Approccio diagnostico-terapeutico al paziente con NET pancreatico - imaging radiologico -

Luigi Funicelli

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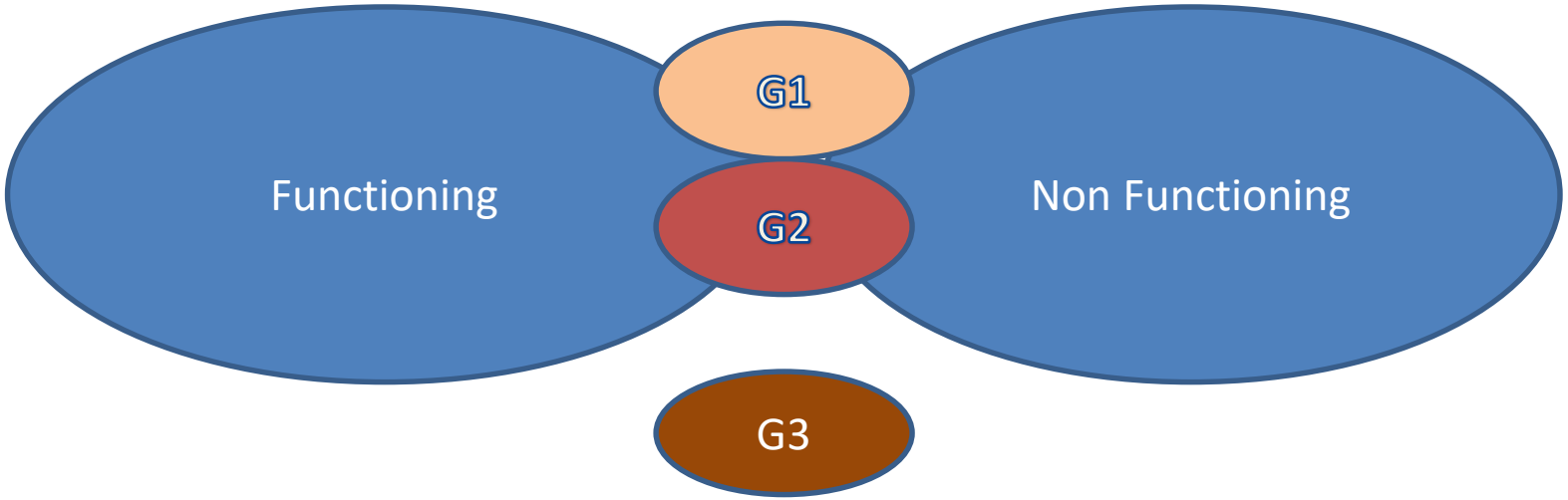
NET imaging features



Imaging findings of NETs are not necessarily specific to a particular group (I, II, III) and they seem to overlap one another

TC multifasica

Diagnosi/Staging

Follow-up

MDCT with multiphasic acquisitions still remains the best method to perform diagnosis, staging, surveillance and follow-up.

Table 1. CT diagnosis of NETs

Type of NET	Mean sensitivity	Mean specificity	Mean detection rate	Patients/ studies	Ref.
NET disease	82 (77–85)	86 (71–85)		253/4	3–6
Pancreatic NET	82 (67–96)	96		119/2	10–11
Liver metastases			79 (73–94)	79/3	7–9
	84 (75–100)	92 (83–100)		342/5	3, 12–15
Extrahepatic abdominal soft tissue metastases	70 (60–100)	96 (87–100)		451/6	3, 12–15, 17
Bone metastases	61 (46–80)	99 (98–100)		337/3	3, 18,19
CT enteroclysis for small intestinal NETs	50	25		8/1	20
	85	97		219/1[a]	21

Data in the literature on the sensitivity, specificity and detection rate for NET diagnosis by CT. Figures are percentages with ranges in parentheses unless indicated otherwise. [a] Out of 219 patients included in the study, there were 19 subjects with small intestinal NETs.

Radiology 2013;266: 38-61

Original paper

Differentiation between non-hypervascular pancreatic neuroendocrine tumour and pancreatic ductal adenocarcinoma on dynamic computed tomography and non-enhanced magnetic resonance imaging

Kazuyoshi Ohki[A,D,E,F], Takao Igarashi[A,C,D], Hirokazu Ashida[D], Megumi Shiraishi[B], Yosuke Nozawa[F], Hiroya Ojiri[F]

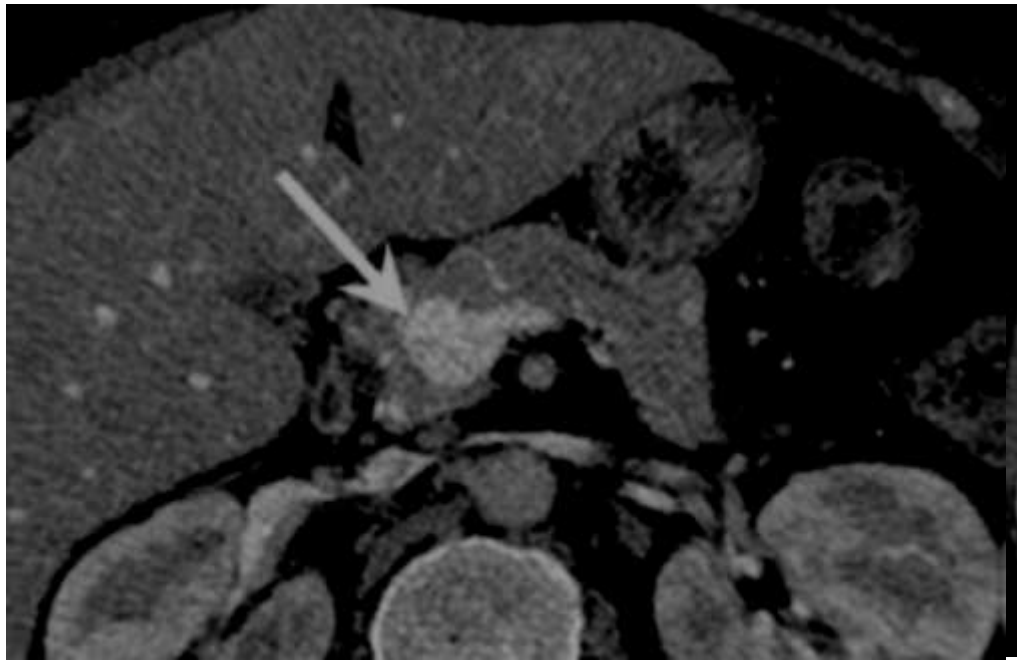
The Jikei University School of Medicine, Japan

