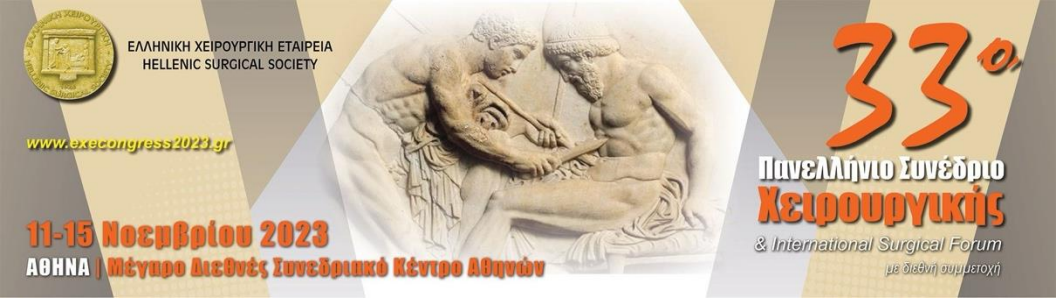


Ενδοπορικά Βλεννοεκκριτικά Νεοπλάσματα (IPMN) Παγκρέατος στο Όριο Ενδείξεων και Οδηγιών Χειρουργική Αντιμετώπιση

ΔΗΜΗΤΡΗΣ Π. ΚΟΡΚΟΛΗΣ
Διευθυντής Χειρουργικής Κλινικής
Γ.Α.Ο.Ν.Α. «Άγιος Σάββας»

ΕΠΙΔΗΜΙΟΛΟΓΙΑ

- True “pandemic”
- 70% των PCNs
- 1/1000 >60ετών
- 2.5% MRCP
- 9.5% EUS
- “Adenoma – Carcinoma sequence”
- IPMN with IPC in 30%
- Tumorigenic pancreas

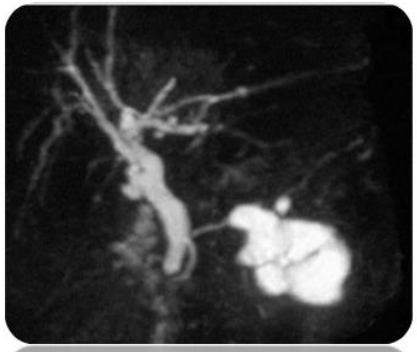
Langenbeck's Archives of Surgery (2021)

IPMN

- most common cystic pancreatic lesion
- Localization:
  - 65% pancreatic head
  - 24% pancreatic body
  - 11% pancreatic tail
  - often multifocal

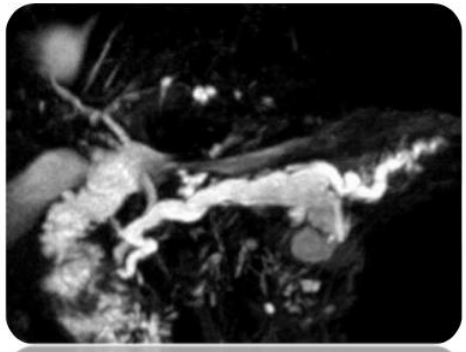
D'Angelica et al., Ann Surg 2004, Sohn et al., Ann Surg 2004

IPMN – classification



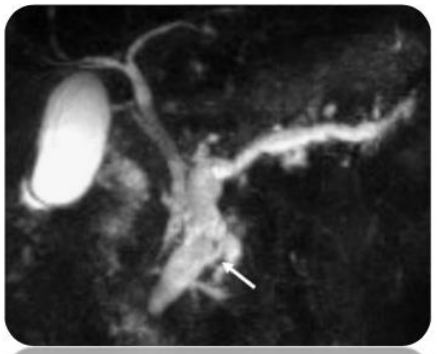
branch-duct IPMN

- Pancreatic cyst >5mm connected to the main pancreatic duct
- DD: Pseudocyst



mixed-type IPMN

- criteria for both branch-duct and main-duct IPMN

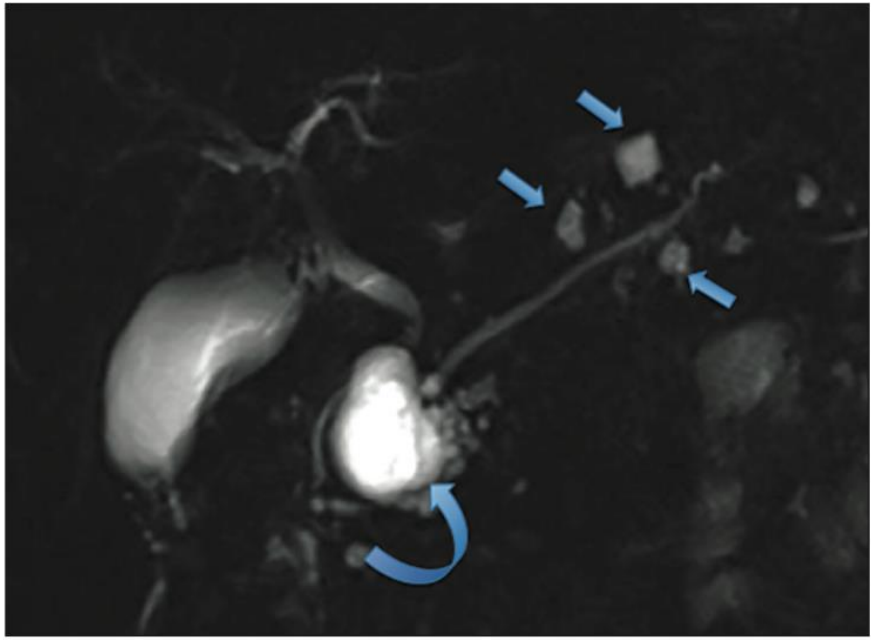


main-duct IPMN

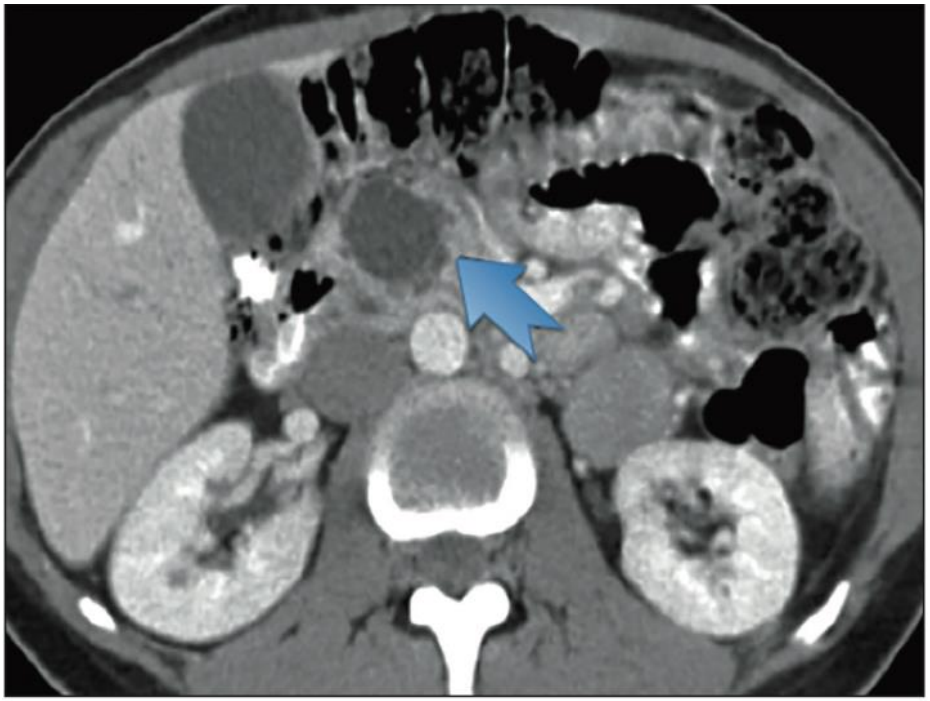
- segmental or diffuse dilatation of the main pancreatic duct >5mm
- no obvious duct obstruction

