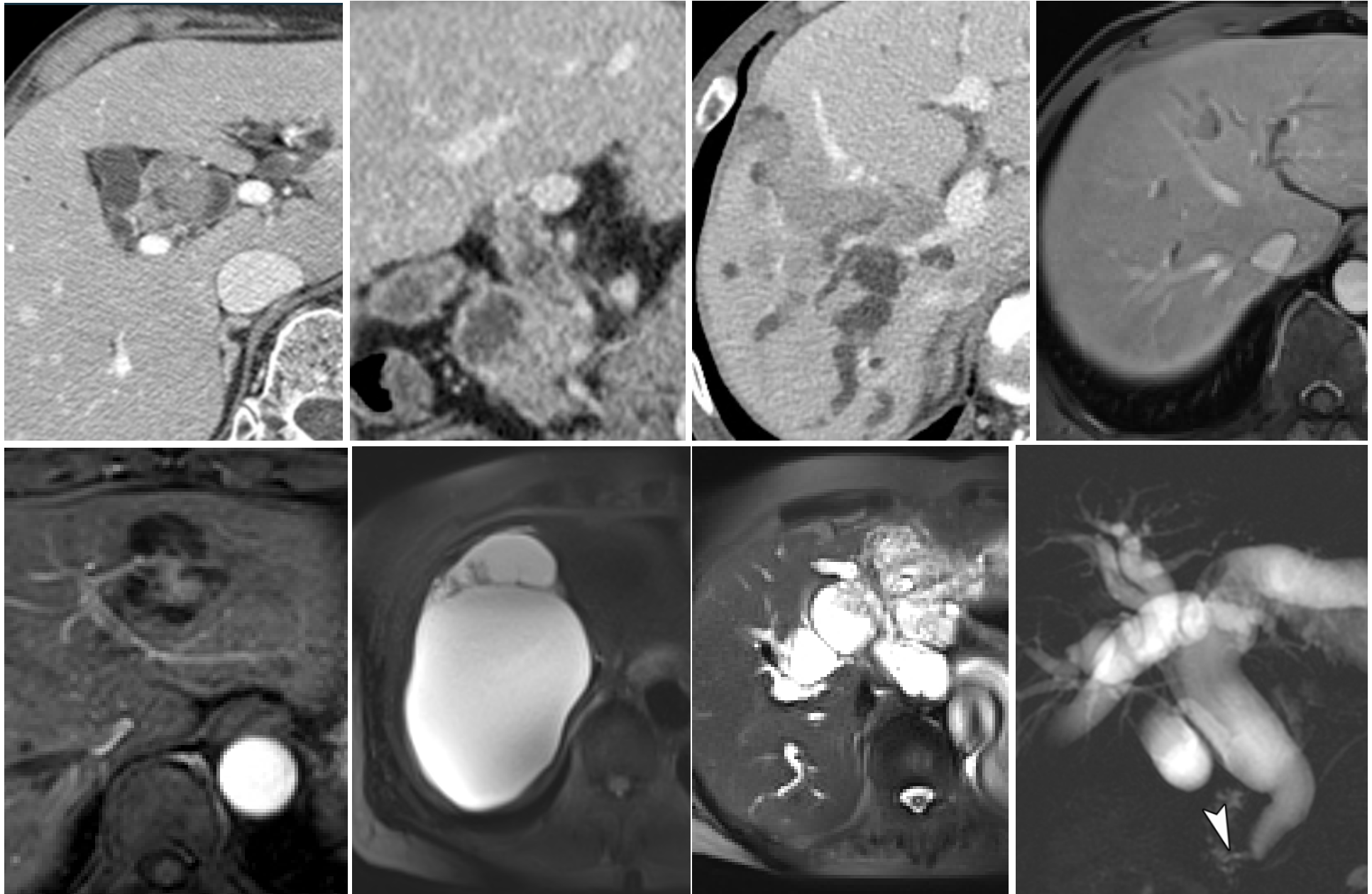


Imaging of Intraductal Papillary Neoplasms of Bile duct

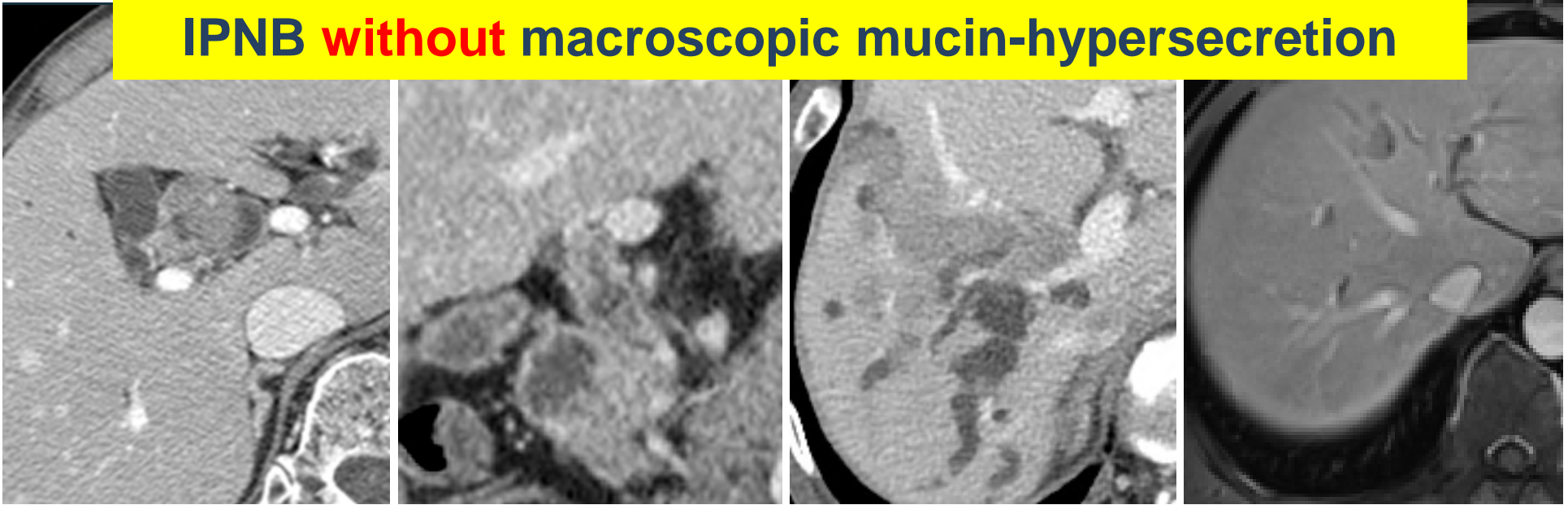
Mi-Suk Park
Department of Radiology,
Yonsei University Health System,
Seoul, Korea