Pol J Radiol 2019; 84: e153-e161

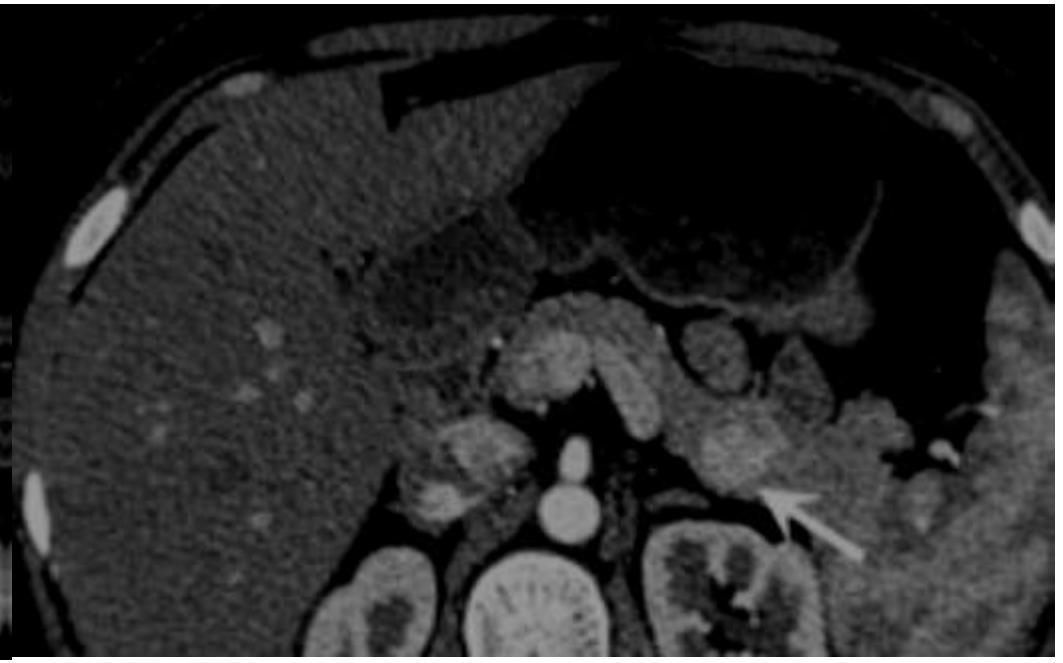
- Caratteristiche radiologiche comuni
  - Margini ben definiti
  - Ipervascolari in fase arteriosa
  - Iper o iso nella fase portale
  - Aree cistiche
  - Calcificazioni
  - Non dilatazione del dotto pancreatico principale

G1 o G2>>>G3 (NEC)