Tanaka M et al., Pancreatology 2017

IPMN – Radiographic Features

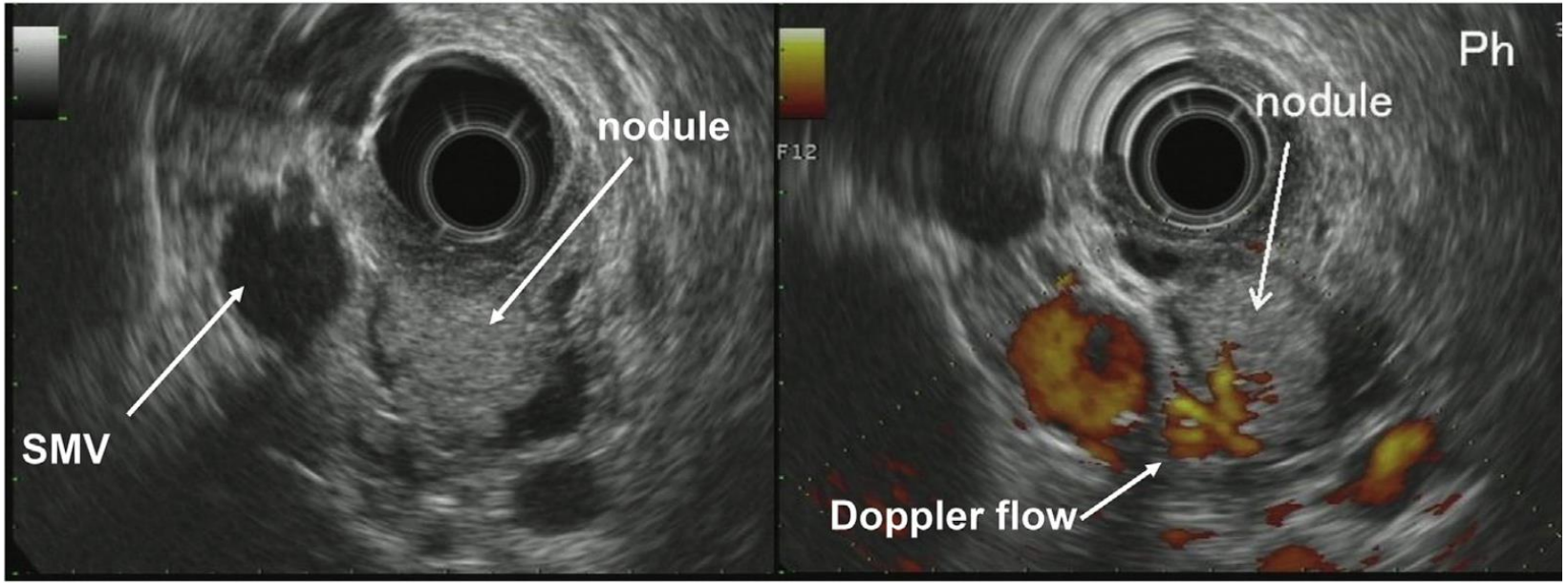


Multifocal BD-IPMN

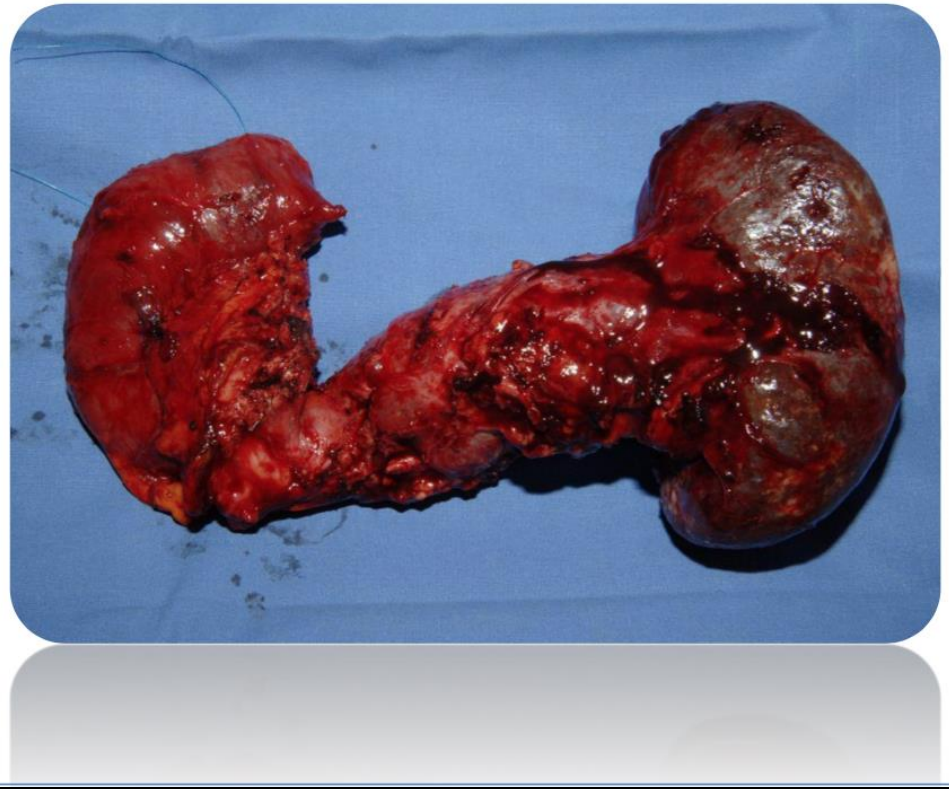


MD-IPMN

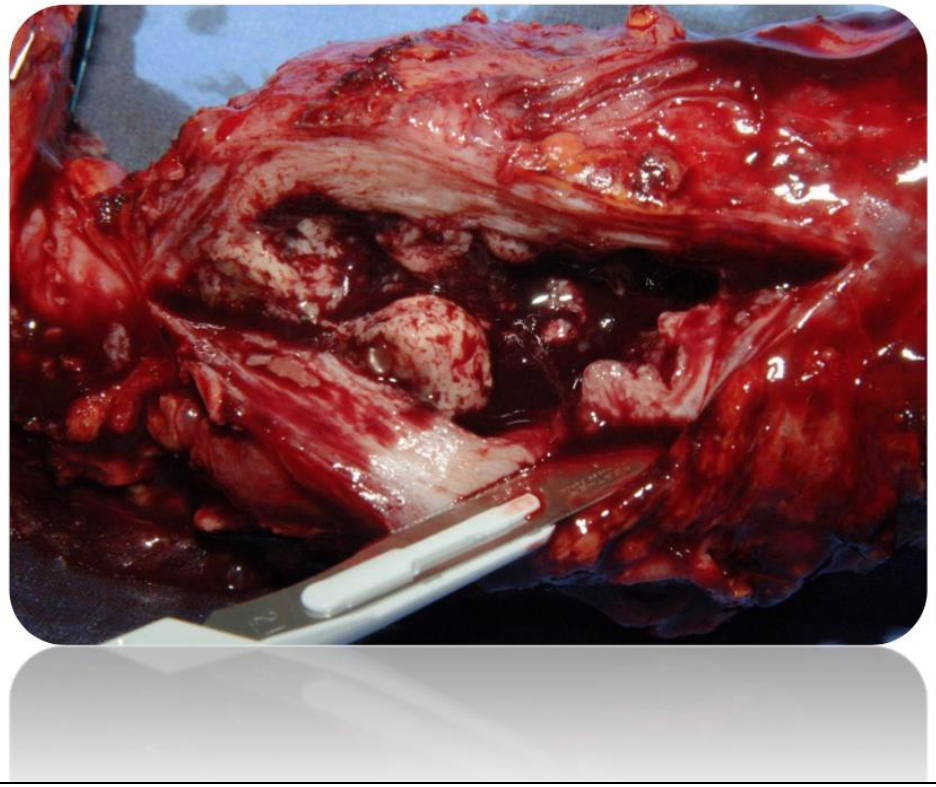
IPMN – Radiographic Features - EUS



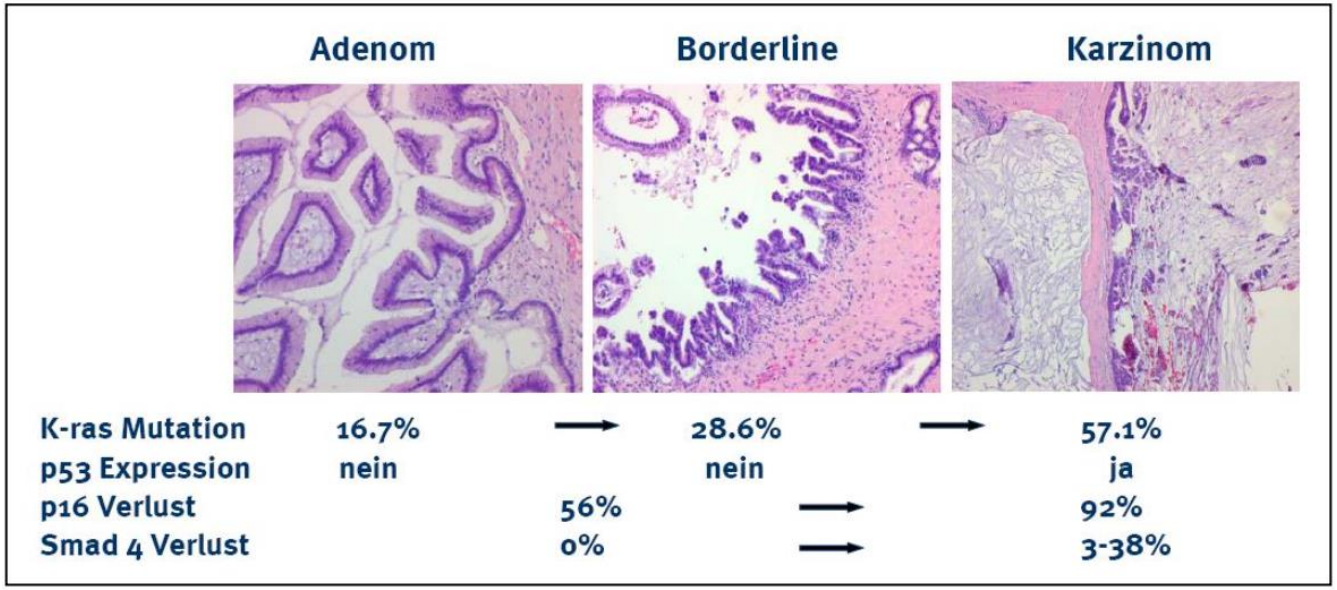
Main-duct IPMN



Main-duct IPMN

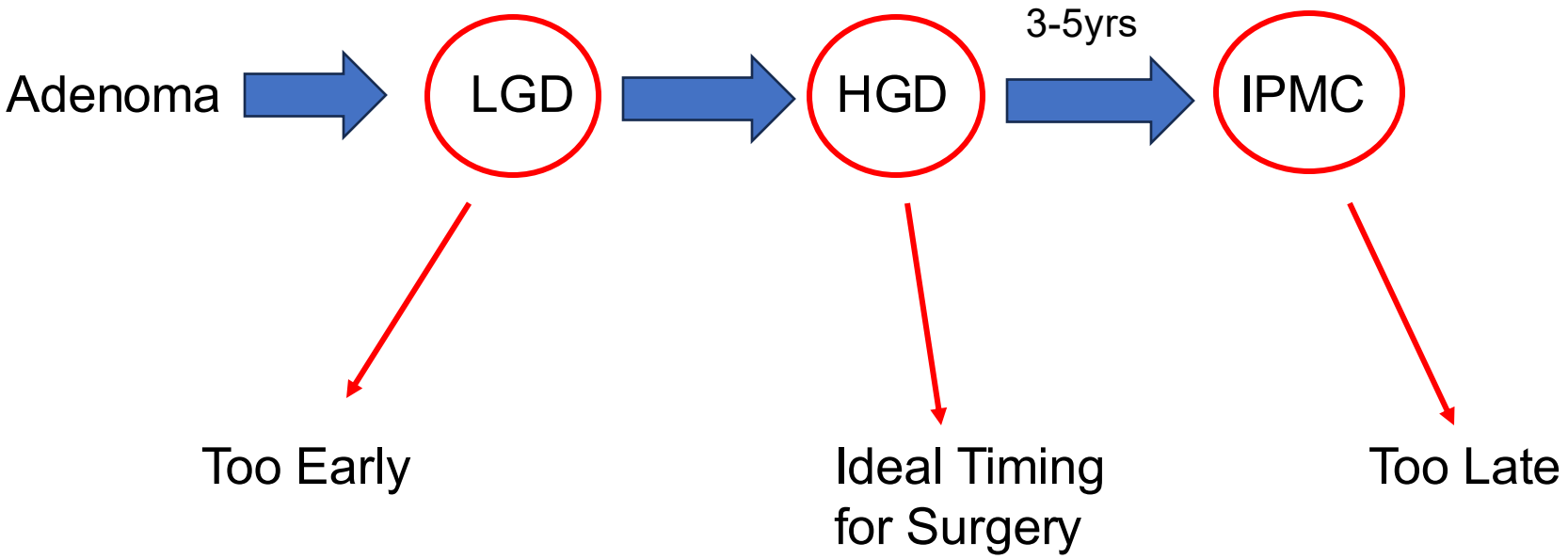


Intraductal papillary-mucinous neoplasm (IPMN)



Z'graggen K et al., Ann Surg 1997, Biankin AV et al., Gut 2002, House MG et al., Carcinogenesis 2003

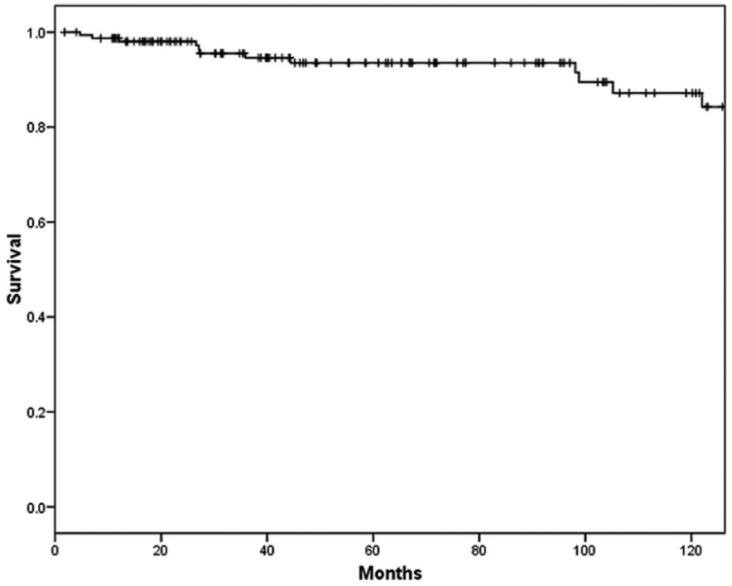
IPMN – Surgical Intervention



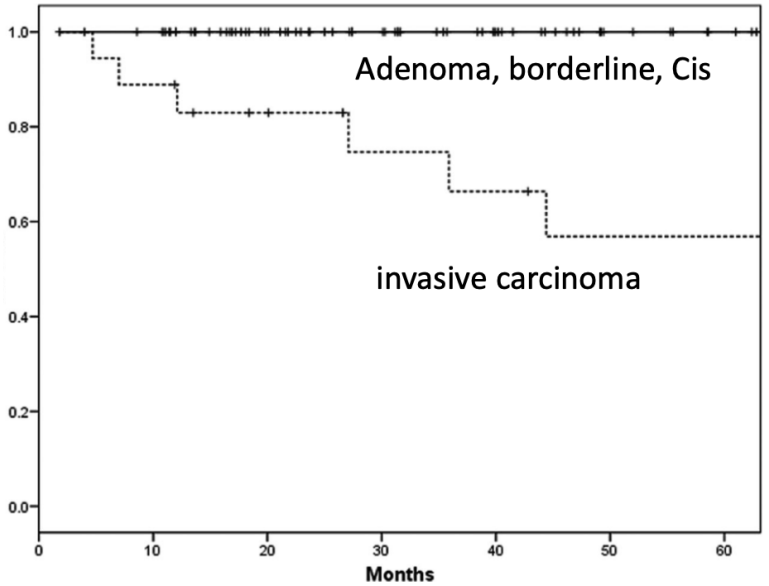
WJGO 2023

Prognosis – Survival

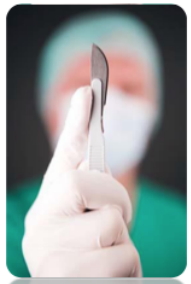
Overall (n= 136)



Grading



Crippa et al., Ann Surg 2008



surveillance

resection

balance

malignant potential

surgical risk

Watch – and – Wait for IPMN

Surveillance↑↑↑

1. Πρώιμη διάγνωση – MRI/EUS/ERCP
2. Χειρουργική Θεραπεία είναι επιθετική
3. ↑↑↑Νοσηρότης / Θνητότης Παγκρεατεκτομής (25-40% / 1-5%)

TOO LATE???!!!

