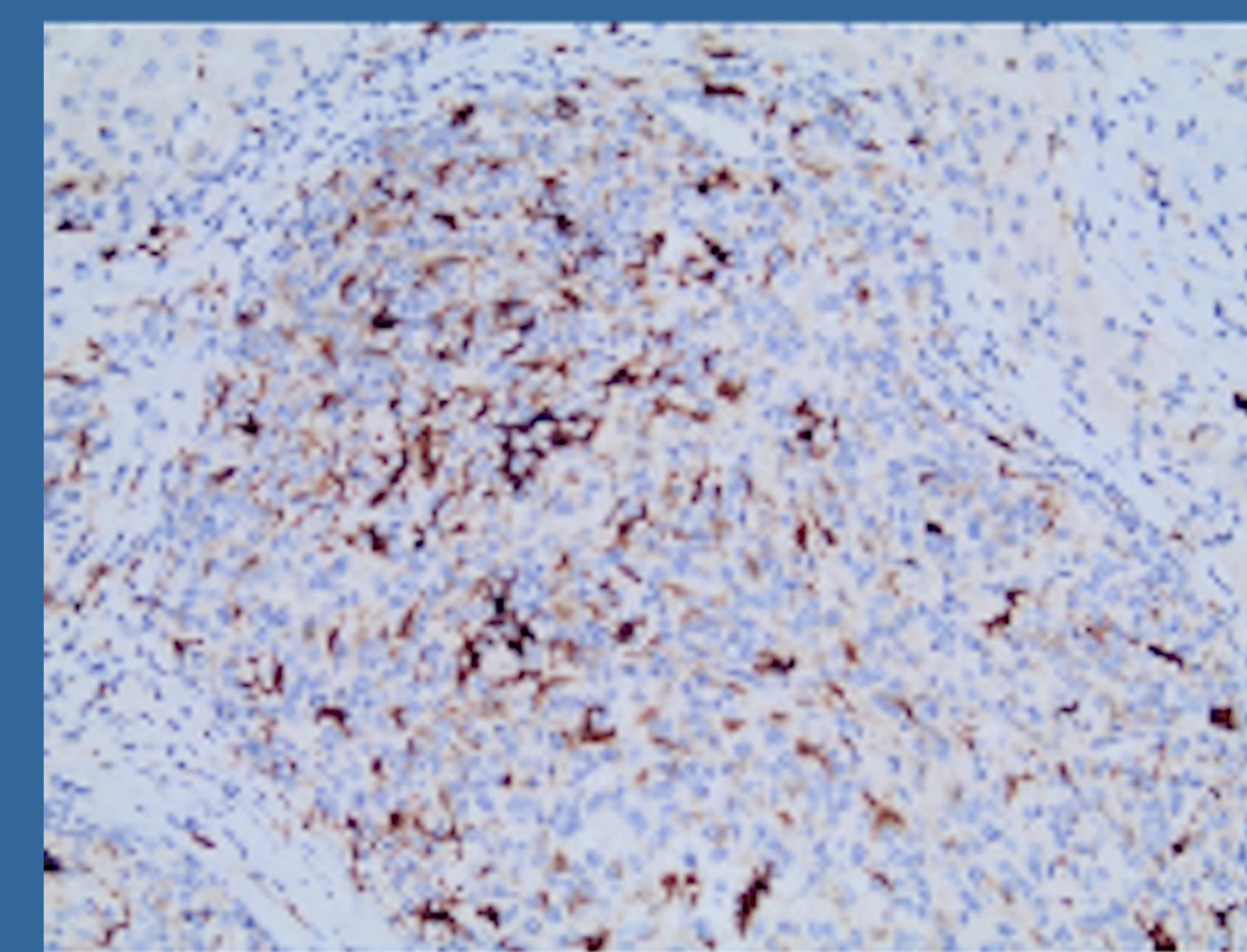
**Figure 1:**

- Contrast-enhanced CT scan axial view
- Well-circumscribed 2.5 cm solid lesion in hepatic segment IVb (yellow arrow) with peripheral enhancement