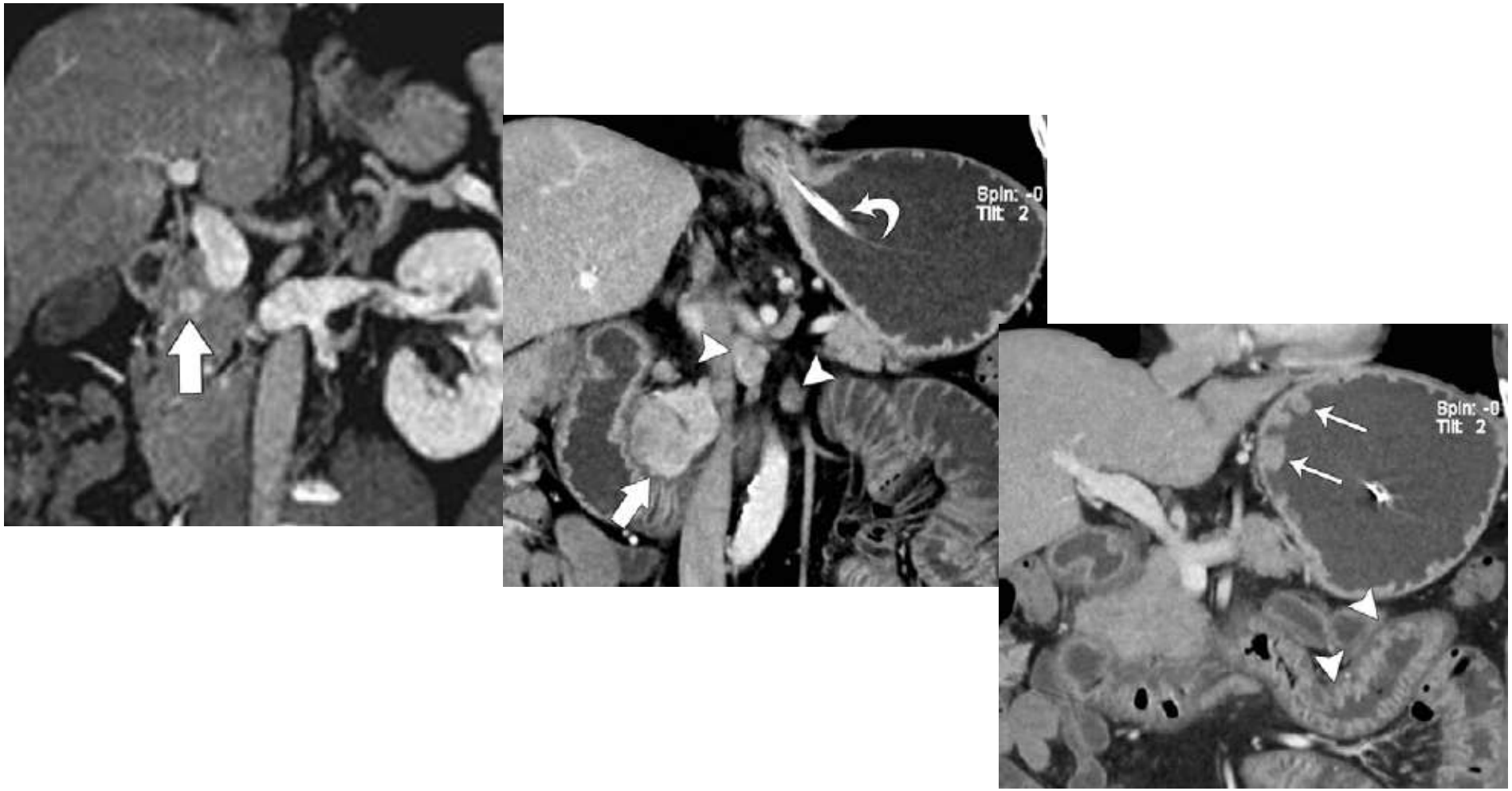
Dr JH Kim ESGAR 2014



Homogeneous enhancing



heterogeneous enhancing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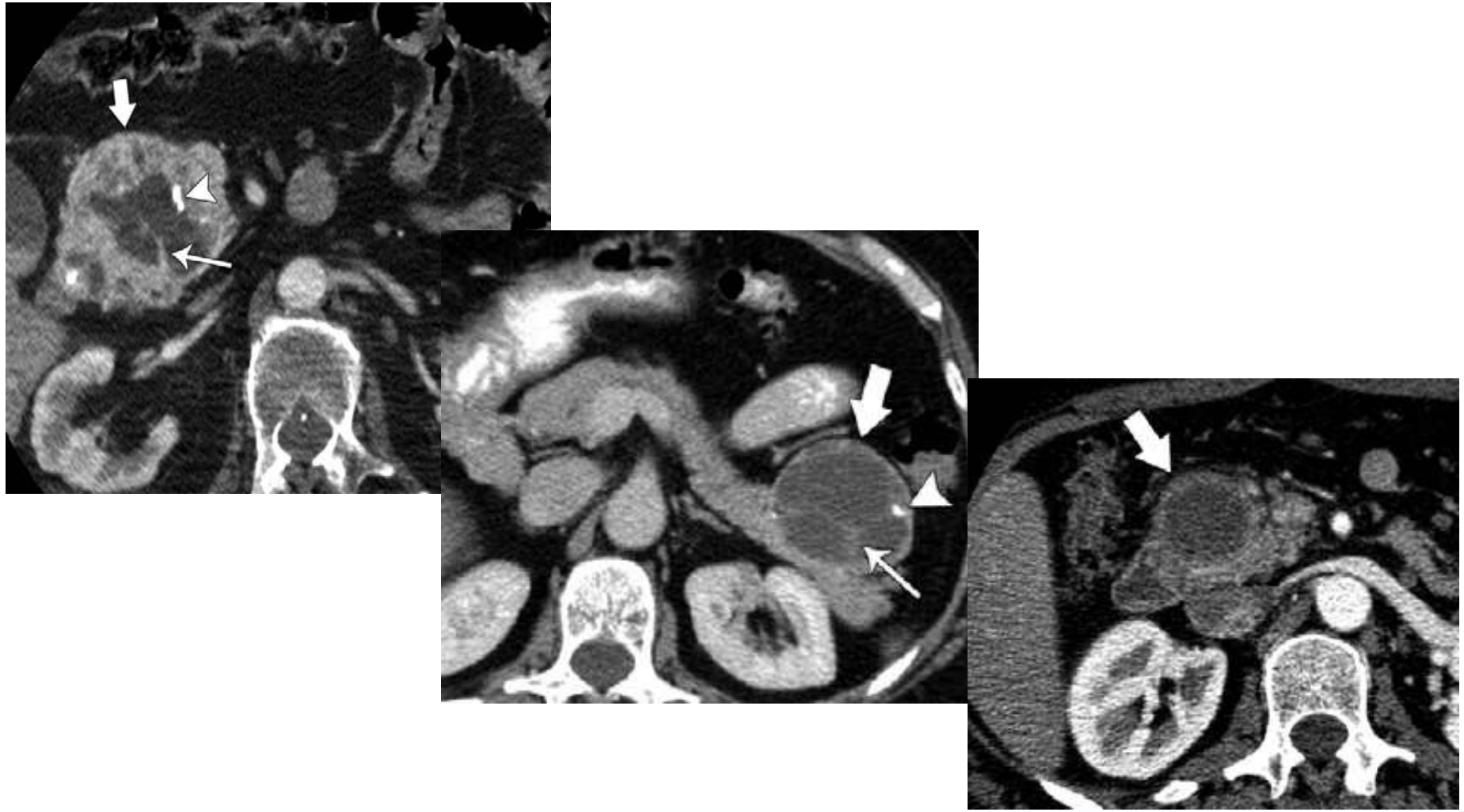
- Caratteristiche non comuni
  - Margini mal definiti
  - Ipovascolare in arteriosa e portale
  - Dilatazione del dotto pancreatico principale

G1 o G2<<< G3 (NEC)

DDx. Adenocarcinoma duttale del pancreas



- Caratteristiche comuni
  - Margini ben definiti
  - Ipervascolari in Arteriosa
  - iper o iso in fase venosa
  - Aspetto cistico
  - calcificazioni
- Caratteristiche non comuni
  - Margini mal definiti
  - Ipovascolari in Art e Portale
  - Dilatazione del dotto pancreatico