ΠΡΟΓΝΩΣΗ

- MD-IPMN / MT-IPMN
  - HGD 36 – 100%
  - Invasive IPMC: 11 - 80%

Χειρουργική Αντιμετώπιση

- BD-IPMN
  - HGD: 14 – 45%
  - Invasive IPMC: 6 – 37%

Προγνωστικοί Παράγοντες Θεραπείας

Ann Surg 2015
Ann Surg 2007
J Gastrointest Surg 2008

European consensus - Gut 2018

European evidence-based guidelines on pancreatic cystic neoplasms

The European Study Group on Cystic Tumours of the Pancreas

IAP guidelines - Pancreatology 2017

Revisions of international consensus Fukuoka guidelines for the management of IPMN of the pancreas

Masao Tanaka [a,*], Carlos Fernández-del Castillo [b], Terumi Kamisawa [c], Jin Young Jang [d], Philippe Levy [e], Takao Ohtsuka [f], Roberto Salvia [g], Yasuhiro Shimizu [h], Minoru Tada [i], Christopher L. Wolfgang [j]

AGA guideline - Gastroenterology 2015

American Gastroenterological Association Institute Guideline on the Diagnosis and Management of Asymptomatic Neoplastic Pancreatic Cysts

Santhi Swaroop Vege,[1] Barry Ziring,[2] Rajeev Jain,[3] Paul Moayyedi,[4] and the Clinical Guidelines Committee

IPMN – Revised Fukuoka Guidelines

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High-risk stigmata:

- obstructive jaundice
- intramural contrast enhanced nodules >5mm
- main-duct dilatation >10mm

worrisome features:

- cystic changes >3cm
- intramural contrast enhanced nodules <5mm
- main-duct dilatation 5-9mm
- cystic wall thinkening
- pancreatic duct caliber changes with atrophy
- elevated CA 19-9 levels
- lymphadenopathy
- growth rate >5mm/2 years

IPMN – Revised Fukuoka Guidelines

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High-risk stigmata:

- icteru
- d nodules >5mm
- >10mm

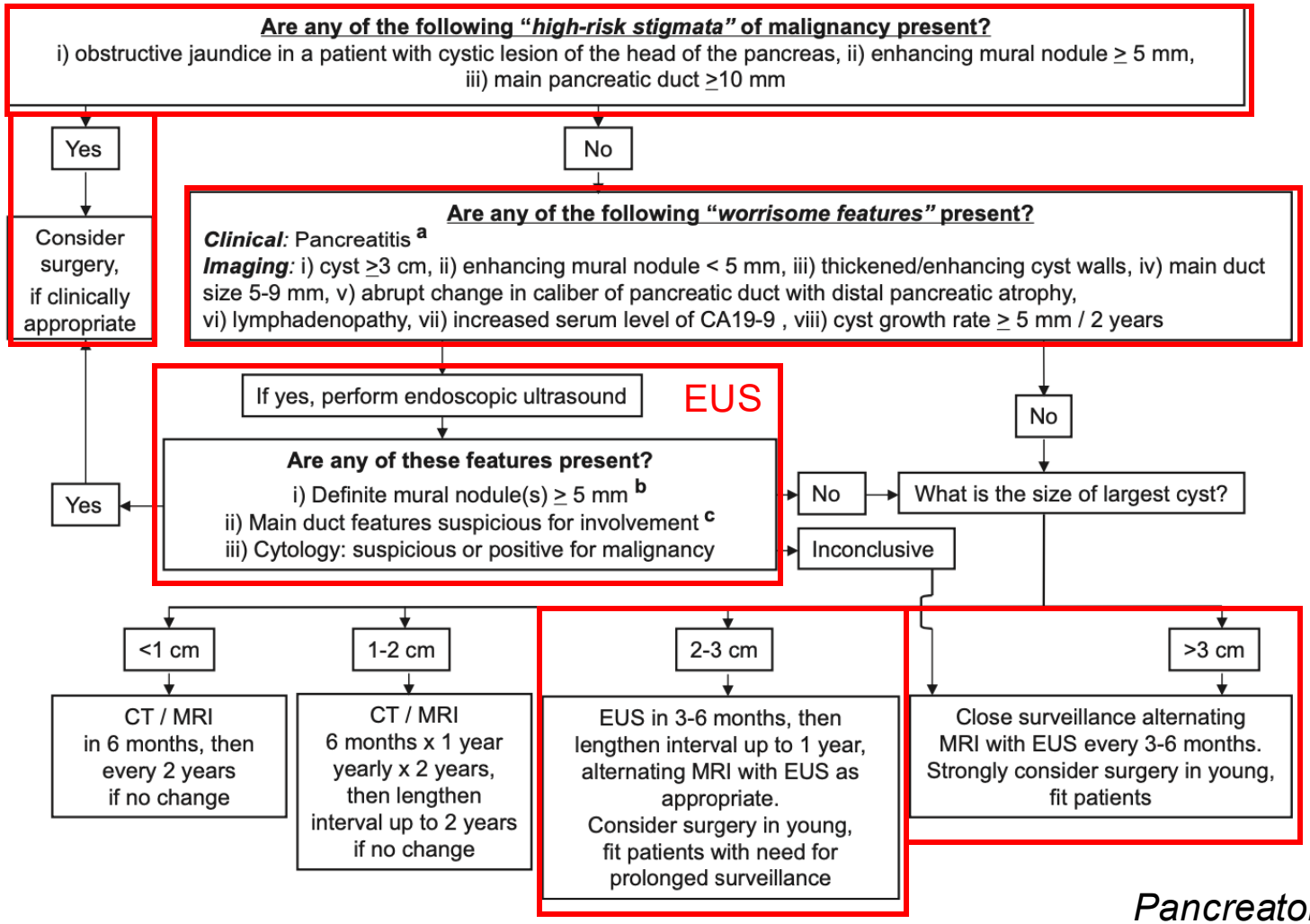
Resection

worrisome features:

- cystic changes >3cm
- intramural contrast enhanced nodules <5mm
- main-duct dilatation 5-9mm
- cystic wall thinkening
- pancreatic duct caliber changes with atrophy
- elevated CA 19-9 levels
- lymphadenopathy
- growth rate >5mm/2 years

Revisions of international consensus Fukuoka guidelines for the management of IPMN of the pancreas

Masao Tanaka [a, *], Carlos Fernández-del Castillo [b], Terumi Kamisawa [c], Jin Young Jang [d], Philippe Levy [e], Takao Ohtsuka [f], Roberto Salvia [g], Yasuhiro Shimizu [h], Minoru Tada [i], Christopher L. Wolfgang [j]

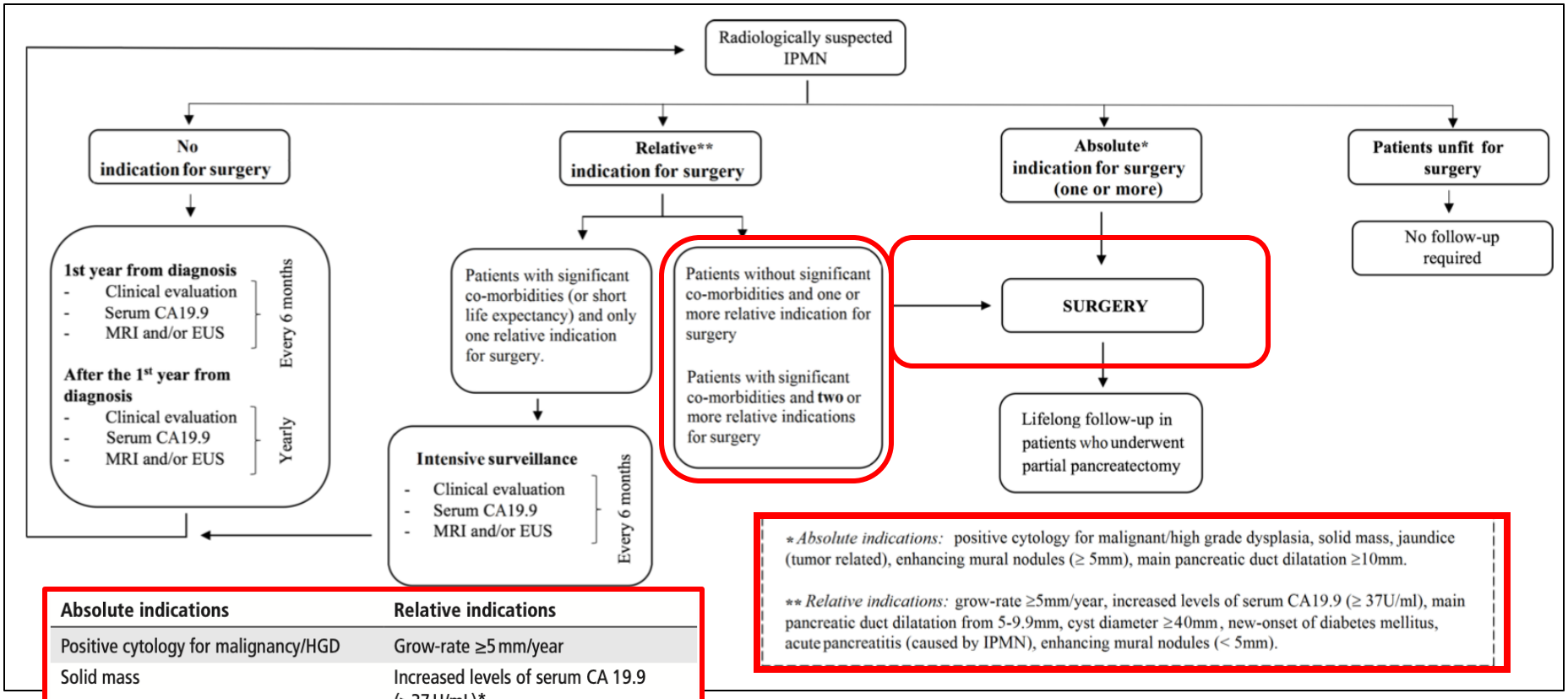


Pancreatology 2017

European evidence-based guidelines on pancreatic cystic neoplasms

The European Study Group on Cystic Tumours of the Pancreas

Relative/Absolute Indications for Surgery



Absolute indications	Relative indications
Positive cytology for malignancy/HGD	Grow-rate ≥5 mm/year
Solid mass	Increased levels of serum CA 19.9 (>37 U/mL)*
Jaundice (tumour related)	MPD dilatation between 5 and 9.9 mm
Enhancing mural nodule (≥5 mm)	Cyst diameter ≥40 mm
MPD dilatation ≥10 mm	New onset of diabetes mellitus
	Acute pancreatitis (caused by IPMN)
	Enhancing mural nodule (<5 mm)

Gut 2018

American Gastroenterological Association Institute Guideline on the Diagnosis and Management of Asymptomatic Neoplastic Pancreatic Cysts

Santhi Swaroop Vege,[1] Barry Ziring,[2] Rajeev Jain,[3] Paul Moayyedi,[4] and the Clinical Guidelines Committee

When to Offer Surgery for Pancreatic Cysts

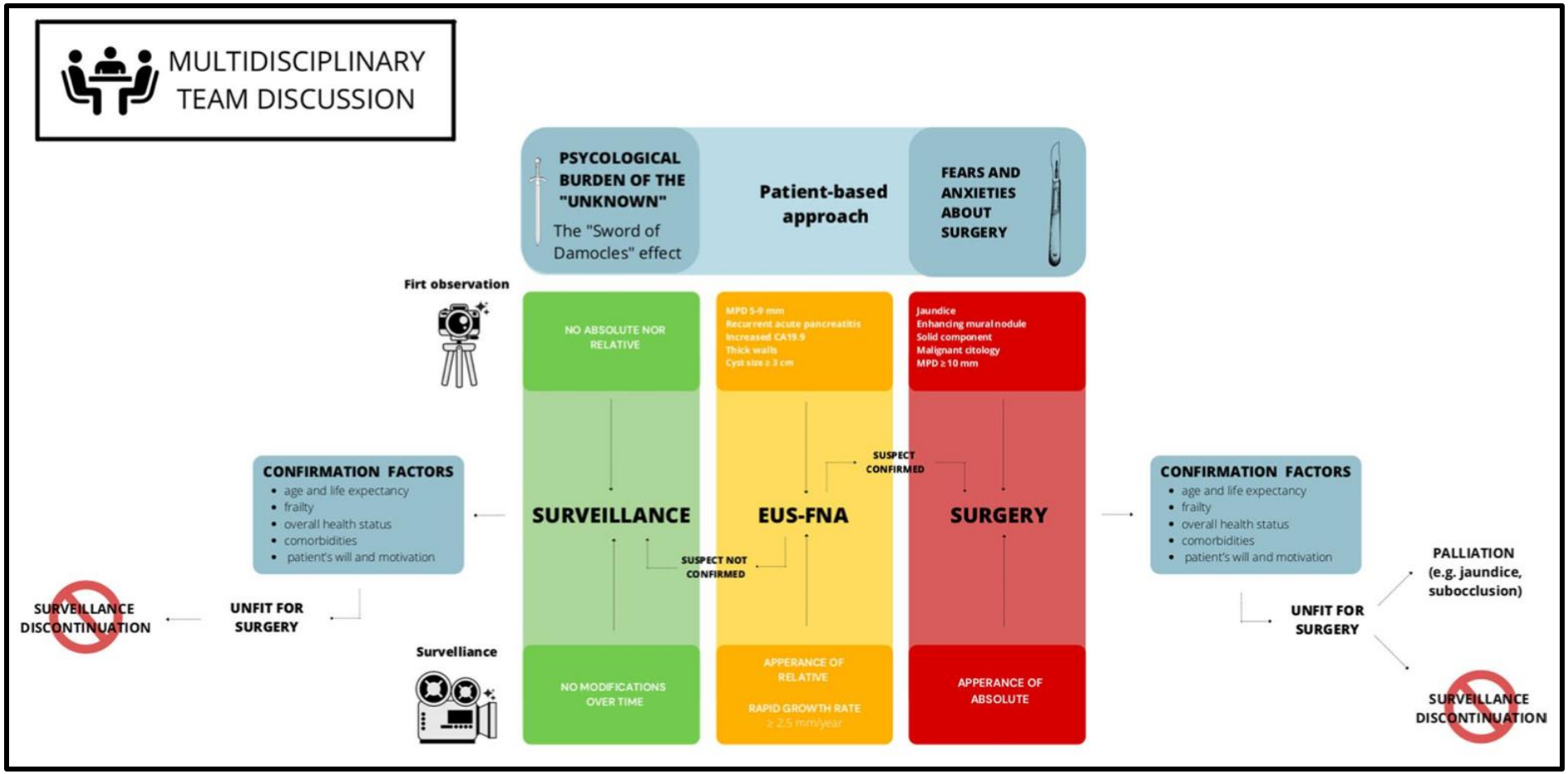
7. The AGA suggests that patients with both a solid component and a dilated pancreatic duct and/or concerning features on EUS and FNA should undergo surgery to reduce the risk of mortality from carcinoma. *(Conditional recommendation, Very low quality evidence)*