Cases of intraductal papillary neoplasms

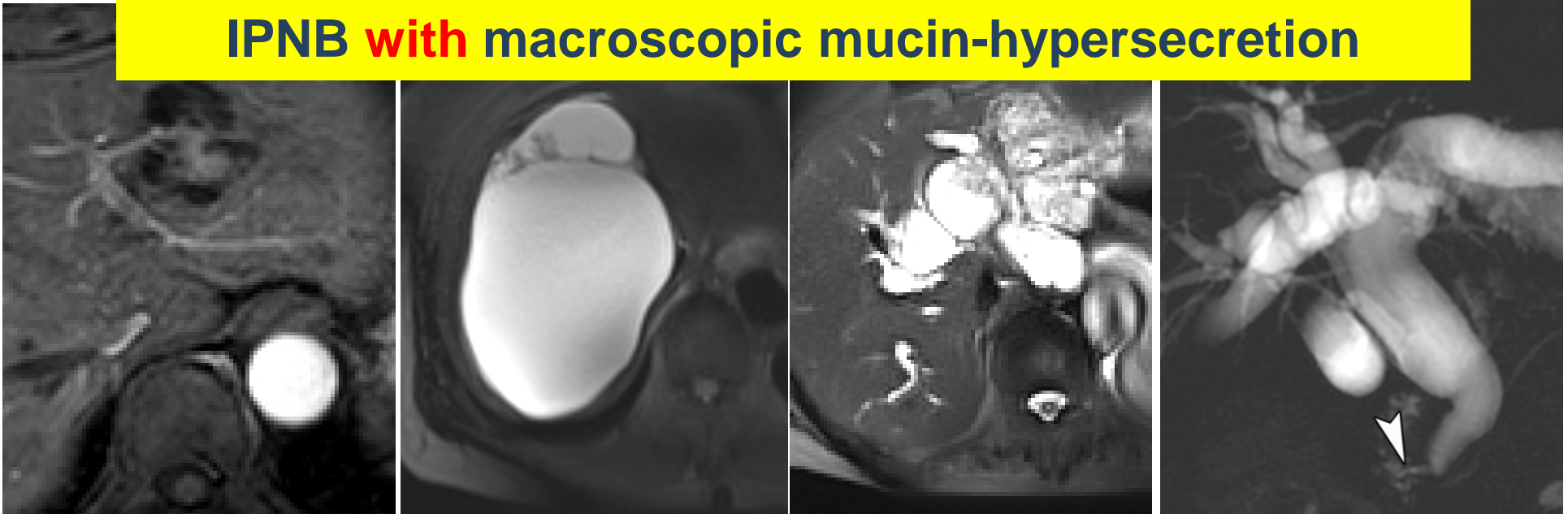


Cases of intraductal papillary neoplasms

IPNB **without** macroscopic mucin-hypersecretion



IPNB **with** macroscopic mucin-hypersecretion



Comparison between IPNB with/without mucin secretion

	IPNB-M (n=10)	IPNB-NM (n=17)
Histopathologic type	Intestinal	Pancreatobiliary
Depth of invasion (beyond duct wall)	10% (1/10)	53% (9/17)
Lymphovascular invasion	0	35% (6/17)
Malignancy: IPNB-M < IPNB-NM < Non-papillary CCC		
Counterpart	IPMN-P	Heterogeneous disease group

Imaging phenotypes

I. IPNB with mucin-hypersecreting (Biliary-IPMN)

- ✓ Entire bile duct dilatation
- ✓ Segmental bile duct dilatation
- ✓ Aneurysmal bile duct dilatation (cystic mass)

II. IPNB without mucin-hypersecreting

- ✓ Superficial spreading appearance
- ✓ Polypoid or cast-like appearance

Imaging phenotypes

I. IPNB with mucin-hypersecreting (Biliary-IPMN)

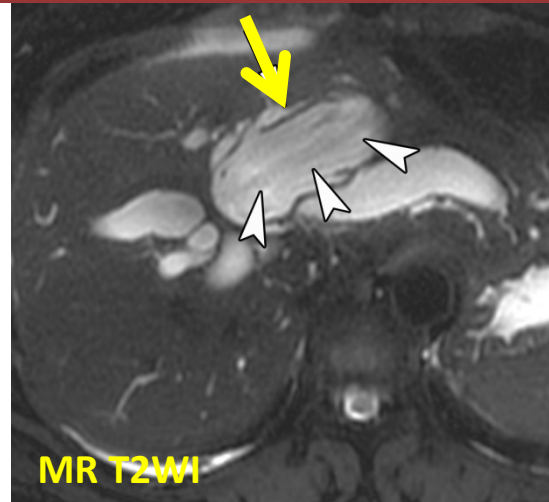
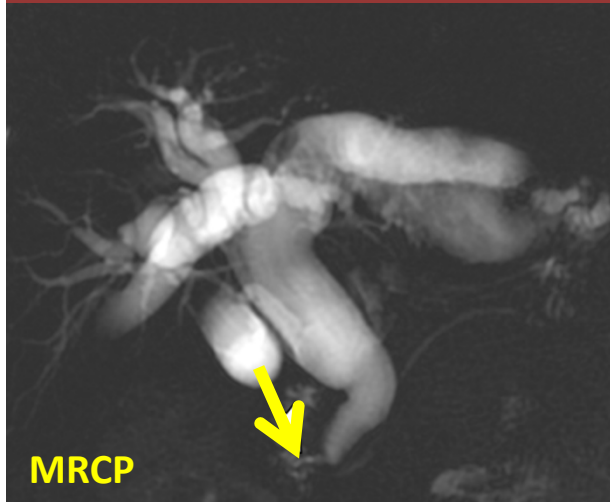
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- ✓ Aneurysmal bile duct dilatation (cystic mass)

II. IPNB without mucin-hypersecreting

- ✓ Superficial spreading appearance
- ✓ Polypoid or cast-like appearance

IPNB with mucin-hypersecreting - Entire duct dilatation -

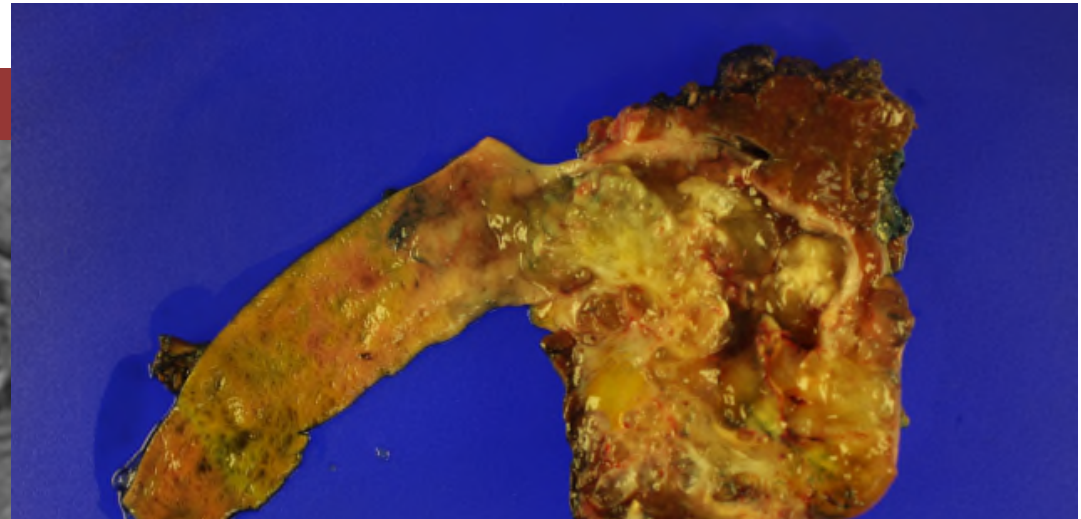
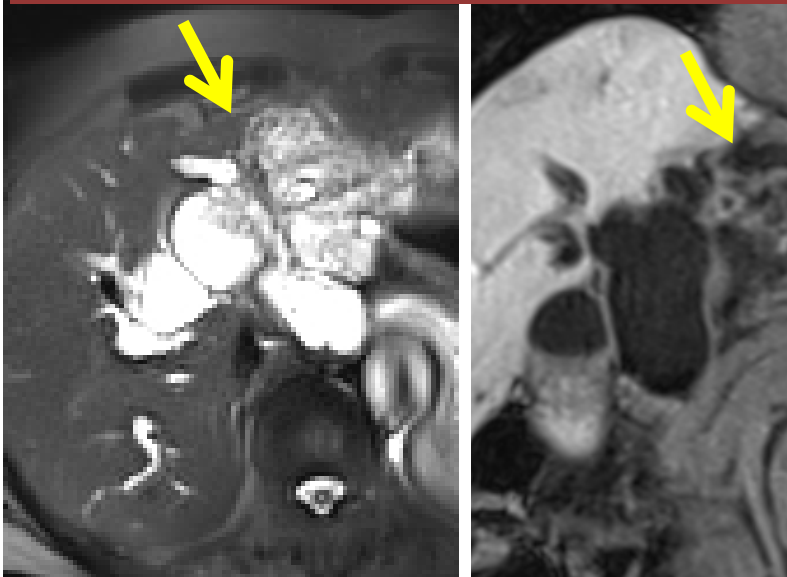
66/M



- ✓ Diffuse, entire bile duct dilatation
- ✓ No obstruction at the ampulla
- ✓ "Thread sign" on T2WI
- ✓ A small solid intraductal mass in the left IHD