G1 o G2 — G3

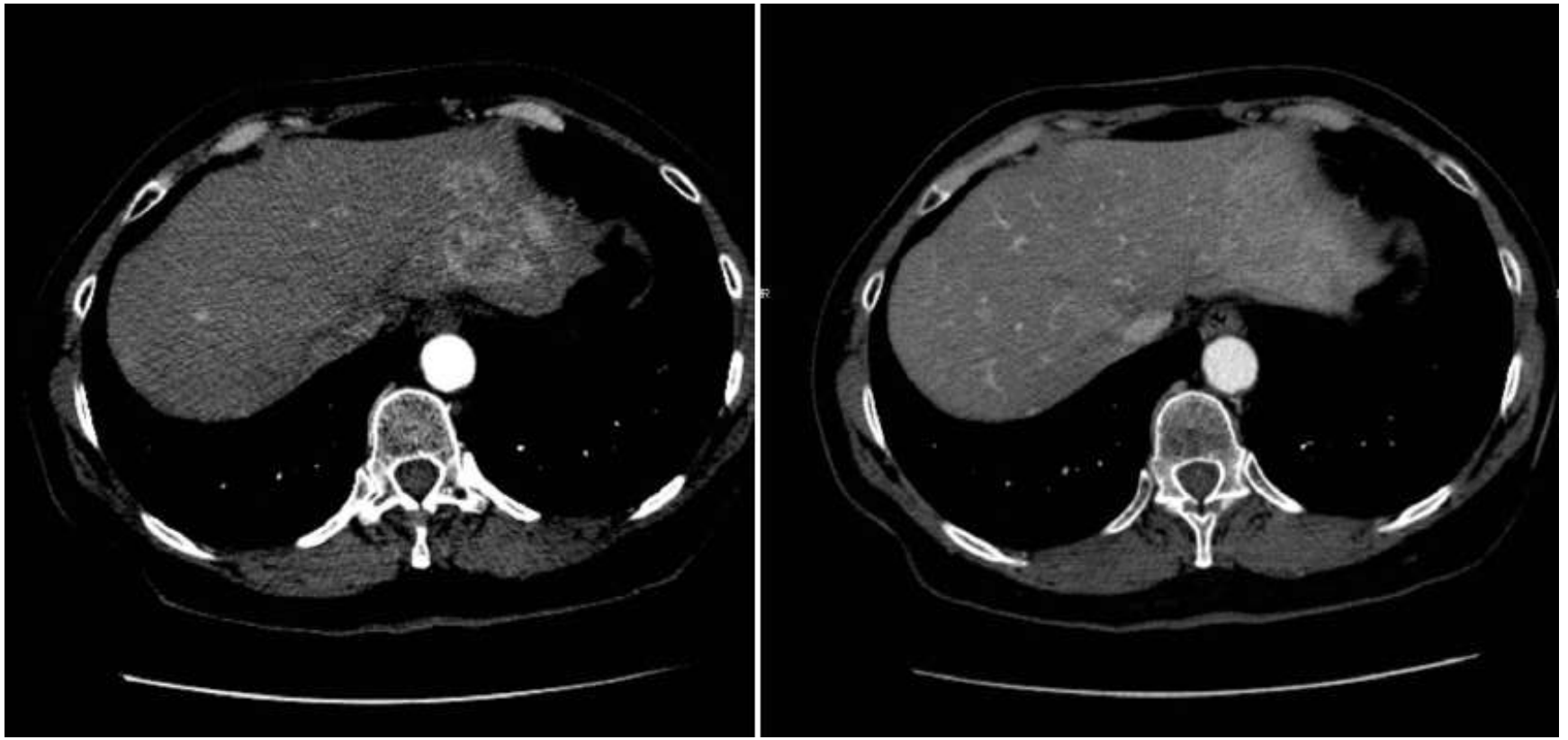
Ddx metastasi, milza accessoria

Ddx Adenoca Pancreatico

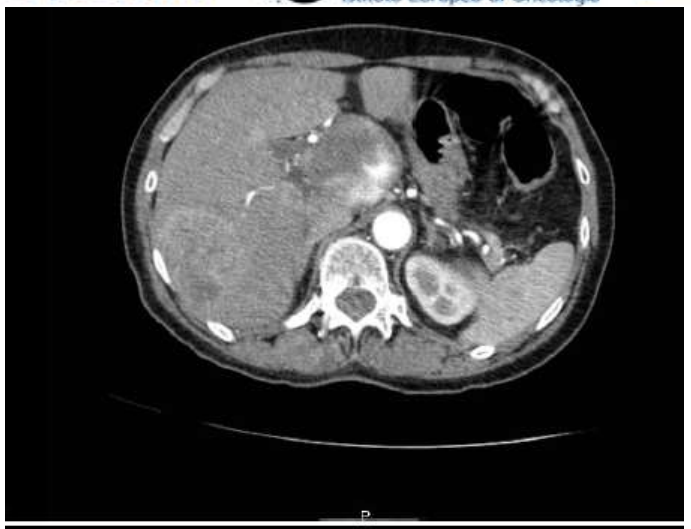
FOLLOW-UP

Early arterial phase

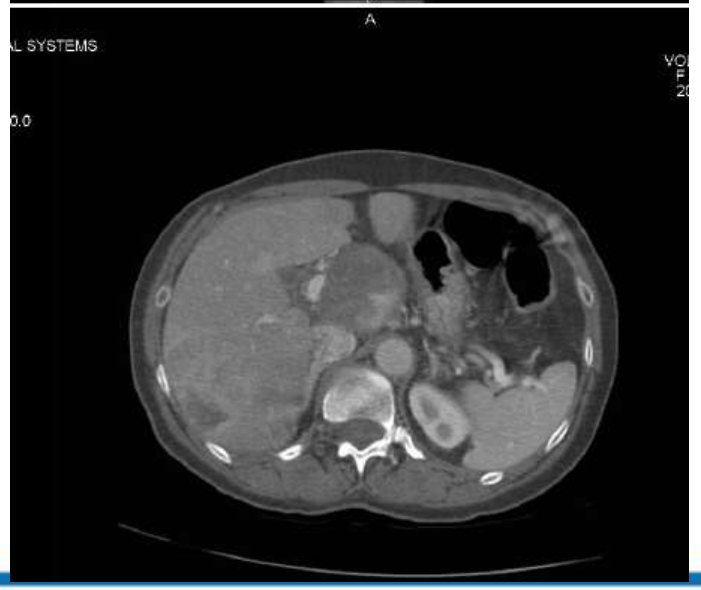
Late arterial phase



Early Arterial Phase



Late Arterial Phase



MR has a better performance(hepatospecific c.m. & DWI) detecting: brain & bone mets and pancreatic lesions (particularly for hypovascular ones).

Table 2. MRI diagnosis of NETs

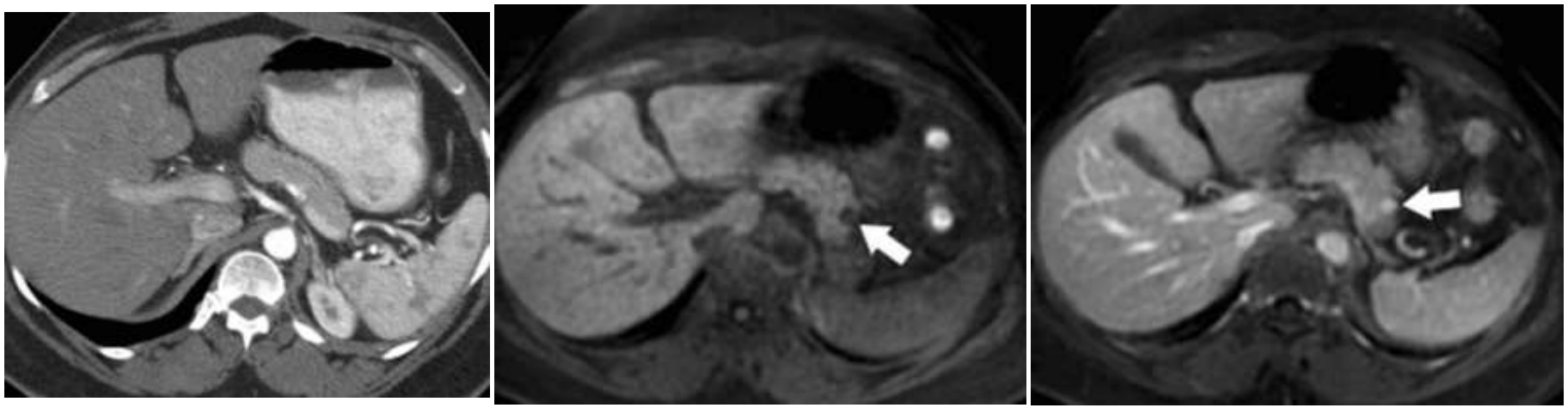
Type of NET	Mean sensitivity	Mean specificity	Mean detection rate	Patients/ studies	Ref.
Gastrinoma	70			122/1	28
Pancreatic NET	79 (54–100)	100	76 (61–95)	258/7	11, 29–34
Liver metastases	75 (70–80)	98		200/2	40, 41
Carcinomatosis			88 (81–91)	72/2	42, 43

Data in the literature on the sensitivity, specificity and detection rate for NET diagnosis by MRI. Figures are percentages with ranges in parentheses unless indicated otherwise.

Linee guida neoplasie neuroendocrine AIOM 2016

Neuroendocrinology DOI: 10.1159/000458155

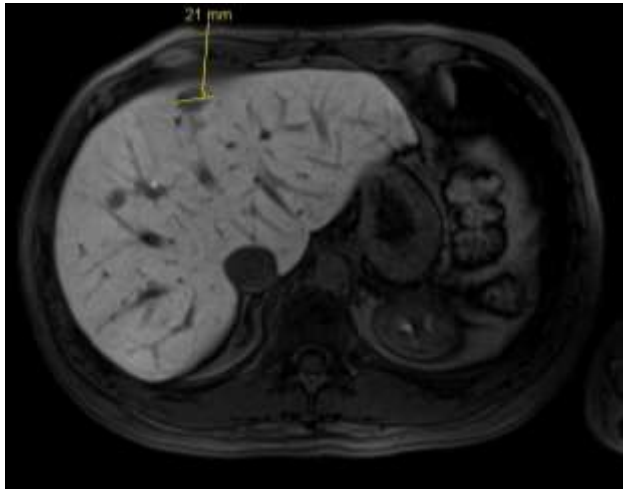
Good detection rate for liver mets(MdC epatospecifico e DWI), brain & bone mets & pancreatic tumour (hypovascular).