Gastroenterology 2015

STATE-OF-THE-ART CLINICAL SURGERY

State-of-the-art surgical treatment of IPMNs

Roberto Salvia[1] · Anna Burelli[1] · Giampaolo Perri[1] · Giovanni Marchegiani[1,2]



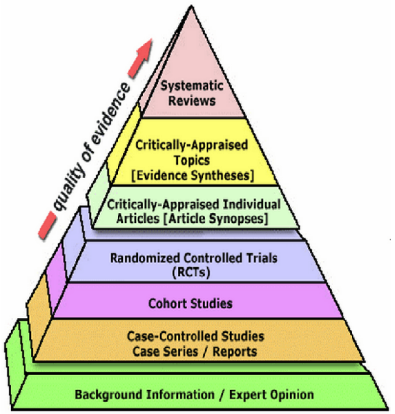
Langenbeck's Archives of Surgery (2021)

Ανεπάρκεια Κατευθυντήριων Οδηγιών

- MRI, CE-EUS, καρκινικοί δείκτες, κλινικά σημεία, cytology

  → ΑΝΑΚΡΙΒΗ ή ΜΗ ΔΙΑΘΕΣΙΜΑ ΠΑΝΤΑ!

- *Weak Evidence-based Recommendation*

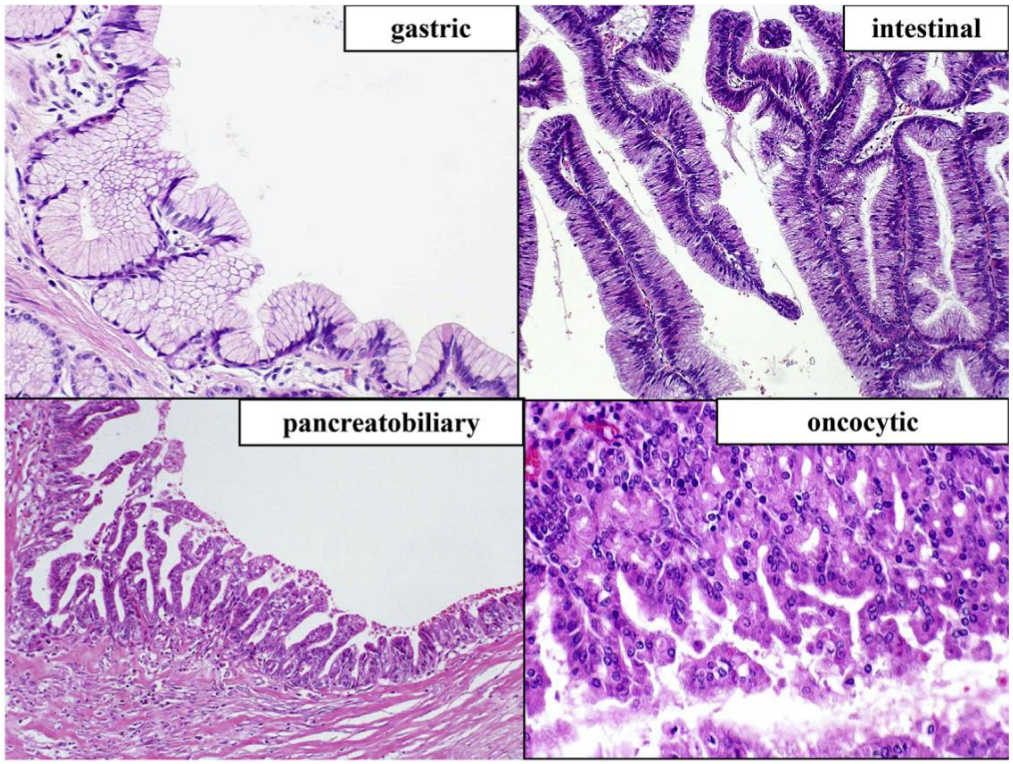


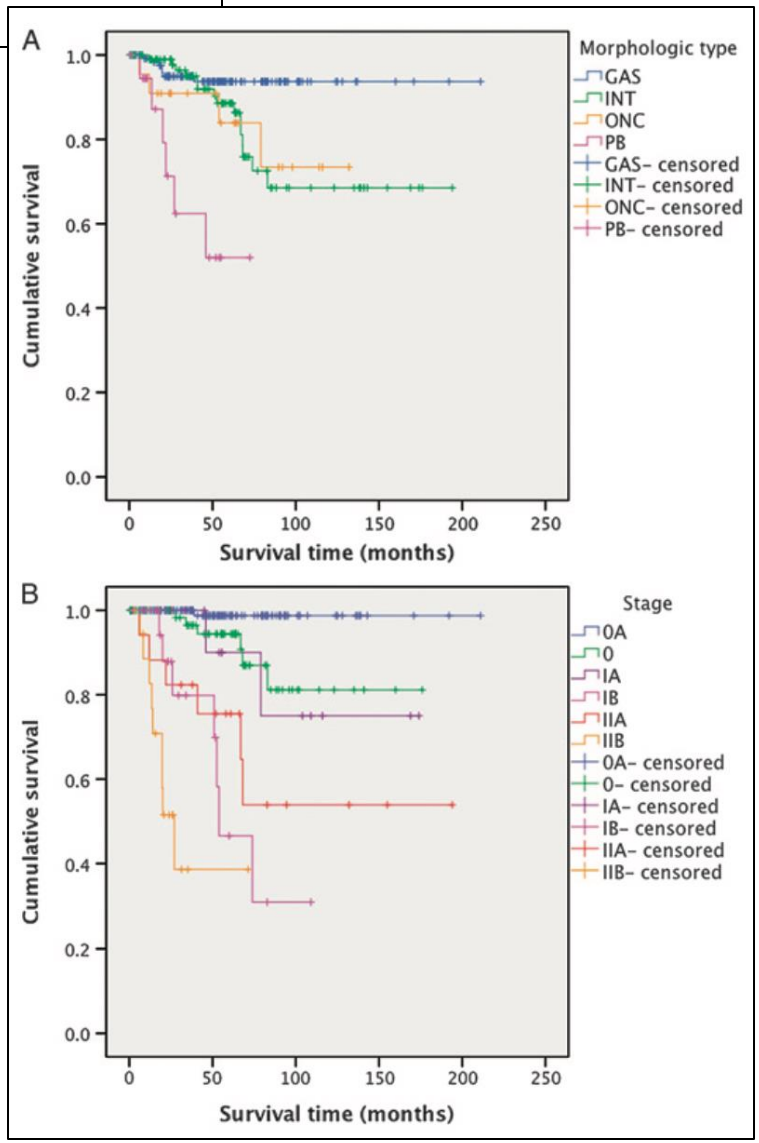
- Clinical subtypes
- Histological subtypes
- Grades of dysplasia
- Sequence-variation profiles

} Διαφορετική Βιολογική Συμπεριφορά και Ογκογένεση

Endoscopy 2014
J Am Coll Surg 2015

Prognostic relevance of morphological types of intraductal papillary mucinous neoplasms of the pancreas



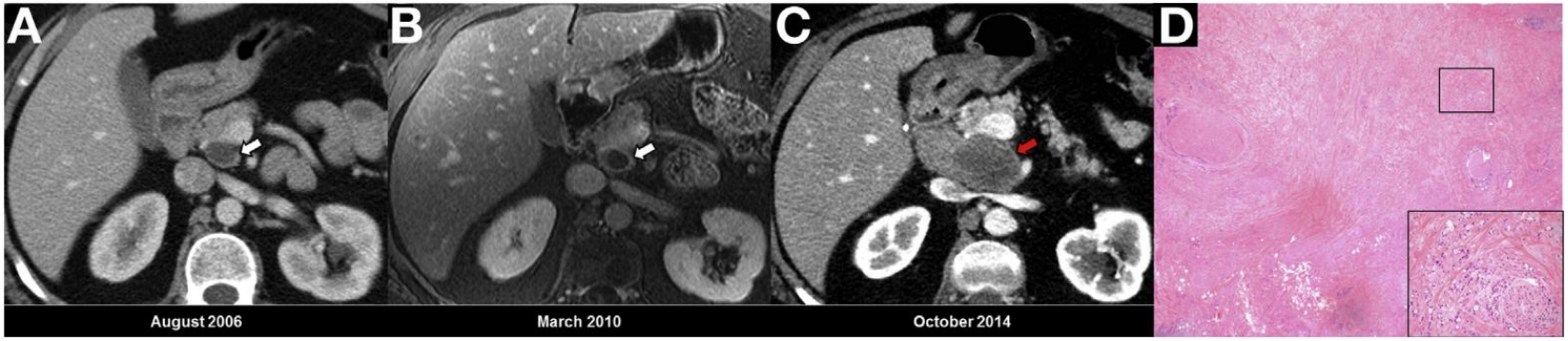


GUT 2011

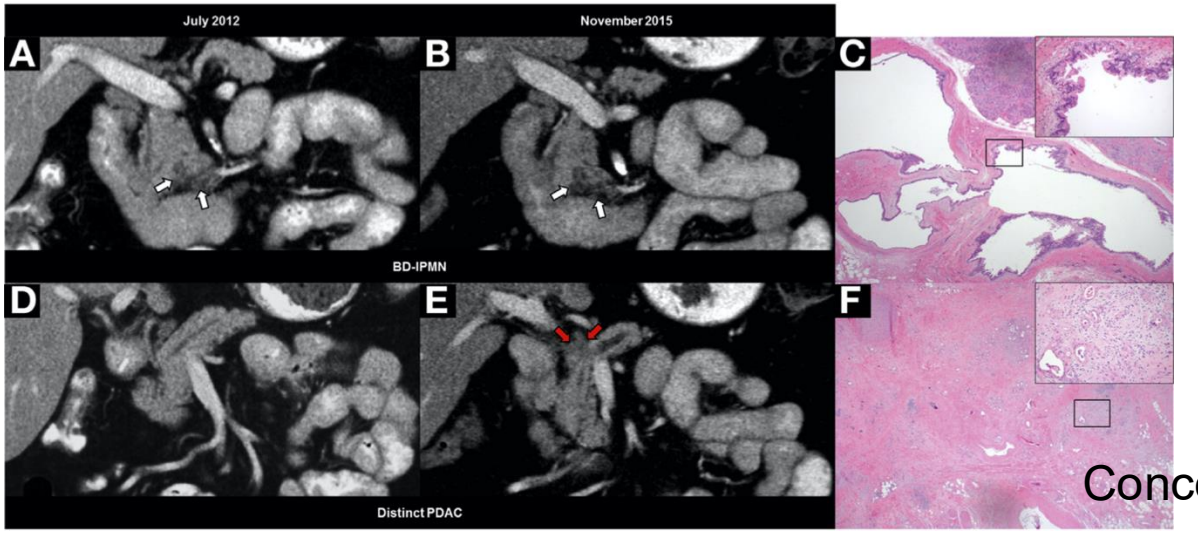
Long-term Risk of Pancreatic Malignancy in Patients With Branch Duct Intraductal Papillary Mucinous Neoplasm in a Referral Center