IPNB with mucin-hypersecreting - Lobar duct dilatation -

65/F, Jaundice and abdominal discomfort

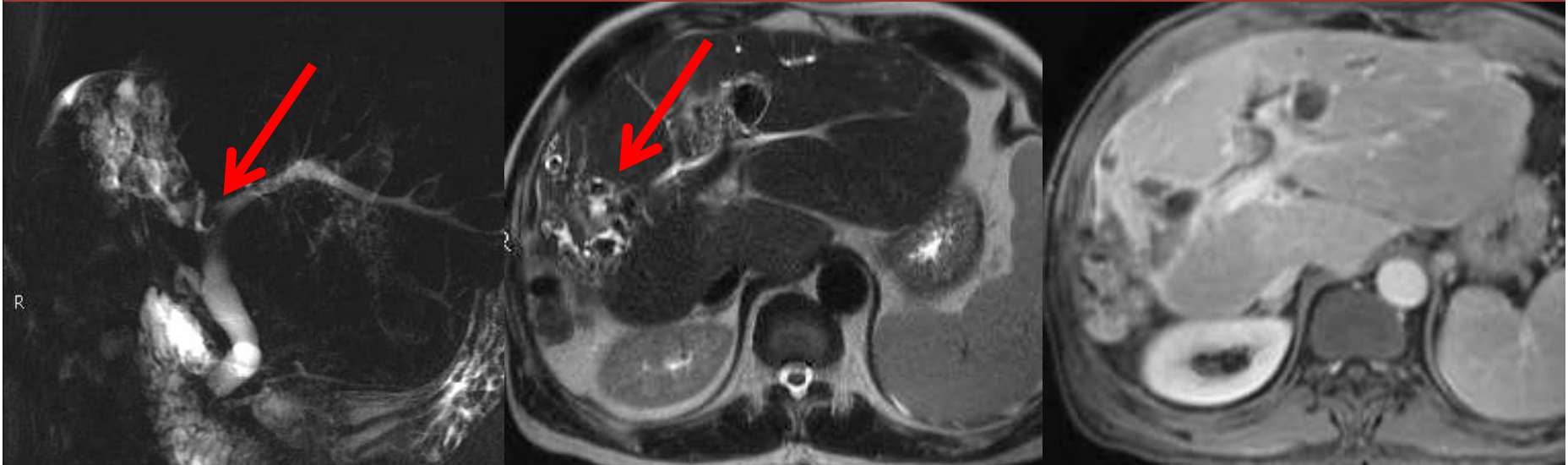


Invasive IPNB
Left IHD: Myxoid and gelatinous tumor
CBD: No tumor, but mucoid material

- ✓ Multifocal papillary nodules in the left IHD
- ✓ CBD dilatation without mass
- ✓ "Thread sign" on T2WI, filling defect on ERCP, no mass on enhanced T1WI; Mucin in CBD:

IHD stone disease

65/F, Jaundice and abdominal discomfort



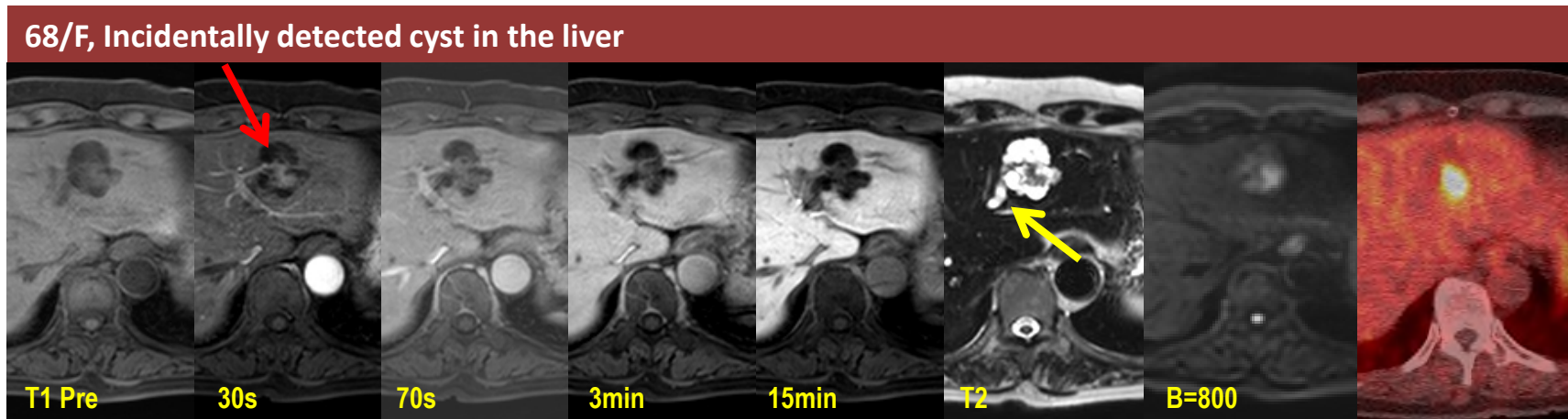
IPNB with mucin

- ✓ Down stream duct dilatation
- ✓ Thread sign

IHD stone disease

- ✓ Multifocal strictures
- ✓ Non-enhancing stones

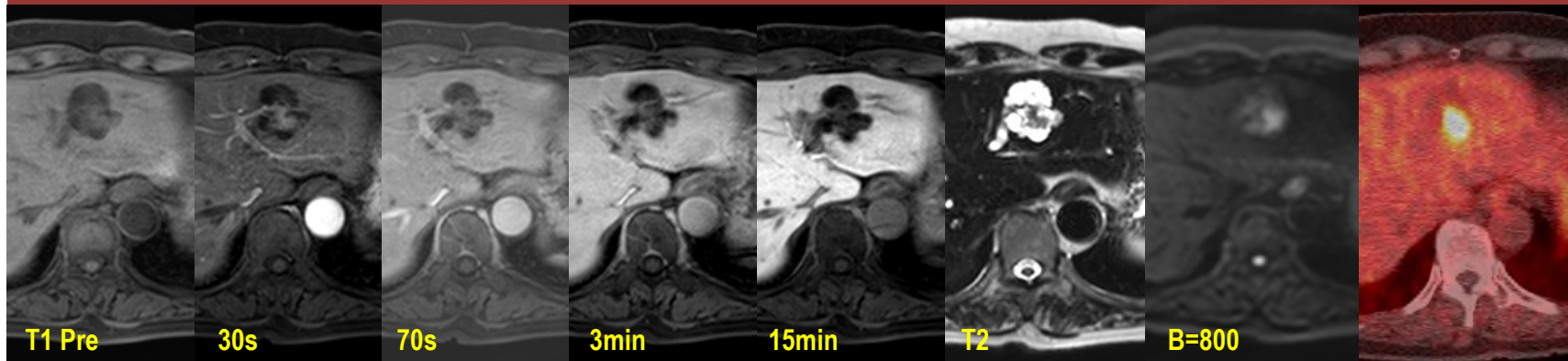
Cystic tumor



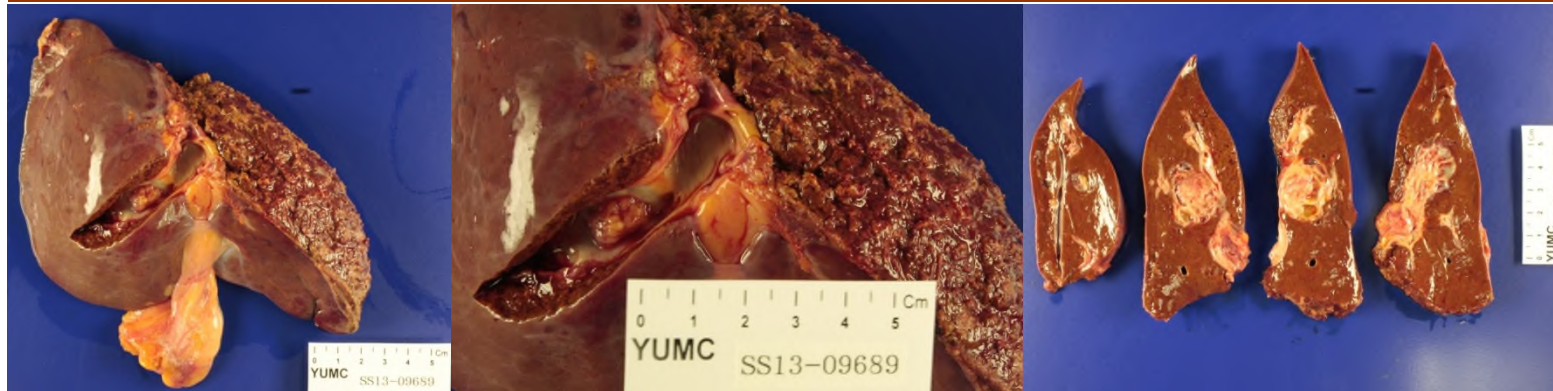
- ✓ Multilobulated cystic mass with papillary nodule
- ✓ Down stream duct dilatation
- ✓ Preoperative diagnosis; 1) IPNB, invasive, DDx 2)MCN, less likely