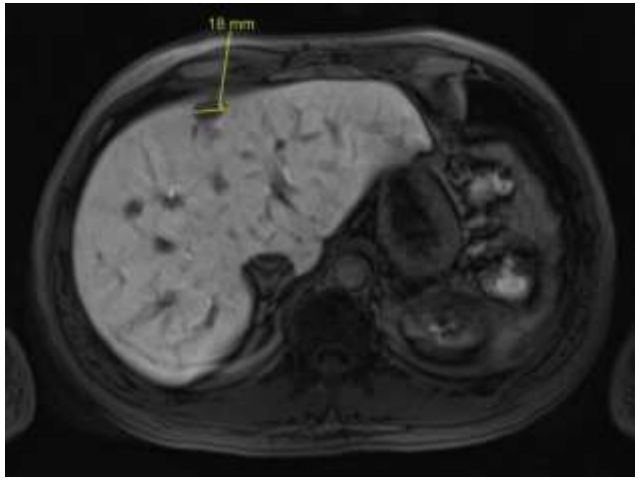


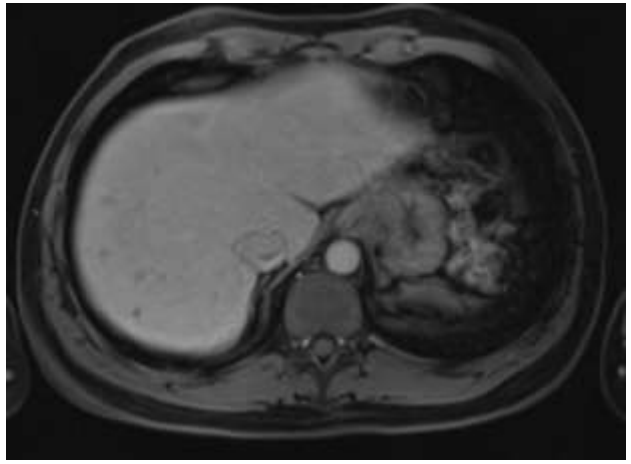
Radiology 2013;266: 38-61

The MR has a better performance(hepatospecific c.m. & DWI)

(hepatospecific c.m. & DWI)







Radiology 2013;266: 38-61

REVIEW

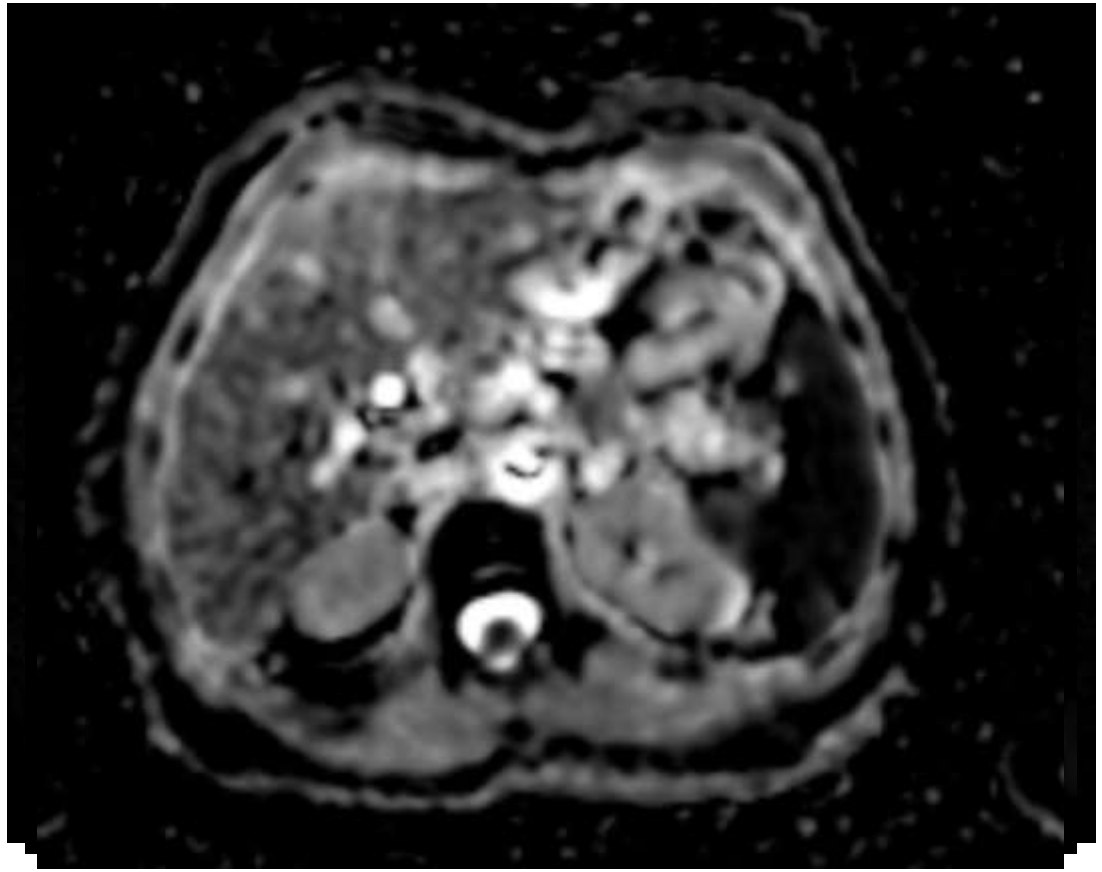
Diagnostic Performance of Apparent Diffusion Coefficient for Prediction of Grading of Pancreatic Neuroendocrine Tumors