Ilaria Pergolini,[1,2] Klaus Sahora,[1] Cristina R. Ferrone,[1] Vicente Morales-Oyarvide,[1,3] Brian M. Wolpin,[3] Lorelei A. Mucci,[4] William R. Brugge,[5] Mari Mino-Kenudson,[6] Manuel Patino,[7] Dushyant V. Sahani,[7] Andrew L. Warshaw,[1] Keith D. Lillemoe,[1] and Carlos Fernández-del Castillo[1]

Gastroenterology 2017



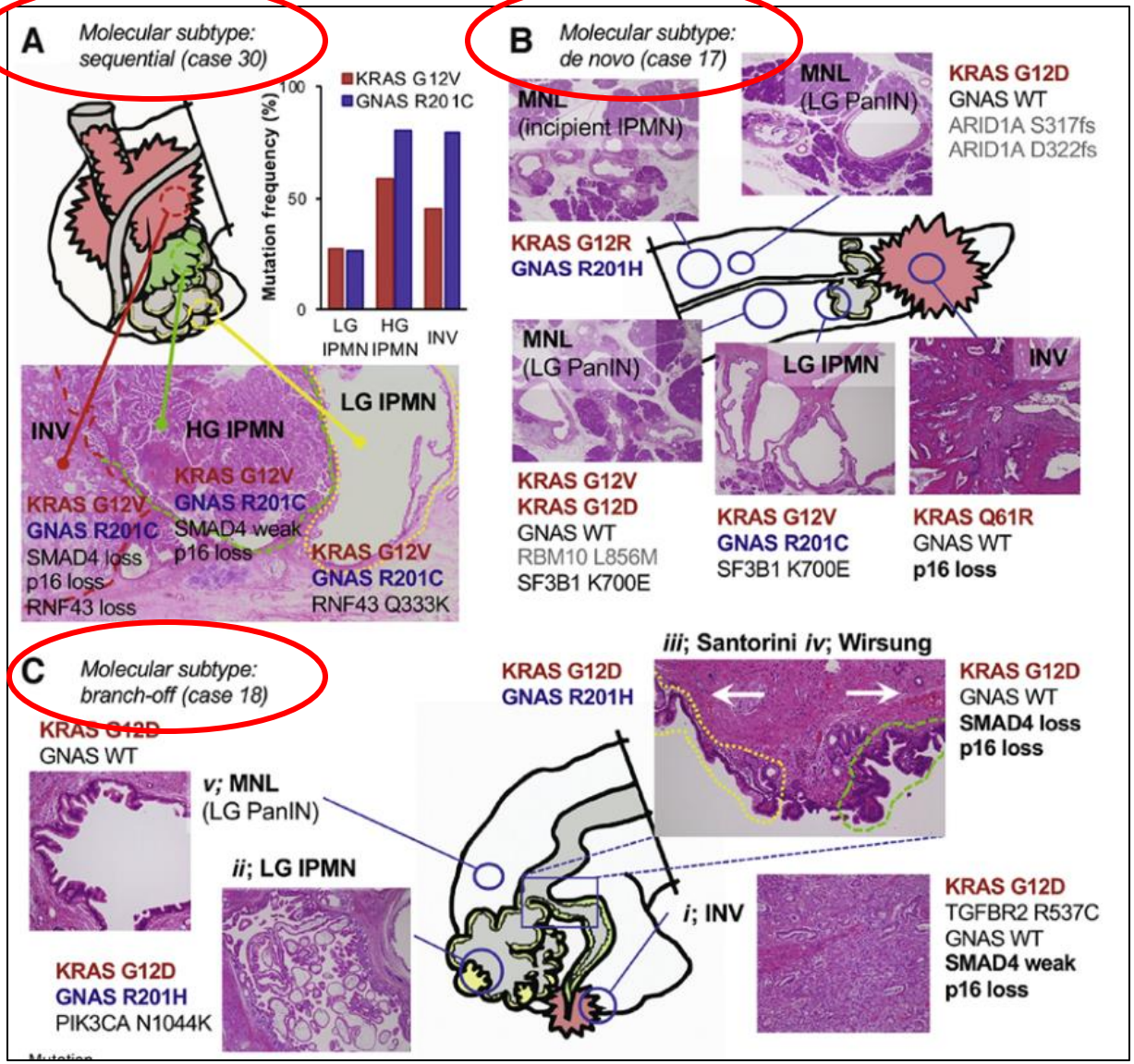
PDAC arising from IPMN
"same clone"



Concomitant PDAC and BD-IPMN
"different clones"

Pathways of Progression From Intraductal Papillary Mucinous Neoplasm to Pancreatic Ductal Adenocarcinoma Based on Molecular Features

Gastroenterology 2019



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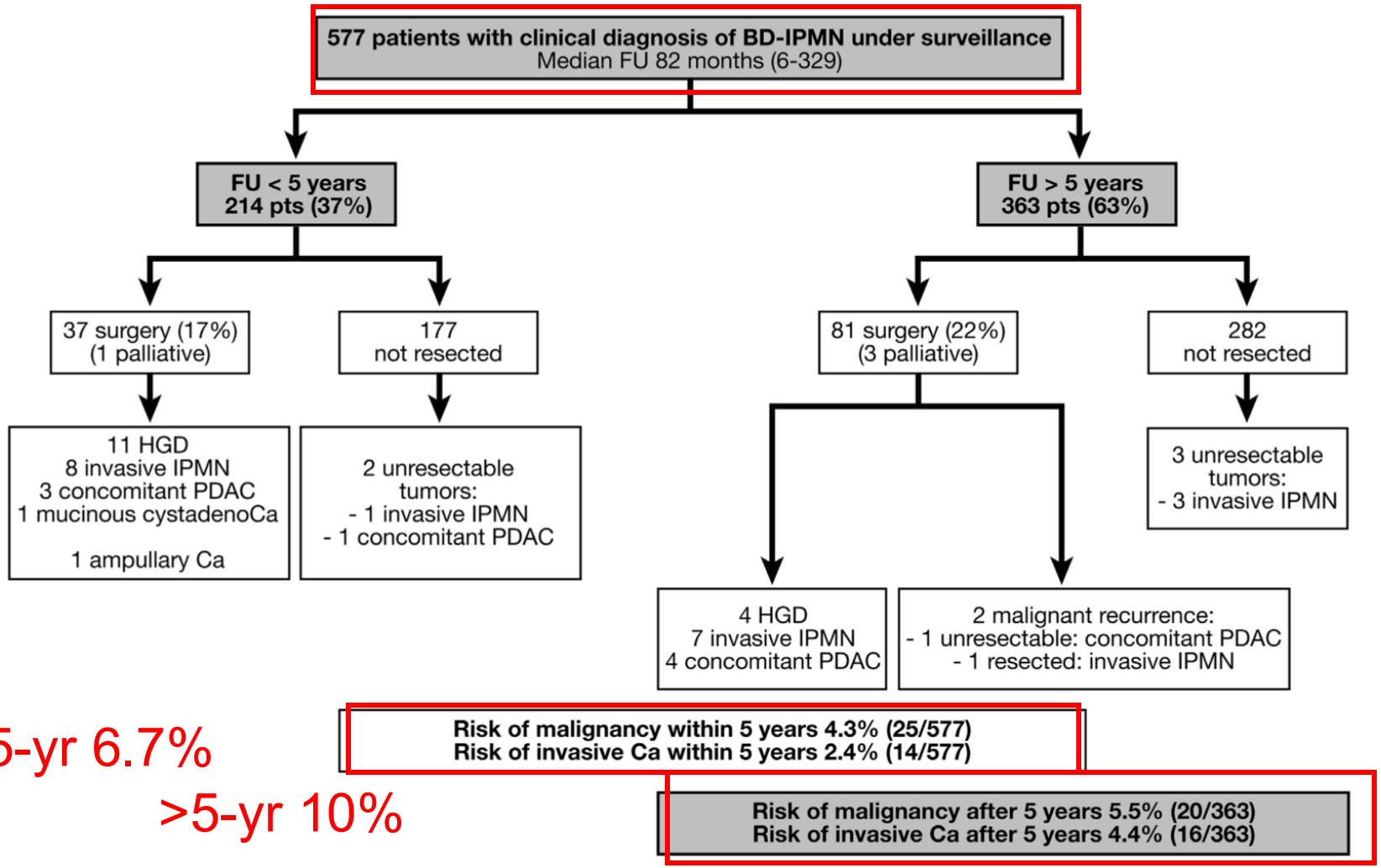
Gastroenterology 2017



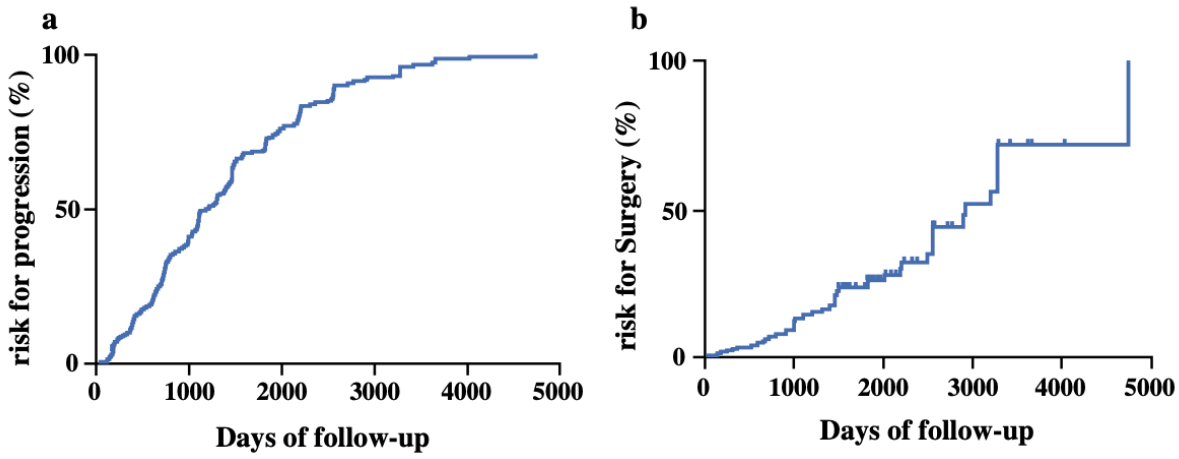
<5-yr 6.7%

>5-yr 10%

Survival Analysis and Risk for Progression of Intraductal Papillary Mucinous Neoplasia of the Pancreas (IPMN) Under Surveillance: A Single-Institution Experience

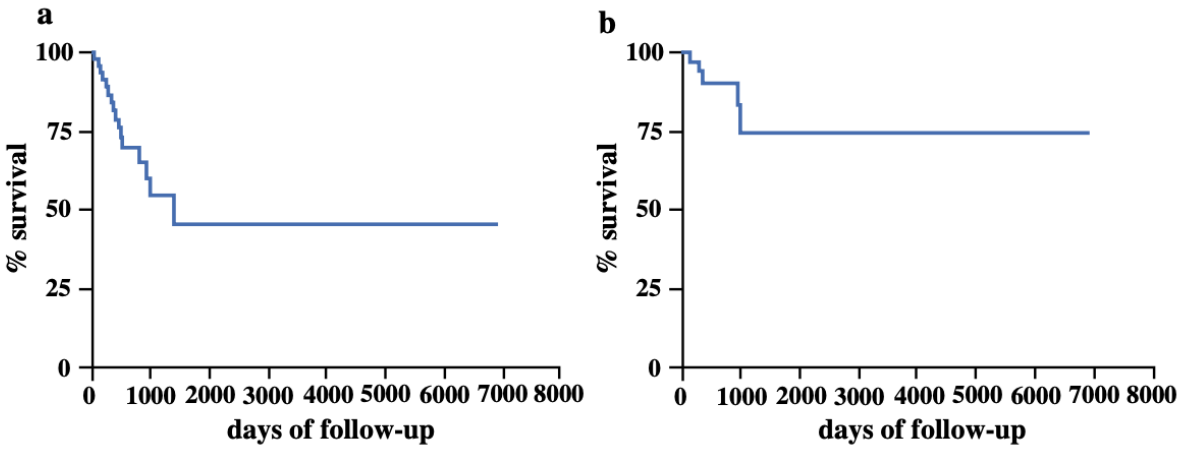
Marco Del Chiaro, MD, PhD, FACS[1], Zeeshan Ateeb, MD[1], Marcus Reuterwall Hansson, MD[1], Elena Rangelova, MD[1], Ralf Segersvärd, MD, PhD[1], Nikolaos Kartalis, MD, PhD[2], Christoph Ansorge, MD, PhD[1], Matthias J. Löhr, MD, PhD[1], Urban Arnelo, MD, PhD[1], and Caroline Verbeke, MD, PhD[3]

FIG. 2 **a** Cumulative risk for progression of IPMN during the surveillance period. **b** Cumulative risk for surgery for IPMN progression during the surveillance period