IPNB with mucin-hypersecreting - Aneurysmal duct dilatation -

68/F, Incidentally detected cyst in the liver



Laparoscopic left hemihepatectomy of liver: IPMN-BT high grade and focal invasive, pTis

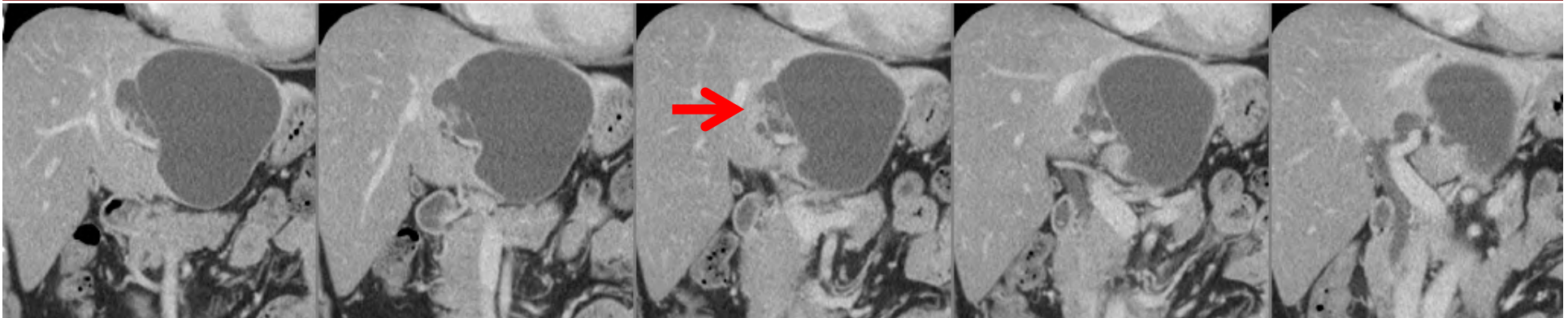


Cystic tumor: MCN vs IPNB

Differential point in imaging	MCN	IPN-B
Mural nodules	4~30.8%	100%
Down stream bile duct dilatation	0~6%	57~73%
Pleomorphic (grape-like) appearance	8%	80%
Multi-septated appearance	81%	10%

IPNB vs MCN

F/54

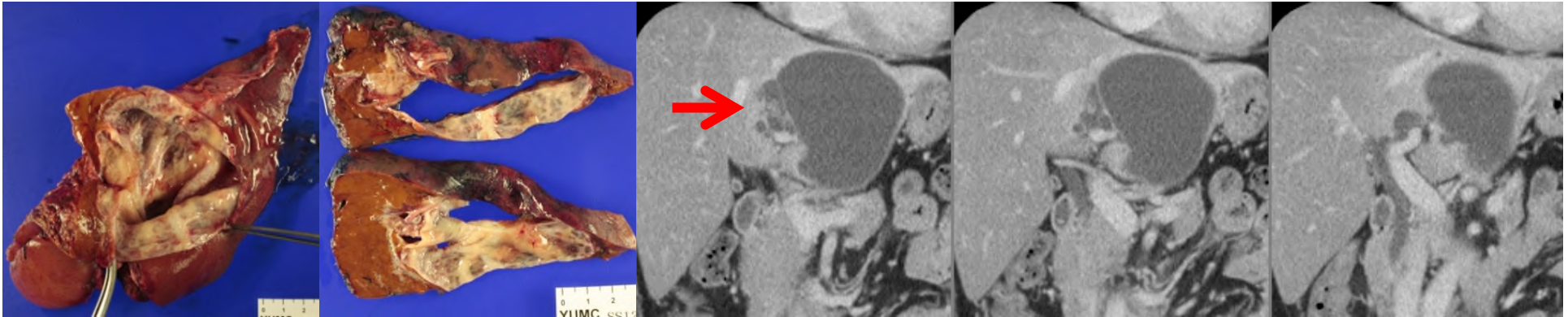


F/47

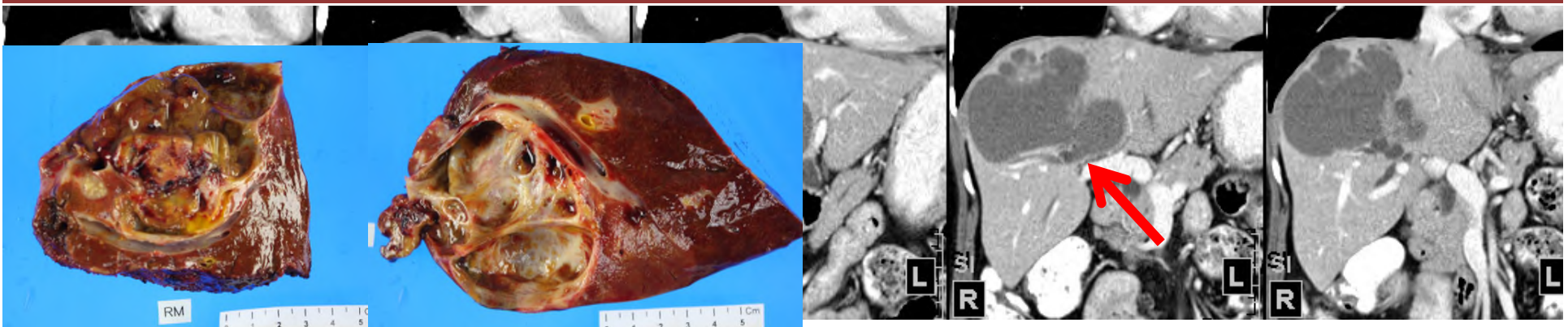


IPNB vs MCN

F/54, MCN with high grade intraepithelial neoplasm



F/47, IPNB-M with associated invasive carcinoma



Imaging phenotypes

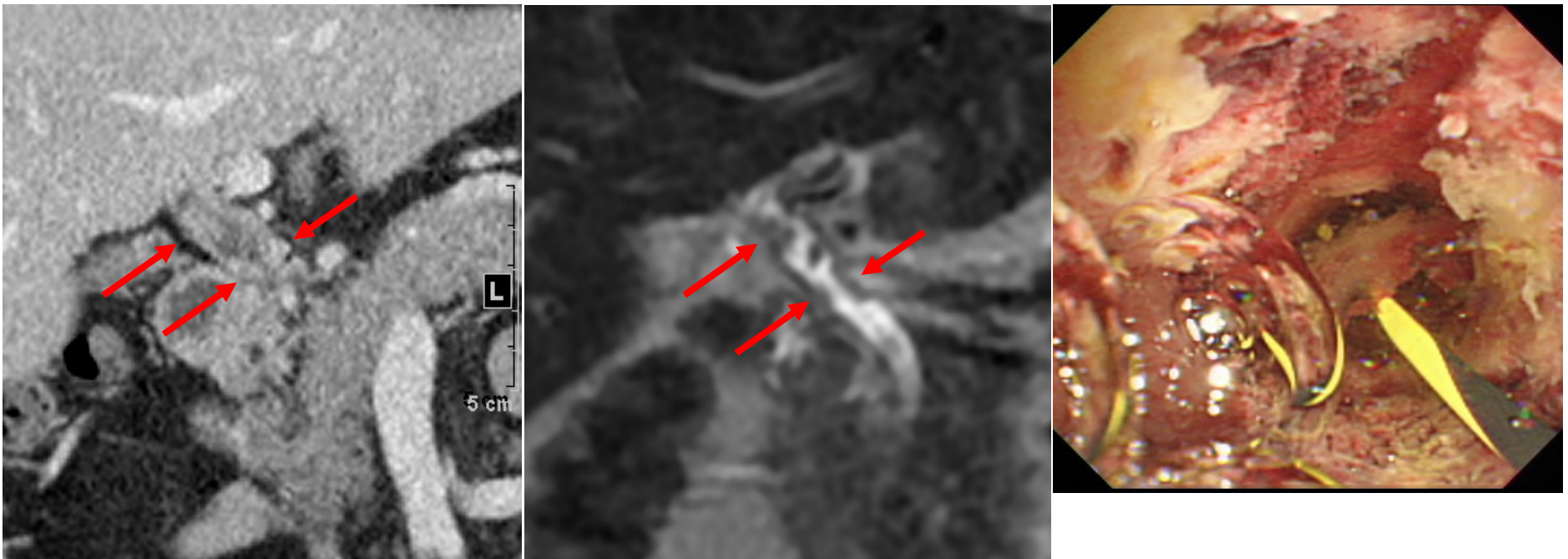
I. IPNB with mucin-hypersecreting (Biliary-IPMN)