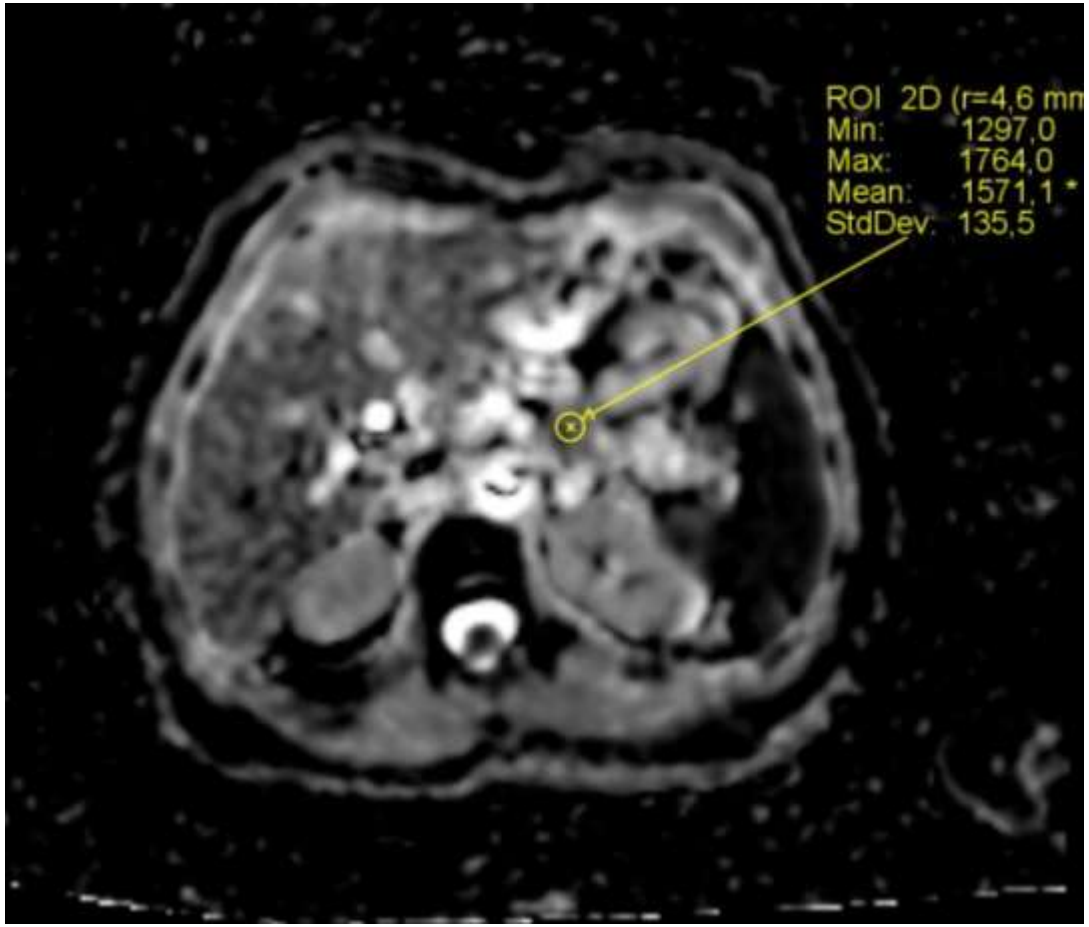
A Systematic Review and Meta-analysis

Rui Long Zong, MS, Li Geng, MS,† Xiaohong Wang, MS,‡ and Daohai Xie, MD, PhD‡*

Pancreas • Volume 48, Number 2, February 2019

- Mean ADC values
  - G1: 1283 [SD,0.27] $\mu m^2/s$
  - G2: 0892 [SD, 0.39] $10_{-33} \mu m^2/s$
  - G3 : 0733 [SD, 0.23] $10{-}3\ \mu m^2/s$