444 patients

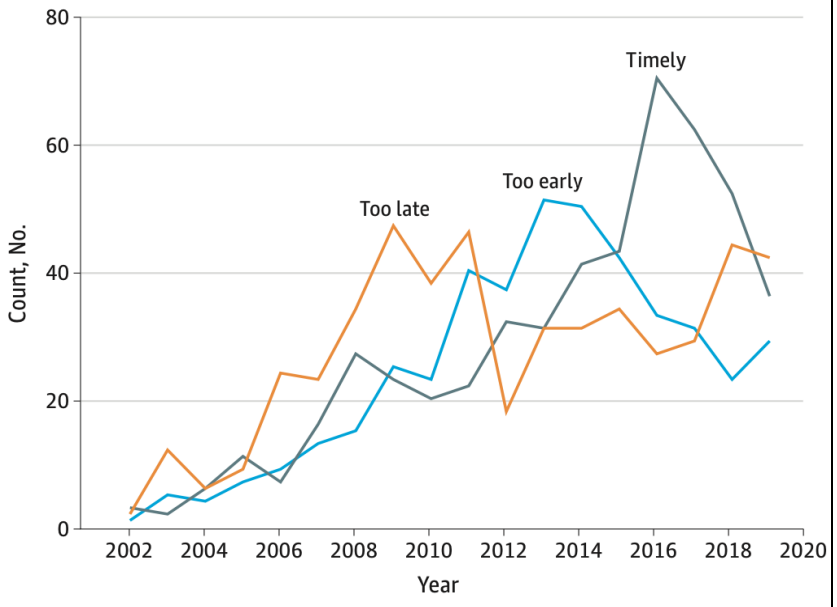
FIG. 3 **a** Actuarial survival of patients with IPMN in Group 2. **b** IPMN-specific actuarial survival of patients in Group 2



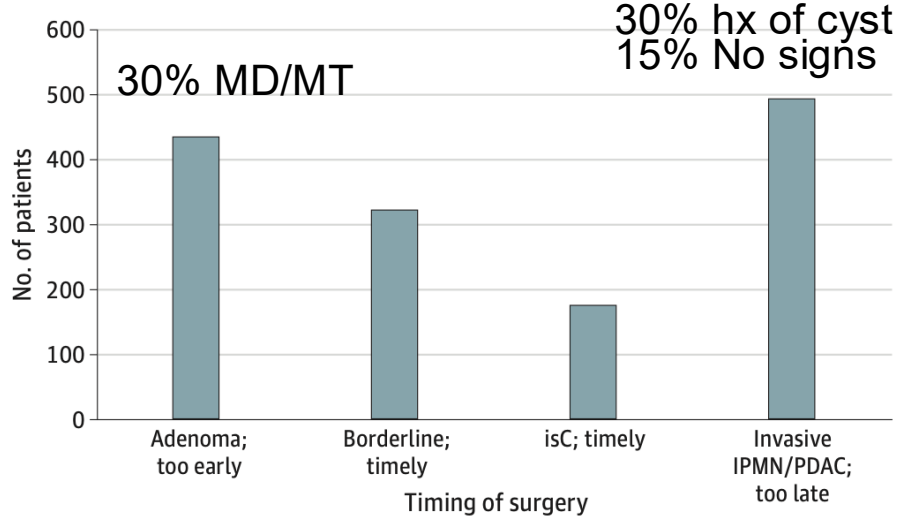
Ann Surg Oncol 2017

Risk of the Watch-and-Wait Concept in Surgical Treatment of Intraductal Papillary Mucinous Neoplasm

Christine Tjaden, MD; Marta Sandini, MD; André L. Mihaljevic, MD; Jörg Kaiser, MD; Ekaterina Khristenko, MD; Philipp Mayer, MD; Ulf Hinz, MSc; Matthias M. Gaida, MD; Christoph Berchtold, MD; Markus K. Diener, MD; Martin Schneider, MD; Arianeb Mehrabi, MD; Beat P. Müller-Stich, MD; Oliver Strobel, MD; Thilo Hackert, MD; Markus W. Büchler, MD



The absolute number of resections per year, according to the time of resection as recorded at the final pathological findings.



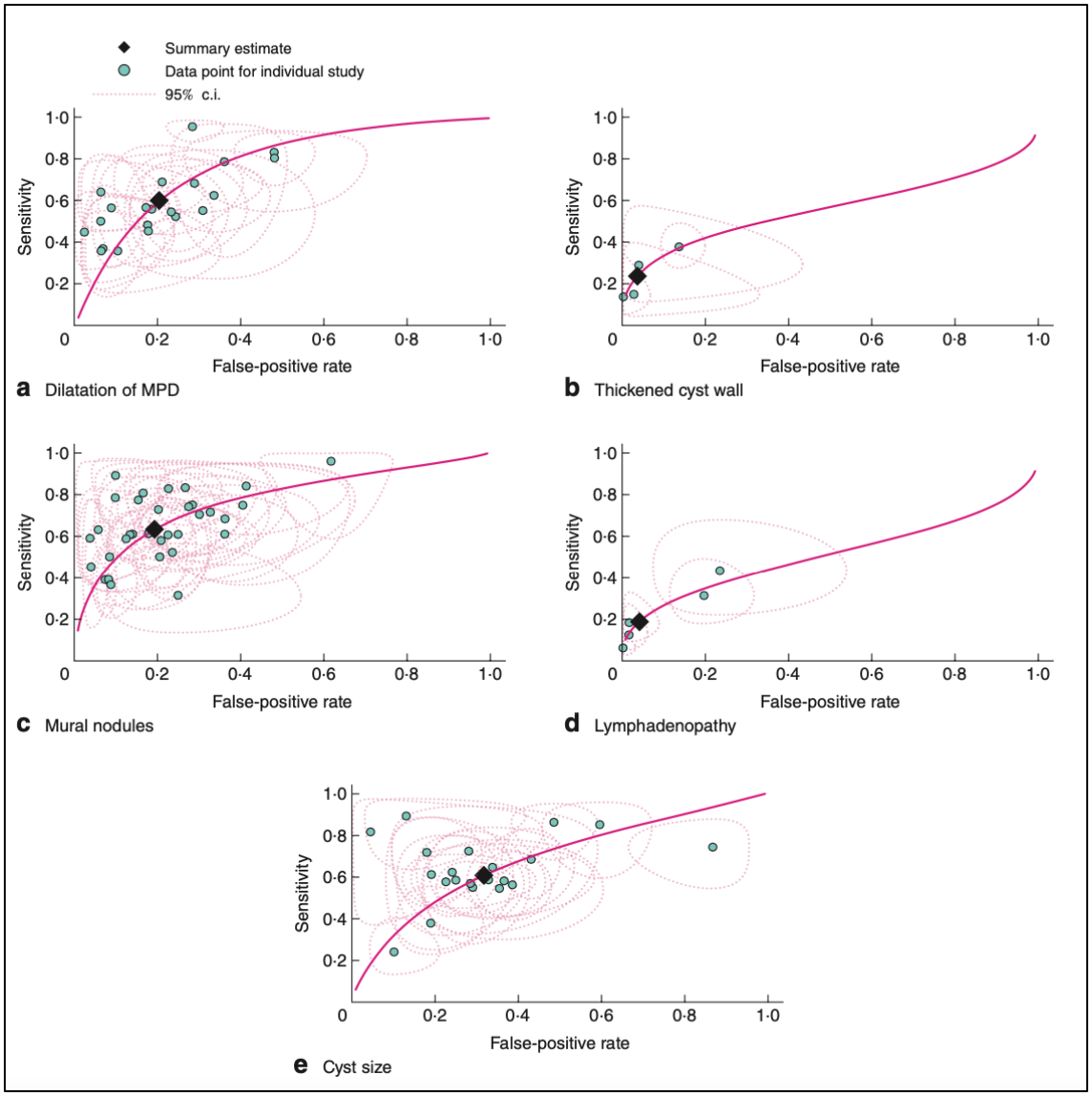
The overall count and relative percentages of resections according to the degree of dysplasia and definition of the 3 study groups. isC indicates in situ carcinoma; IPMN, intraductal papillary mucinous neoplasms; PDAC, pancreatic ductal adenocarcinoma.

1440 Surgically treated IPMNs

JAMA 2021

Predictive performance of factors associated with malignancy in intraductal papillary mucinous neoplasia of the pancreas

M. Heckler, L. Brieger, U. Heger, T. Pausch, C. Tjaden, J. Kaiser, M. Tanaka, T. Hackert and C. W. Michalski



PPV 0.50-0.80

"… underestimation of the true malignant potential of IPMNs…"

BJS Open 2018

IPMN – controversy

- main-duct IPMN < 10mm ???
- branch-duct IPMN >3cm/<3cm/<2cm ???
- field defect pancreas ???
- follow-up ???
- young vs. elder patients
- Financial Costs of Surveillance???

MD-IPMN – malignant transformation

ESA PAPER

Main-Duct Intraductal Papillary Mucinous Neoplasm

High Cancer Risk in Duct Diameter of 5 to 9 mm

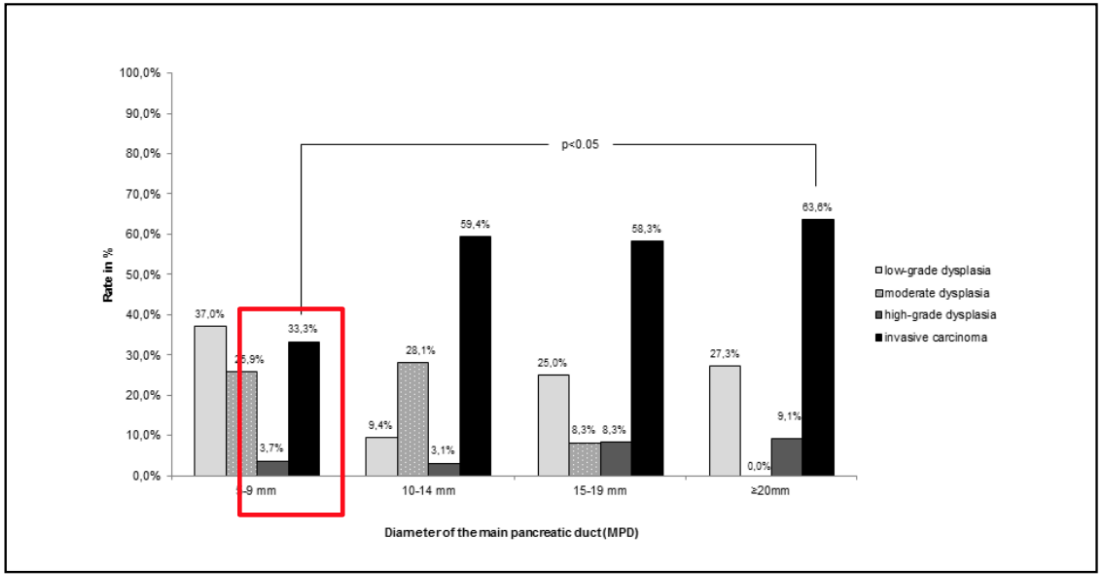
Thilo Hackert, MD, Stefan Fritz, MD,* Miriam Klauss, MD,† Frank Bergmann, MD,‡ Ulf Hinz, MSc,* Oliver Strobel, MD,* Lutz Schneider, MD,* and Markus W. Büchler, MD**

605 IPMN patients

- 320 BD-IPMN
- 238 mixed-type IPMN
- 82 MD-IPMN

Hackert et al., Ann Surg 2015

MD-IPMN – malignant transformation



82 MD-IPMN with main-duct dilatation 5-9mm:
37% malignancy

Hackert et al., Ann Surg 2015

MD-IPMN – malignant transformation

	Study design	# patients	MPD dilatation	Patients with either high-grade dysplasia or malignancy
Ogawa et al 2008	Retrospective	61	≥ 6mm	91%
Shin et al 2010	Retrospective	204	≥ 6mm	30%
Abdeljawad et al 2014	Retrospective	52	≥ 8mm	56%
Hackert et al 2015	Retrospective	320	≥ 5mm	59%
Seo et al 2016	Retrospective	158	≥ 5mm	49%

Cut-off: 5-8 mm

Malignancy: 30-91%

European Study Group on Cystic Tumors of the Pancreas, Gut 2018

Systematic Review

Ductal Dilatation of ≥5 mm in Intraductal Papillary Mucinous Neoplasm Should Trigger the Consideration for Pancreatectomy: A Meta-Analysis and Systematic Review of Resected Cases

Y.H. Andrew Wu [1,†], Atsushi Oba [1,2,†], Laurel Beaty [1,3], Kathryn L. Colborn [1,3,4], Salvador Rodriguez Franco [1,5], Ben Harnke [6], Cheryl Meguid [1], Daniel Negrini [1,7], Roberto Valente [1,8], Steven Ahrendt [1,9], Richard D. Schulick [1,9] and Marco Del Chiaro [1,9,*]

Author	Year	Design	<5 mm			5–9 mm			≥10 mm		
			HGD	IC	NM	HGD	IC	NM	HGD	IC	NM
Takanami et al. [25]	2011	Retrospective	3	0	2	5	0	5	0	1	0
Barron et al. [26]	2014	Retrospective	10	7	149	40	34	40	27	13	14
Roch et al. [27]	2014	Retrospective	-	-	-	19	31	64	15	15	27
Kang et al. [28]	2015	Retrospective	15	29	206	17	22	38	12	22	14
Kim et al. [29]	2015	Retrospective	6	9	212	7	12	50	0	4	3
Robles et al. [32]	2016	Retrospective	8	5	57	10	9	25	4	0	2
Sugimoto et al. [14]	2016	Retrospective	-	-	-	5	17	19	18	24	20
Tsukagoshi et al. [36]	2018	Retrospective	2	0	17	3	1	4	6	6	3
Del Chiaro et al. [15]	2019	Retrospective	45	20	240	78	56	152	53	54	43
Masaki et al. [39]	2019	Retrospective	0	0	0	3	0	6	10	6	4
Total (% *)			89 (8.5%)	70 (6.7%)	883 (84.7%)	187 (24.2%)	182 (23.6%)	403 (52.2%)	145 (34.5%)	145 (34.5%)	130 (31.0%)

Intraductal papillary-mucinous neoplasm (IPMN)

European Consensus 2018

5.9: What is the radiological limit of MPD dilation to recommend surgery?