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II. IPNB without mucin-hypersecreting

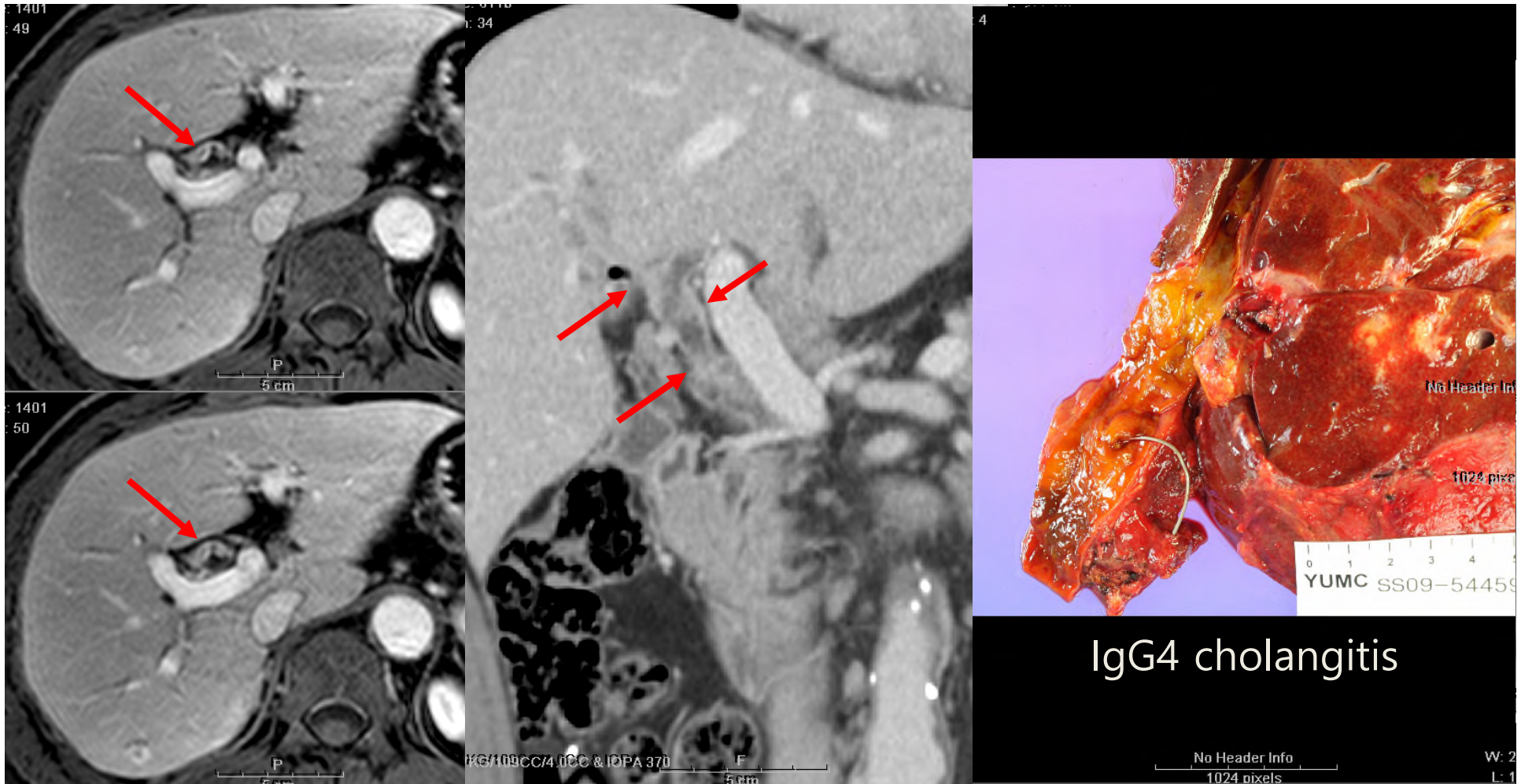
- ✓ Superficial spreading appearance
- ✓ Polypoid or cast-like appearance

Superficial spreading IPNB - Papillomatosis -

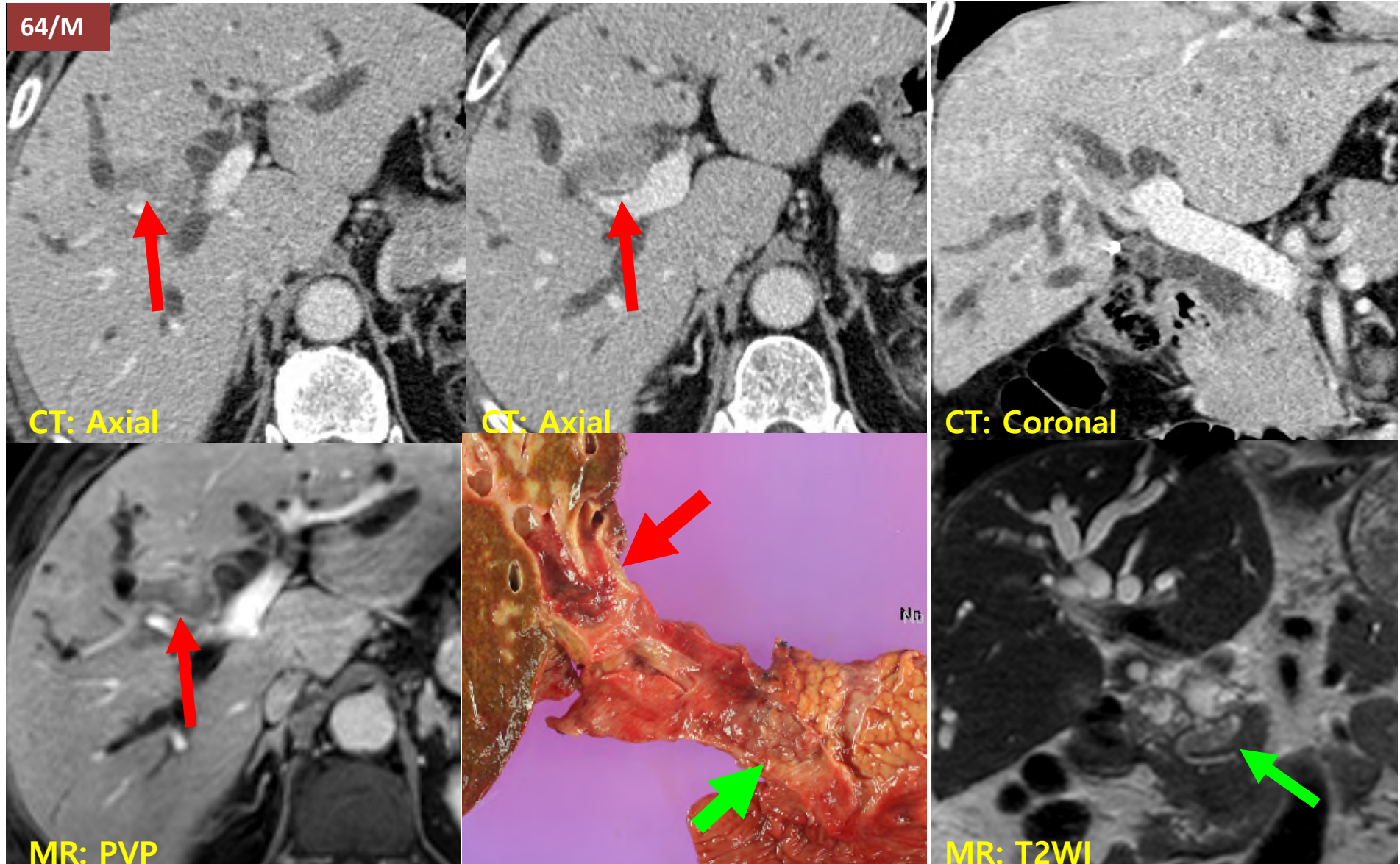


- ✓ Flat tumors growing superficially along the EHD
- ✓ IPNB can easily fragment, separate from the mucosal surface of the bile duct
- ✓ Superficial spreading with multifocality, papillomatosis