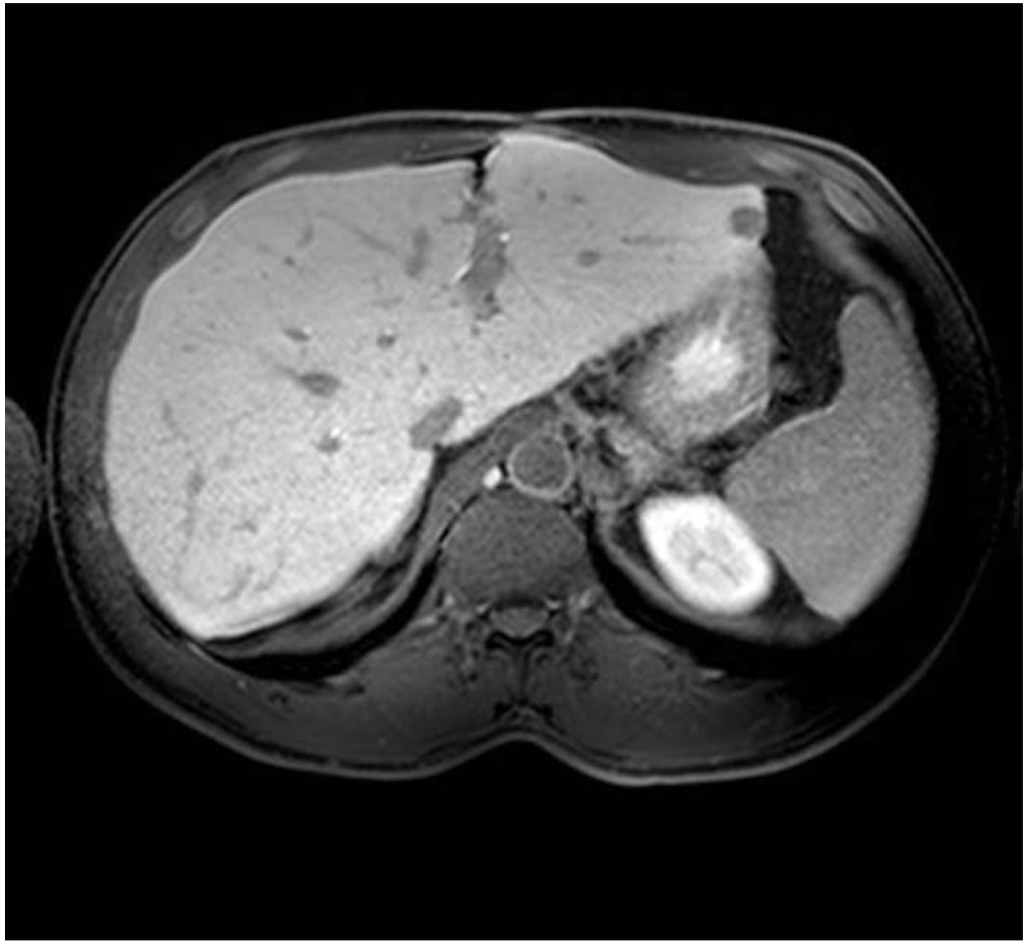



ROI 2D (r=4,6 mm
Min: 1297,0
Max: 1764,0
Mean: 1571,1
StdDev: 135,5

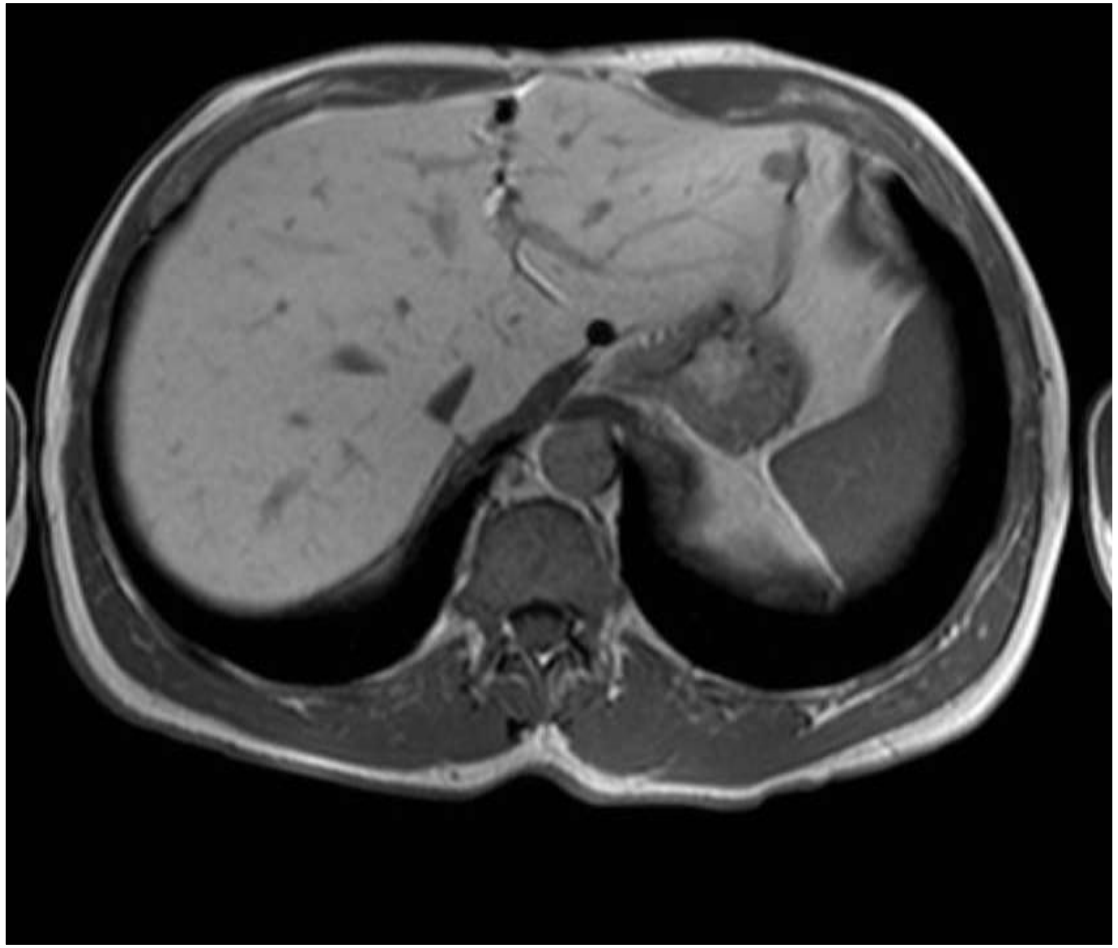
FOLLOW-UP

"Short MRI follow-up protocol in the evaluation of hepatic metastases from gastroenteropancreatic neuroendrocrine tumors (GEP-NET)"

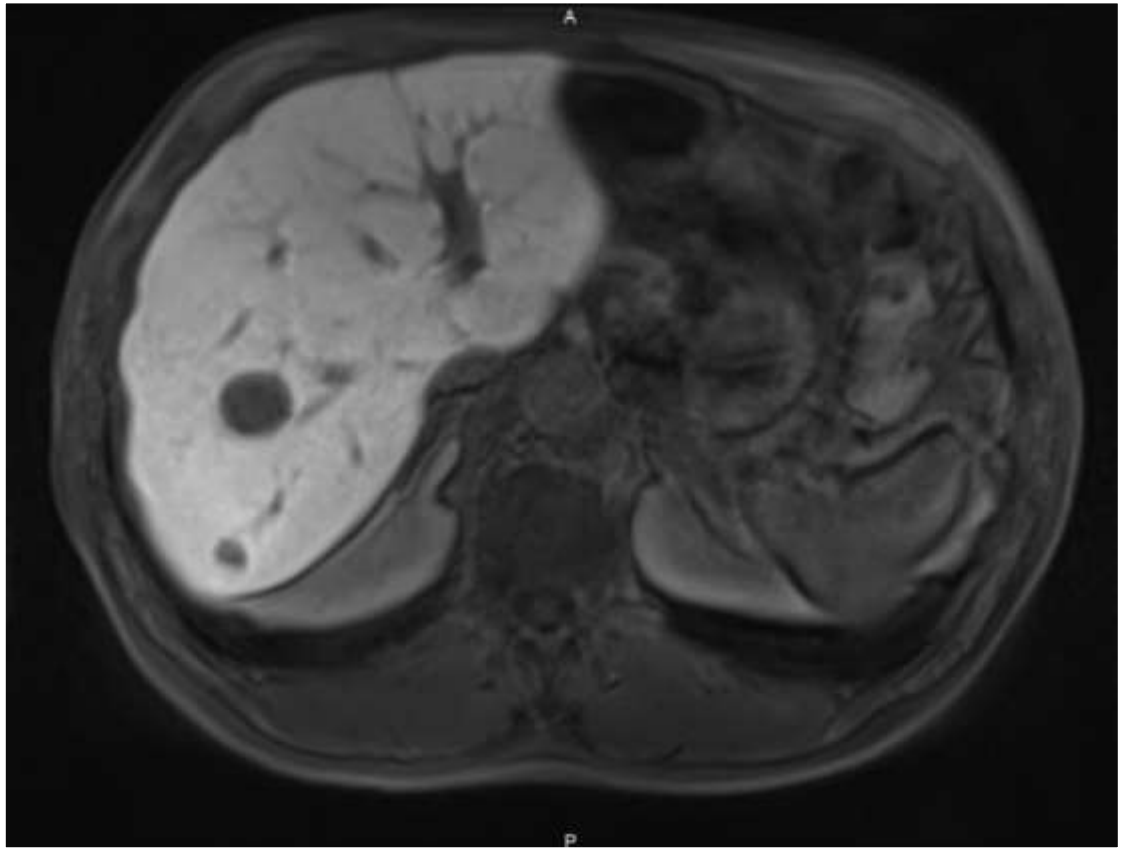
Z. Aleksander-Markuszewska, L. Funicelli, V. Giannetta, R. Labruna, N. Fazio, M. Bellomi; 1Warsaw/PL, 2Milan/IT