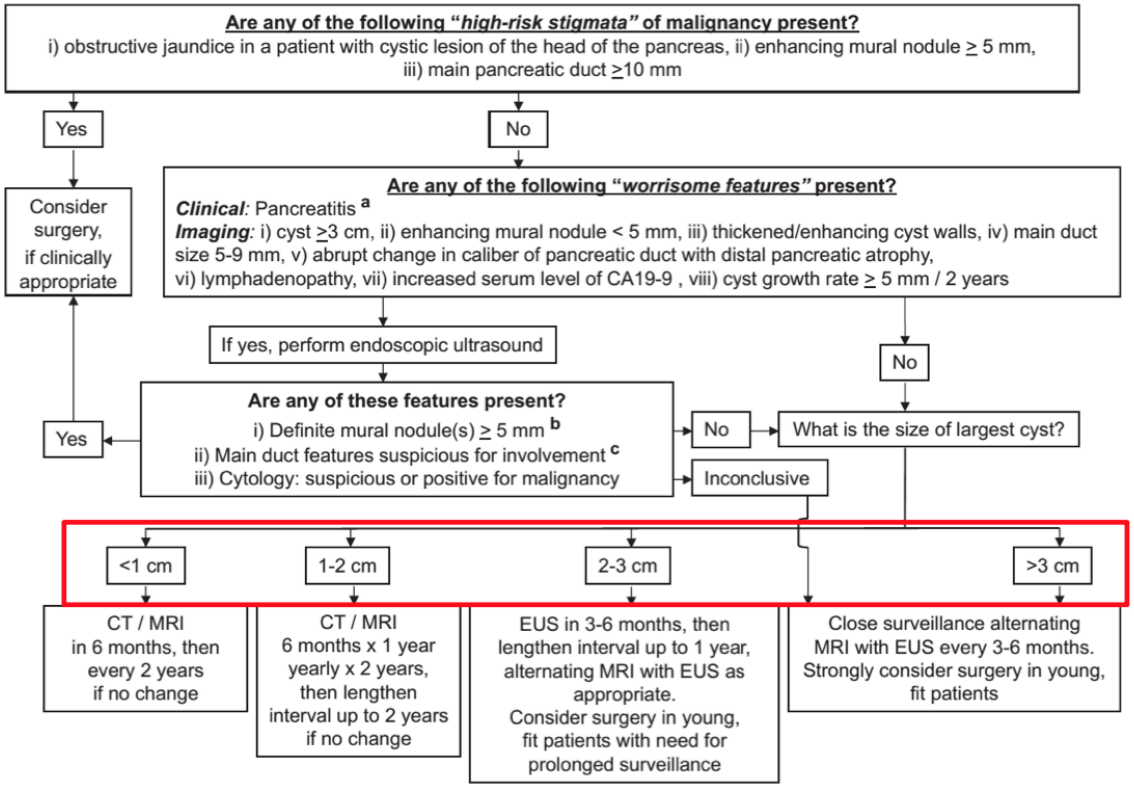
Recent studies demonstrate malignancy rates of 30-90% even in cases with an MPD dilation of ≥5mm (95-97, 106-110). Consequently, the threshold for surgical resection is ≥5mm in MD-IPMN and mixed-type IPMN (GRADE 2C).

5.7: Should mixed-type IPMN be managed as MD-IPMN?

Mixed-type IPMN carry risk for malignancy that is comparable to MD-IPMN and resection is therefore advised in patients fit for surgery (GRADE 2C).

European Study Group on Cystic Tumors of the Pancreas, Gut 2018

Branch-duct IPMN



Tanaka et al., Pancreatology 2017

European evidence-based guidelines on pancreatic cystic neoplasms

The European Study Group on Cystic Tumours of the Pancreas

Table 4 Risk of high-grade dysplasia or malignancy according to cyst size in branch duct IPMN

Reference	Study design	Number of patients	Cyst size	Patients with either high-grade dysplasia or malignancy (%)
Woo *et al*[109] 2009	Retrospective	190	>30 mm	28.5%
Sadakari *et al*[110] 2010	Retrospective	73	>30 mm	3.6% 26.3% (if MPD>5 mm)
Ohtsuka *et al*[143] 2012	Retrospective	172	>30 mm	29.2%
Hirono *et al*[96] 2012	Retrospective	134	>30 mm	47.4%
Sahora *et al*[85] 2013	Retrospective	240	>30 mm	12%
Masica *et al*, 2017	Retrospective	584	>40 mm	88% sensitivity 40% specificity

- Young age
- Fit general health
- Financial burden of long-standing surveillance

Gut 2018

BD-IPMN: Guideline evaluation

Are the Current Guidelines for the Surgical Management of Intraductal Papillary Mucinous Neoplasms of the Pancreas Adequate? A Multi-Institutional Study

Gregory C Wilson, MD, Shishir K Maithel, MD, FACS, David Bentrem, MD, FACS, Daniel E Abbott, MD, FACS, Sharon Weber, MD, FACS, Clifford Cho, MD, FACS, Robert CG Martin, MD, PhD, FACS, Charles R Scoggins, MD, MBA, FACS, Hong Jin Kim, MD, FACS, Nipun B Merchant, MD, FACS, David A Kooby, MD, FACS, Michael J Edwards, MD, FACS, Syed A Ahmad, MD, FACS

324 patients:
- 60% MD-/ mixed type IPMN
- 40% BD-IPMN

Median cyst size:
- 2,65 cm

Wilson et al., JACS 2017

BD-IPMN: Guideline evaluation

Table 5. Risk of Malignancy Based on Presence or Absence of 2012 Fukuoka Consensus Guidelines

Variable	n	With HGD/IC	
		n	%
> 1 High-risk stigmata	5	5	100
1 High-risk stigmata + 1 or more worrisome features	32	22	68.8
1 High-risk stigmata only	24	15	62.5
No high-risk stigmata			
Worrisome = 0	57	14	24.6
Worrisome = 1	106	33	31.1
Worrisome = 2	38	21	55.3
Worrisome = 3	10	4	40
Worrisome = 4 or more	6	6	100

HGD, high-grade dysplasia; IC, invasive cancer.

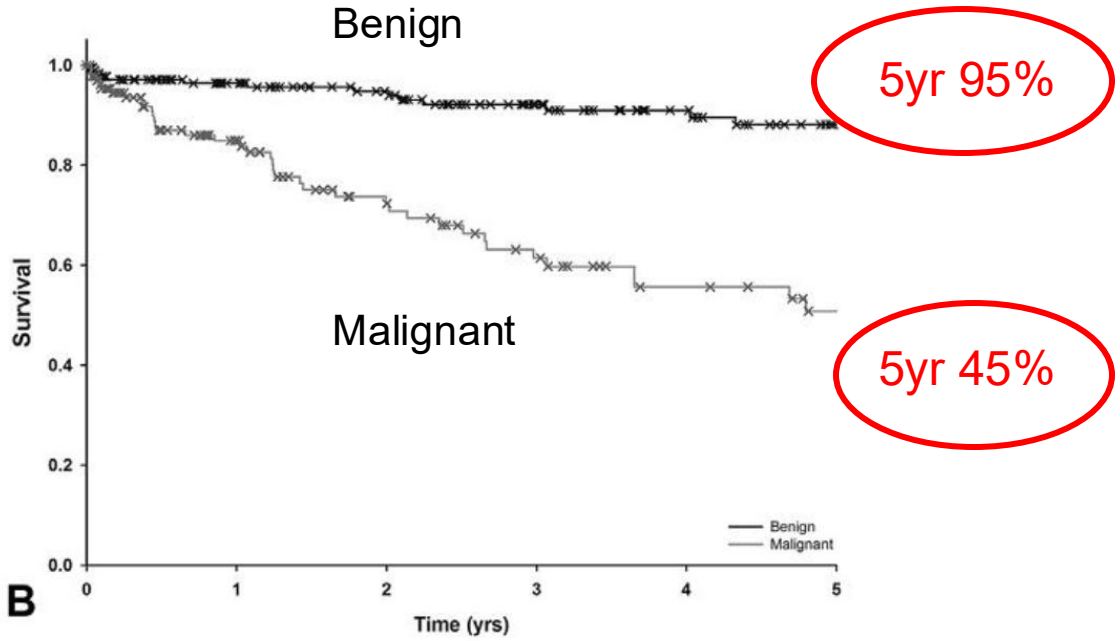
↑*CA 19.9, diabetes, pancreatitis, MD>5mm*

Size & Malignancy

<2 cm	37%
2-3 cm	39%
>3 cm	49%

Wilson et al., JACS 2017

BD-IPMN: Survival



Wilson et al., JACS 2017

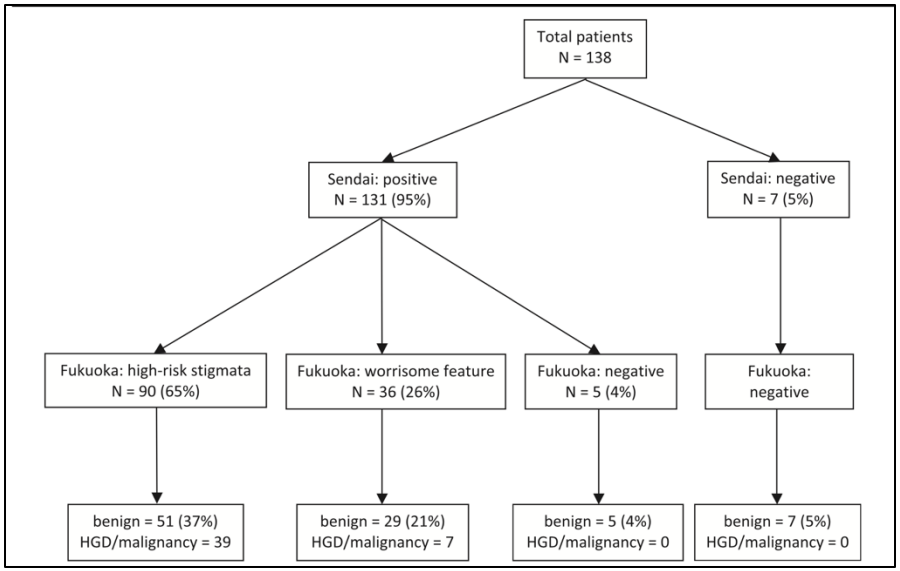
BD-IPMN: Guideline evaluation

CONCLUSIONS: These data demonstrate that the current consensus guidelines for surgical resection of IPMN may not adequately stratify and identify patients at risk for having HGD or invasive cancer. Patients with multiple worrisome features, in the absence of high-risk factors, should be considered for resection.

Wilson et al., JACS 2017

Utility of the 2006 Sendai and 2012 Fukuoka guidelines for the management of intraductal papillary mucinous neoplasm of the pancreas

A single-center experience with 138 surgically treated patients



Sendai criteria – positive	85 (92%)	46 (100%)	1.541	1.359–1.748	0.095
Fukuoka – high-risk stigmata	51 (55%)	39 (85%)	4.479	1.815–11.055	0.001*
Fukuoka – worrisome feature	29 (32%)	7 (15%)	0.390	0.156–0.975	0.04*

ΠΡΟΣΟΧΗ: Multilocular and Multifocal BD-IPMNs!!!
Each locum or foci harbors diff risk!!!