Papillomatosis-mimicking lesions

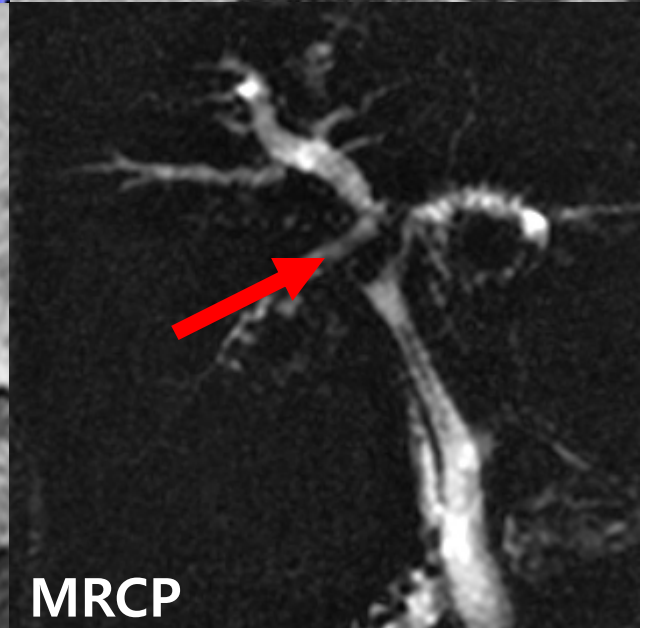
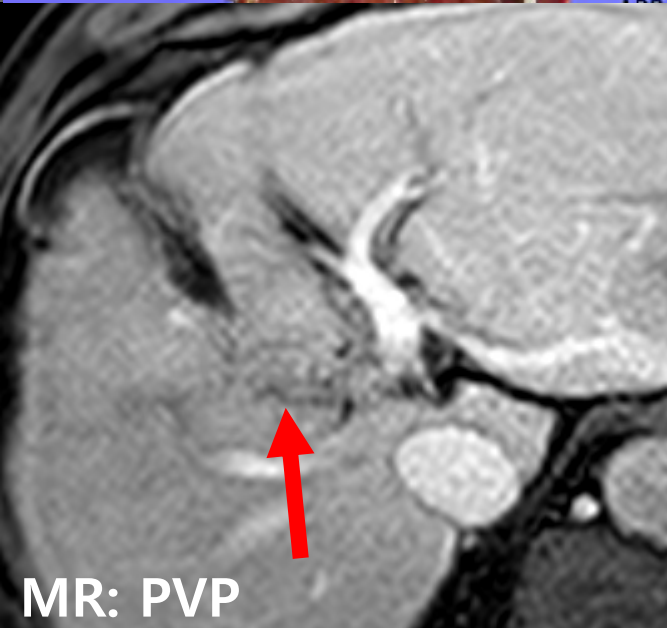
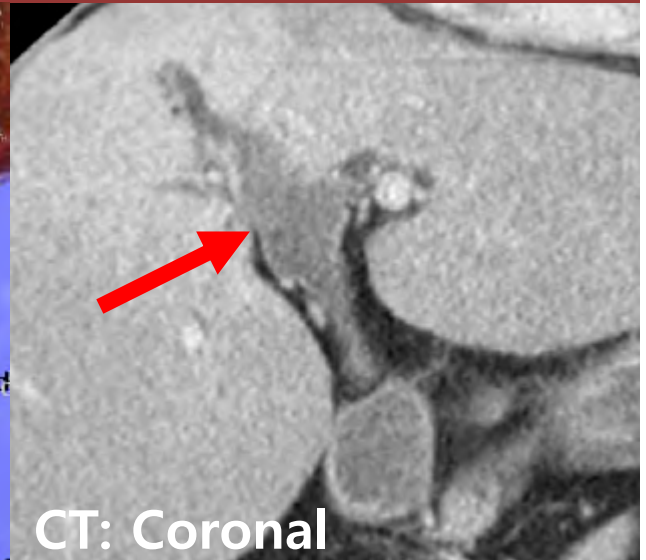
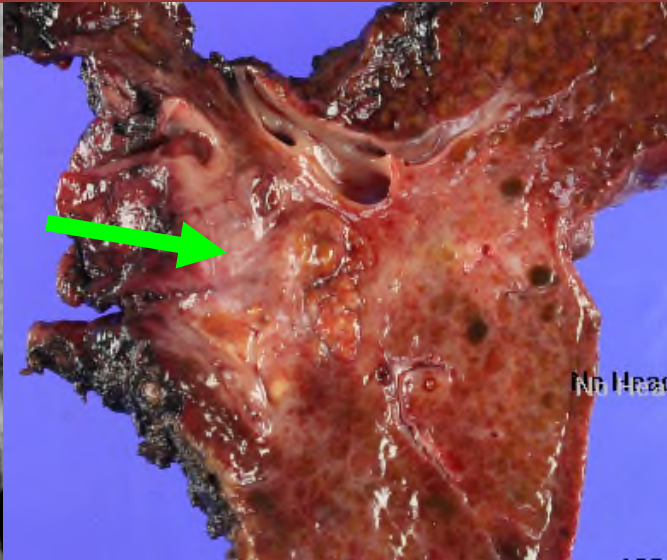
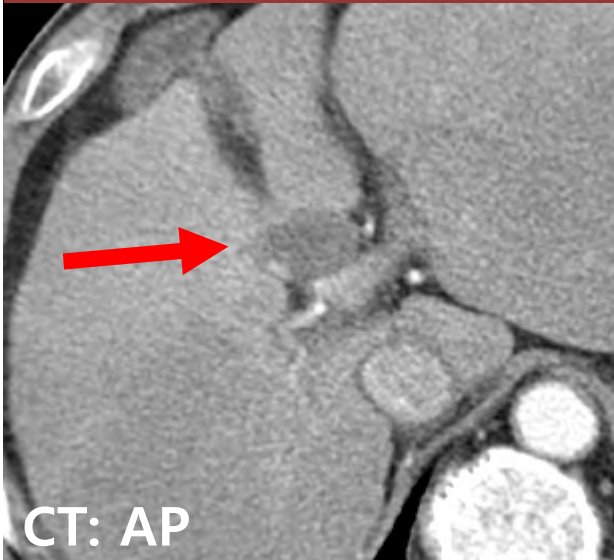


Polypoid intraductal tumor



HCC within bile duct

M/62, fever and chills, pus on ERCP

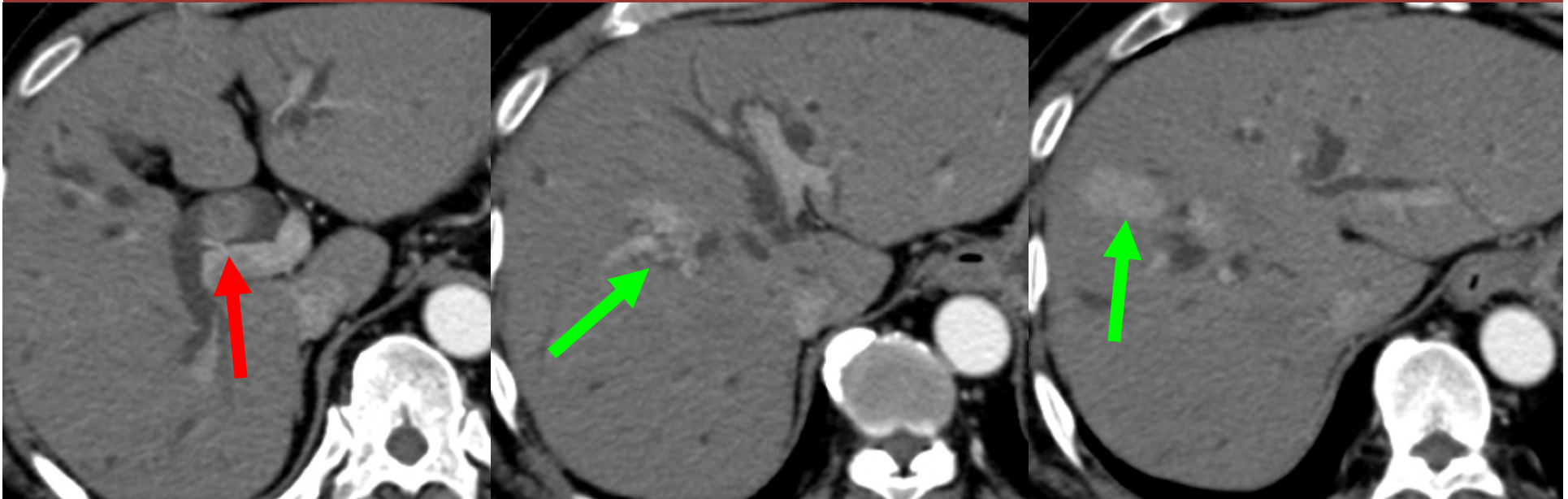


Bile duct invasion by HCC

- ✓ 0.7 – 9.5% of HCC
- ✓ Radiologic findings
 - Expansile intraductal mass with dilated bile duct
 - Parenchymal mass adjacent to the intraductal mass
- ✓ Clinical findings
 - Tumor marker, Liver cirrhosis
 - Hemobillia or clots in the distal bile duct