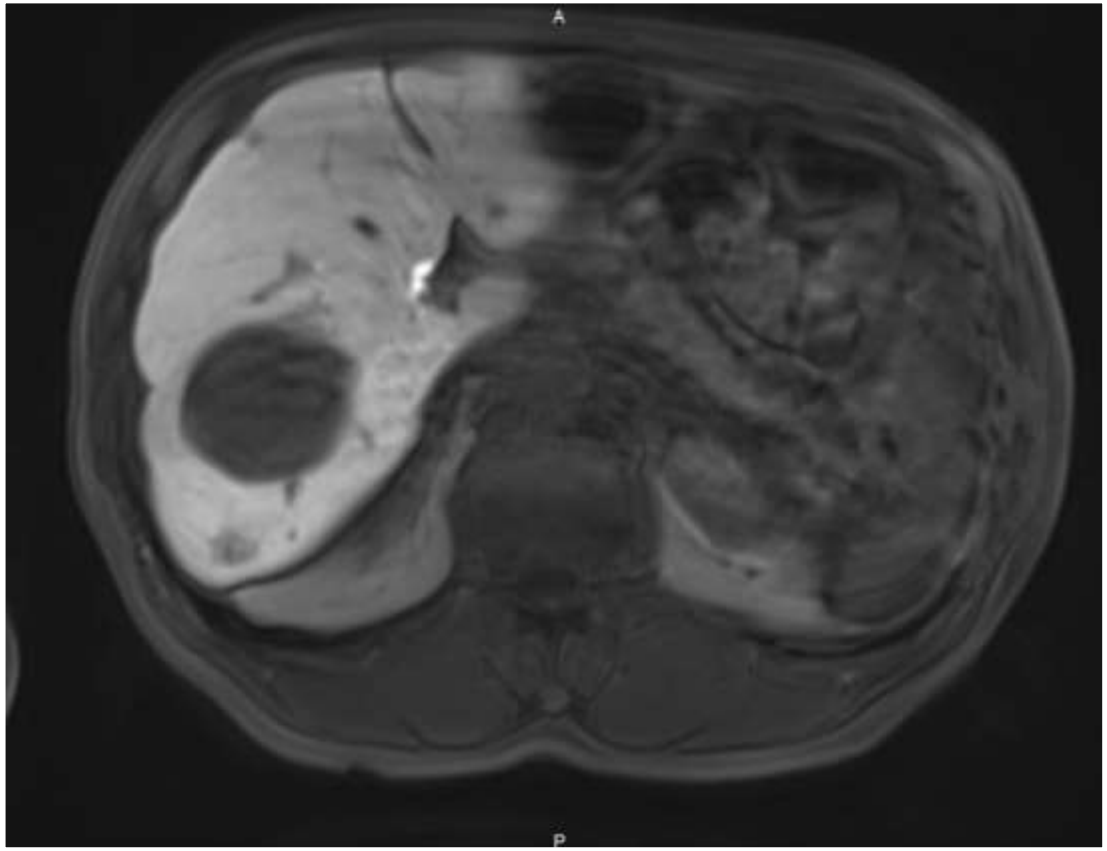


BASELINE



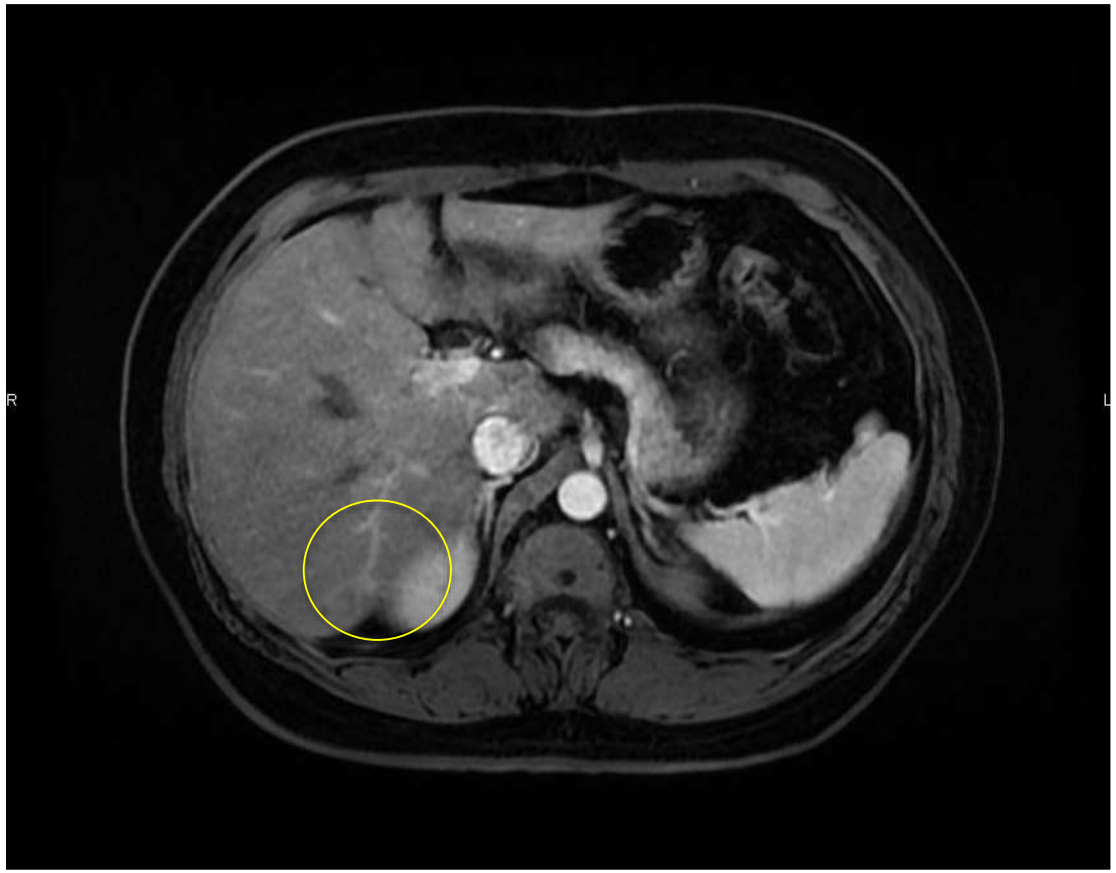
FOLLOW-UP (+12 months)





BASELINE

FOLLOW-UP (+12 months)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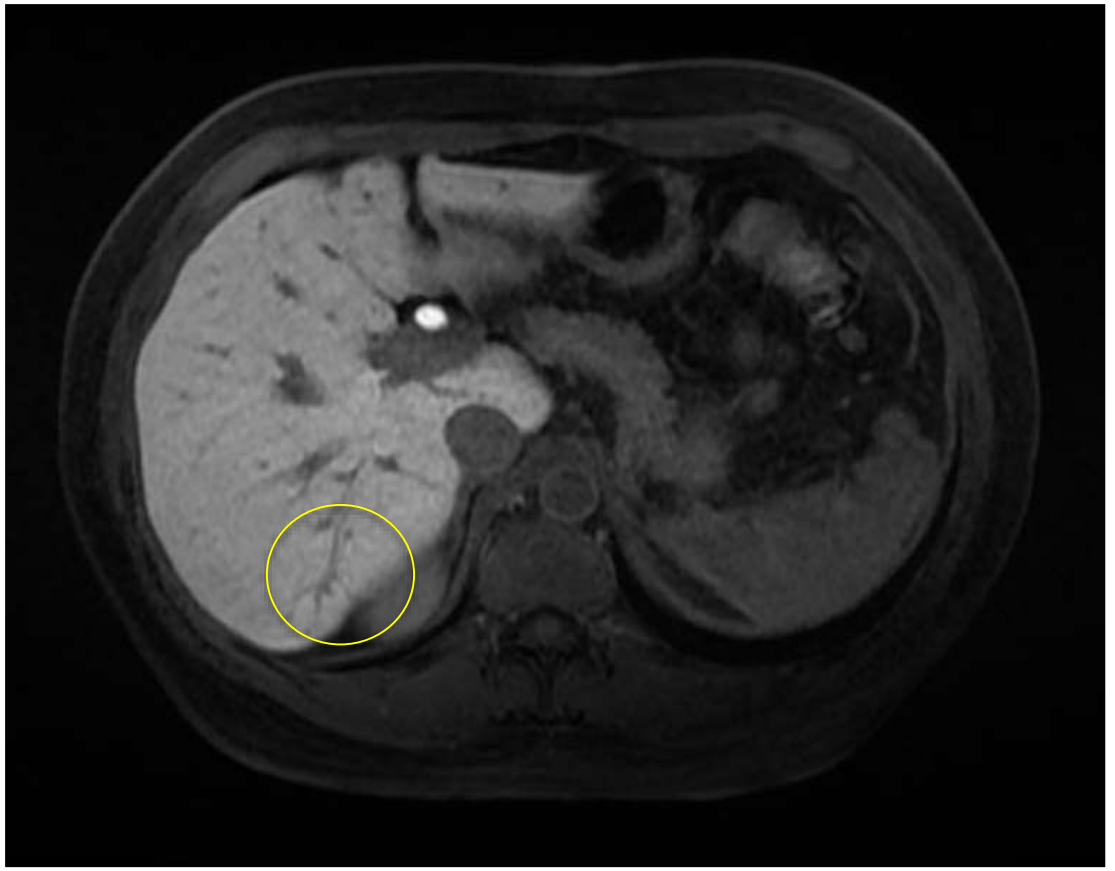
L

GRAZIE