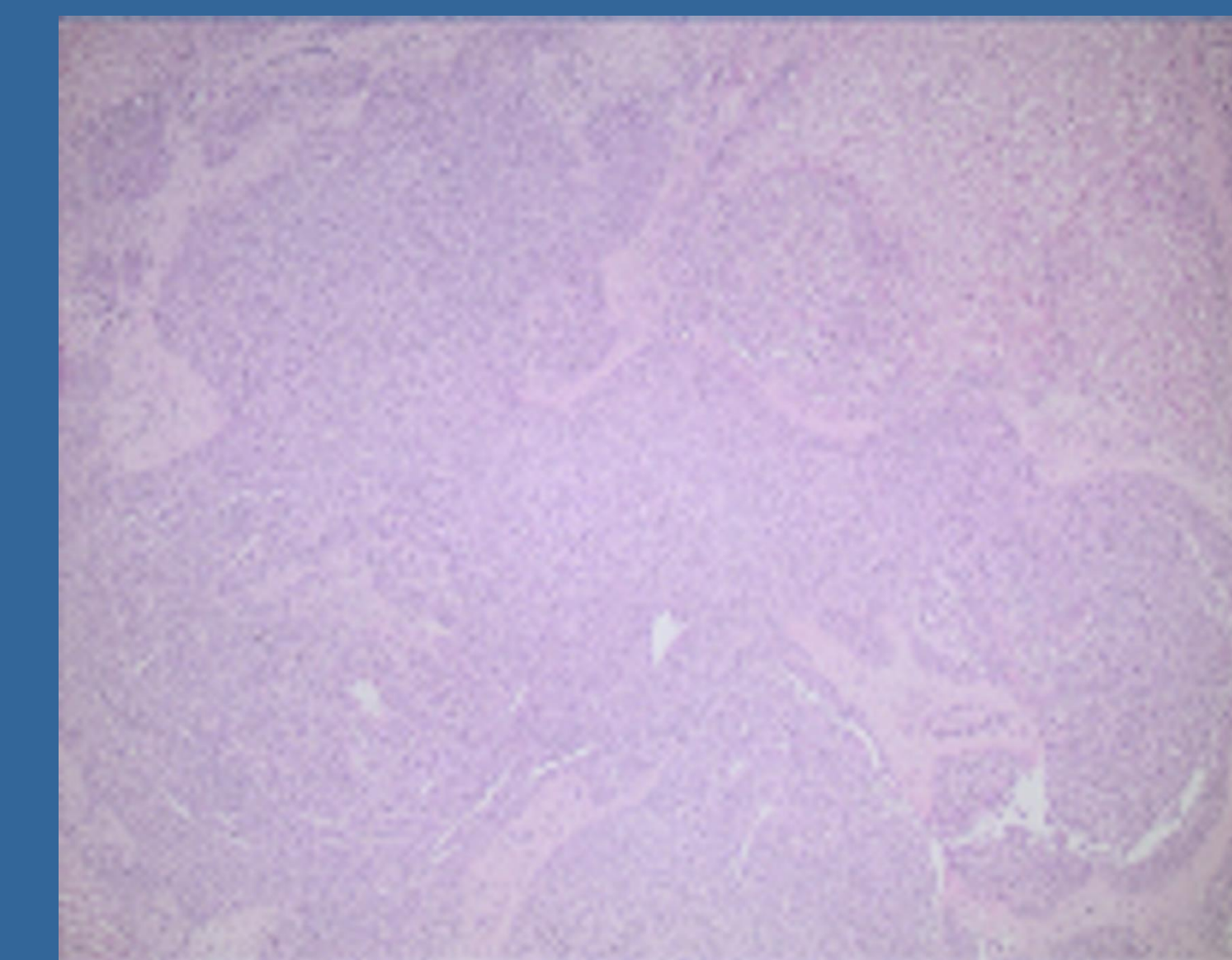
**Figure 2:**

- Axial fused 18F-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG PET/CT) image
- Focal moderate FDG uptake within the hepatic lesion (yellow arrow), without additional hypermetabolic foci



**Figure 3:**

- S100 staining in sustentacular cells and their cytoplasmic processes
- IHC staining, 200x magnification



**Figure 4:**

- Paranglioma with organoid-nested pattern
- Hematoxylin and eosin staining, 40x magnification)