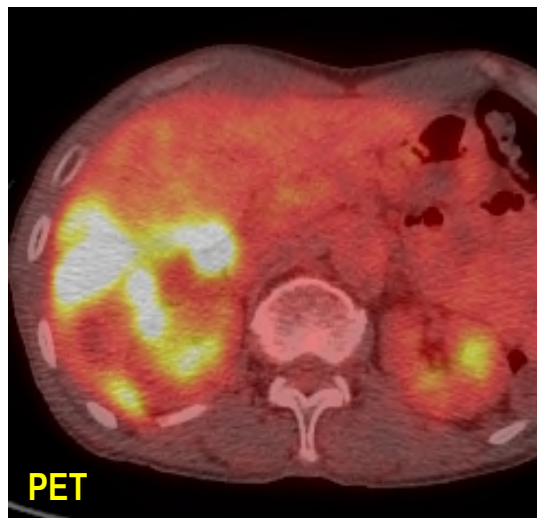
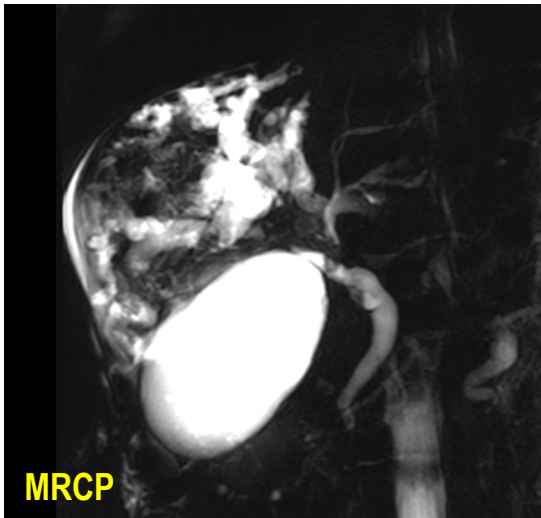
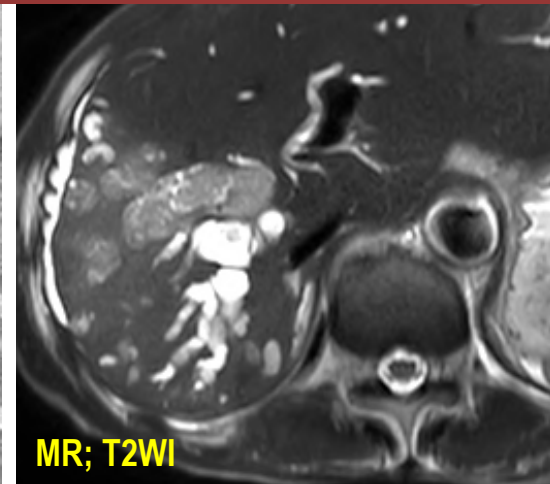
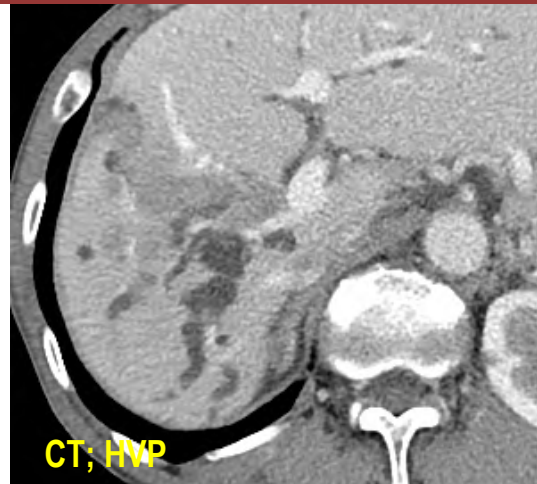
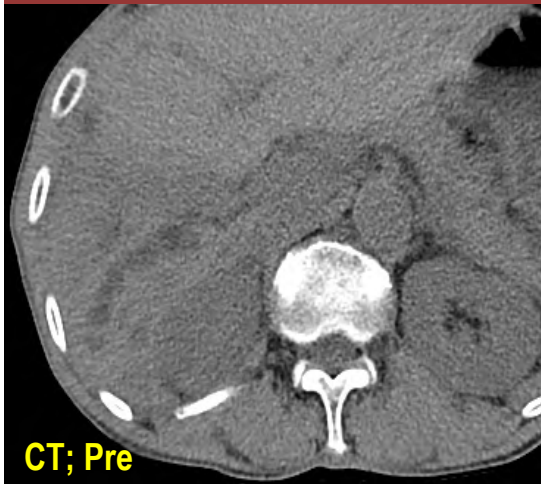
Bile duct invasion by HCC

M/52, hemobilia on ERCP



Cast-like intraductal tumor

75/M, Abdominal pain



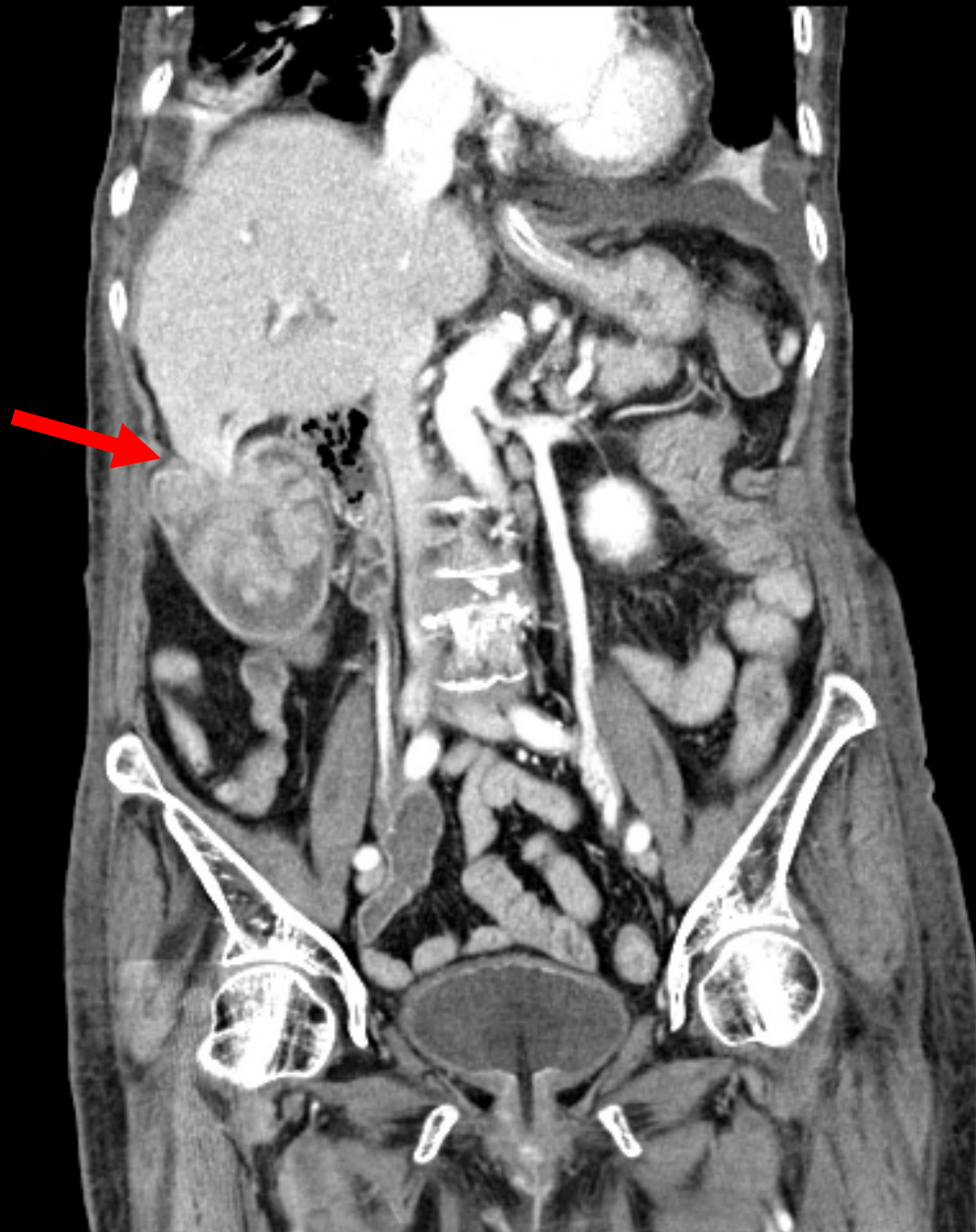
F/80, Melena on 2015.01.22



Melena on 2015.01.22



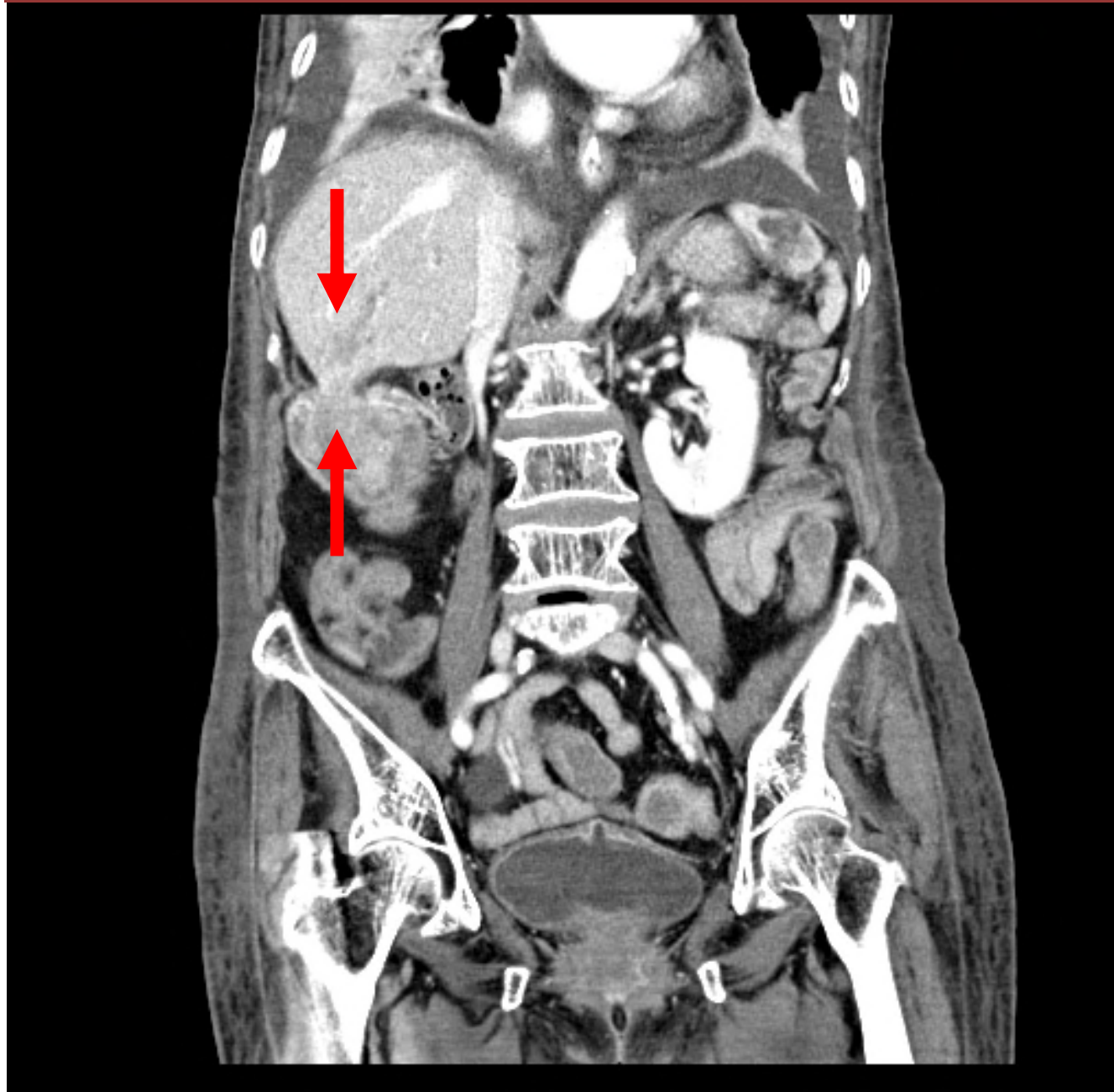
Melena on 2015.01.22



Melena on 2015.01.22



Melena on 2015.01.22

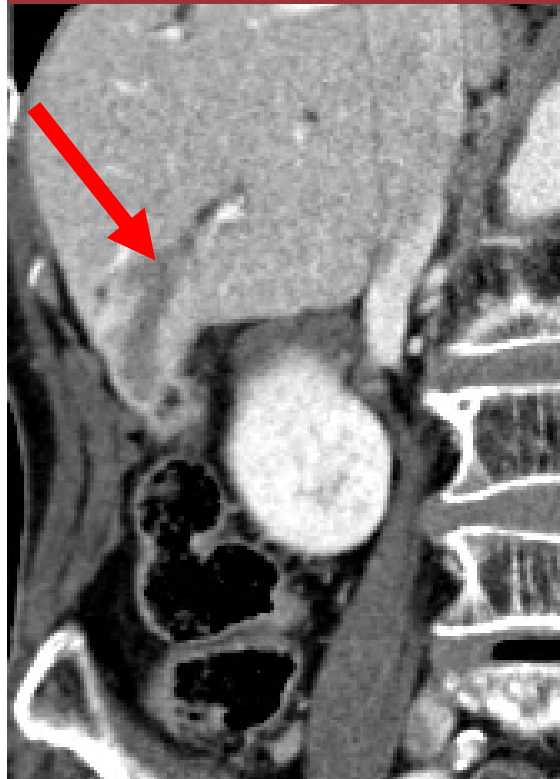


IPNB with colonic fistula

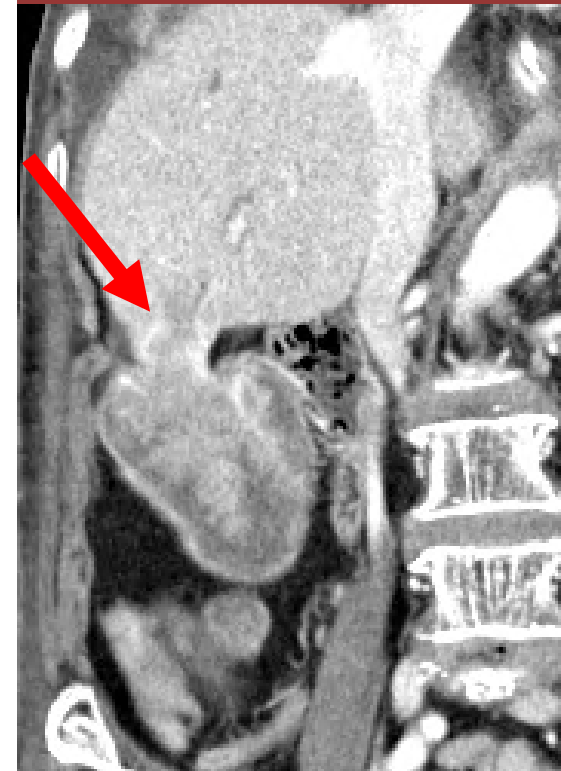
RUQ pain on 2011.06.07



No symptoms on 2013.04.13



Melena on 2015.01.22



Limitations of current imaging

- ✓ Measuring the actual tumour volume/bile duct invasion of IPNB is practically difficult.
- ✓ The pathologic grade of B-IPMNs did not correlate with extrahepatic bile duct dilation and the presence of the mucin (thread sign).
- ✓ In general, P-IPMNs of higher pathologic grade would likely produce more mucin, causing prominent pancreatic duct dilatation.

Conclusion

- ✓ The definition/classification of IPNB is still controversy.
- ✓ Imaging phenotypes should be considered for consensus building of IPNB.
- ✓ Further study on invasiveness evaluation

Thank you!

감사합니다



감사합니다

Thank you!