Medicine 2017
Exp Rev Gastroenterol Hepatol 2022

Predictive Features of Malignancy in Branch Duct Type Intraductal Papillary Mucinous Neoplasm of the Pancreas: A Meta-Analysis

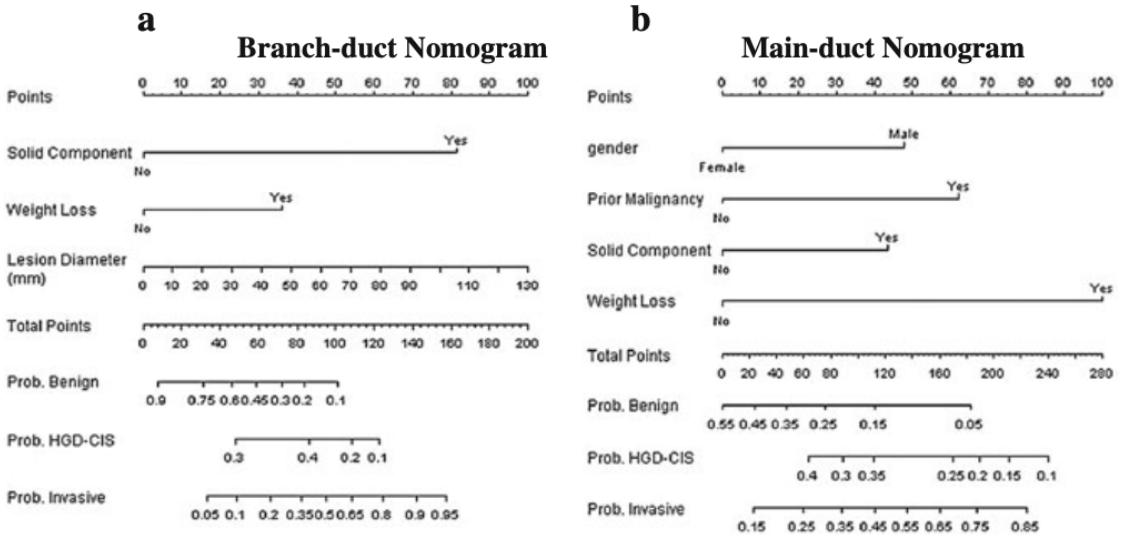
Parameters	No. Studies	No. of Patient	No. of Malignancy among Positive Features (%)	No. of Malignancy among Negative Features (%)	*p*-Value
Symptoms (+)	16	2844	369 (33.9)	597 (34.0)	0.040
Cyst size (≥3 cm)	22	4446	814 (38.9)	605 (25.7)	<0.001
Wall thickening	9	689	54 (51.4)	138 (23.6)	<0.001
Multilocular	7	741	105 (27.0)	78 (22.2)	0.68
Multiplicity	8	1058	84 (24.0)	188 (26.6)	0.09
Mural nodule	25	4495	845 (52.5)	589 (20.4)	<0.001
MPD dilatation	15	3499	698 (47.1)	492 (24.4)	<0.001
>5 mm	8	3098	607 (46.5)	424 (23.6)	<0.001
>6 mm	5	270	70 (65.4)	55 (33.7)	0.002
>7 mm	2	131	21 (30.0)	13 (21.3)	0.29
Abrupt caliber change	4	467	18 (52.9)	56 (12.9)	<0.001
Lymphadenopathy	4	390	14 (20.0)	56 (15.3)	<0.001
CA 19-9 (>37 U/mL)	8	3279	295 (61.8)	778 (27.8)	<0.001
CEA (>5 ng/mL)	4	2405	161 (53.5)	751 (35.7)	<0.001

(+) worrisome feature → independent PPV → SURGERY!

Cancers 2020

Predicting Dysplasia and Invasive Carcinoma in Intraductal Papillary Mucinous Neoplasms of the Pancreas: Development of a Preoperative Nomogram

Camilo Correa-Gallego, MD[1], Richard Do, MD[2], Jennifer LaFemina, MD[1], Mithat Gonen, PhD[3], Michael I. D'Angelica, MD[1], Ronald P. DeMatteo, MD[1], Yuman Fong, MD[1], T. Peter Kingham, MD[1], Murray F. Brennan, MD[1], William R. Jarnagin, MD[1], and Peter J. Allen, MD[1]



Ann Surg Oncol 2013

Systematic review of the clinical utility and validity of the Sendai and Fukuoka Consensus Guidelines for the management of intraductal papillary mucinous neoplasms of the pancreas

Nandhini Srinivasan[1,2], Jin-Yao Teo[1], Yung-Ka Chin[3], Tiffany Hennedige[4,5], Damien M. Tan[3], Albert S. Low[6], Choon Hua Thng[4,5] & Brian K.P. Goh[1,5]

Table 4 Summary of results providing comparisons between Fukuoka and Sendai consensus guidelines

	SCG	FCG
No. of studies	12	14
No. of patients	1234	2498
Malignant, n (%)	388 (31)	849 (34)
Invasive	238 (19)	463 (12 studies) (18)
Benign, n (%)	846 (69)	1649 (66)
Consensus +ve, n (%)	958 (12 studies) (78)	1801 (72)
PPV of consensus +ve	11%–52%	27%–100%
NPV of consensus –ve	71%–100%	72%–100%
Overall PPV	265/802 (33%)	751/1801 (42%)
Overall NPV	238/266 (90%)	599/697 (86%)
PPV of high risk	NA	465/986 (47%)
PPV of worrisome risk	NA	239/520 (46%)
Malignant IPMN in low-risk group	28/266 (11%) (11 studies)	98/697 (14%)
Invasive IPMN in low-risk group	11/206 (5%) (10 studies)	22/450 (5%) (11 studies)

"…thus, malignant and even invasive IPMNs may be missed using both guidelines…"

HPB 2018

Recurrence patterns after surgical resection of intraductal papillary mucinous neoplasm (IPMN) of the pancreas; a multicenter, retrospective study of 1074 IPMN patients by the Japan Pancreas Society

J Gastroenterol 2019

Resected IPMN patients n=1,074
LGD n=487 (45.3%)
HGD n=340 (31.7%)
Invasive n=247 (23.0%)

Postoperative recurrence n=155 (14.4%)

High-risk lesions in remnant pancreas n=70 (6.5%)
PDAC n=23
IPMN n=45
PDAC+IPMN n=2

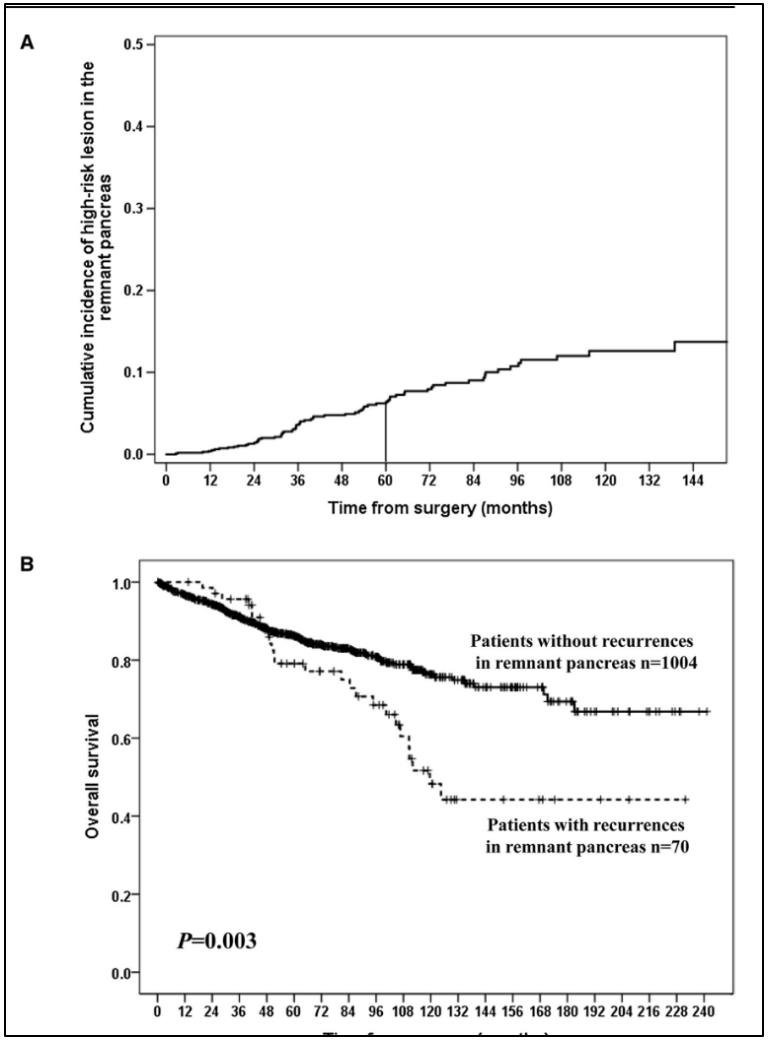
Resection for high-risk lesions in remnant pancreas n=36 (3.4%)
PDAC n=7
IPMN n=28
PDAC+IPMN n=1

Extra-pancreatic recurrence n=88 (8.2%)
Local n=36
Peritoneal n=25
Lung n=24
Liver n=19
(Multiple sites n=14
2 sites n=12
3 sites n= 2)

Initial HGD/IPMC: PADC

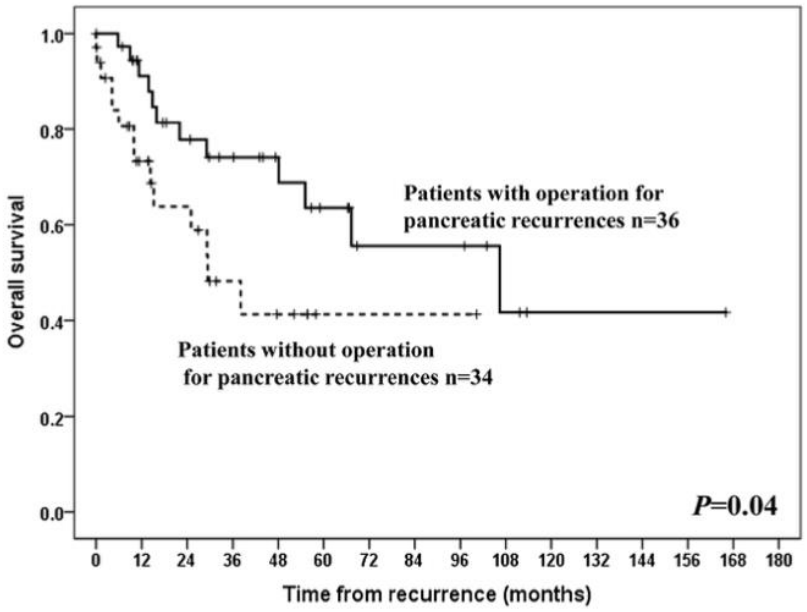
5yr: 6.2%

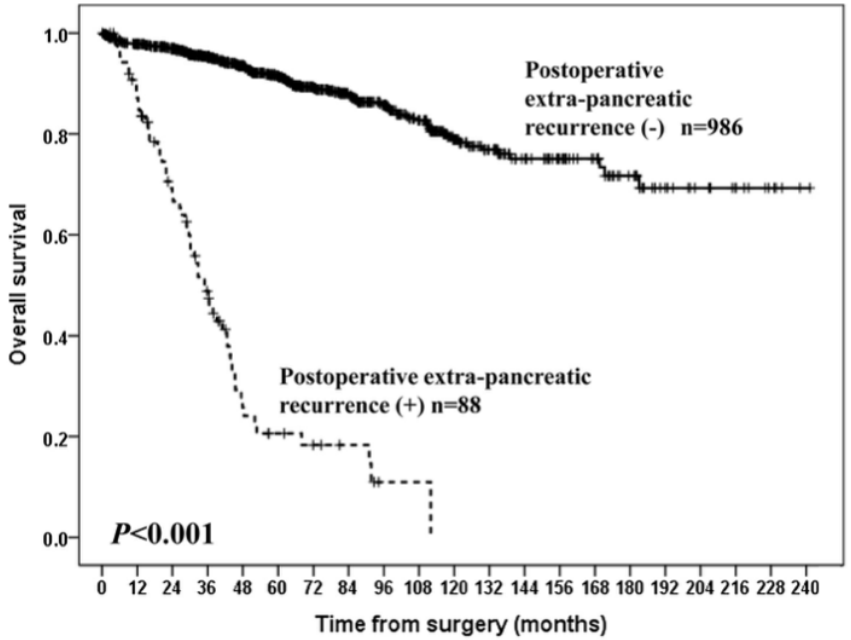
10yr: 12.6%



Recurrence patterns after surgical resection of intraductal papillary mucinous neoplasm (IPMN) of the pancreas; a multicenter, retrospective study of 1074 IPMN patients by the Japan Pancreas Society

C

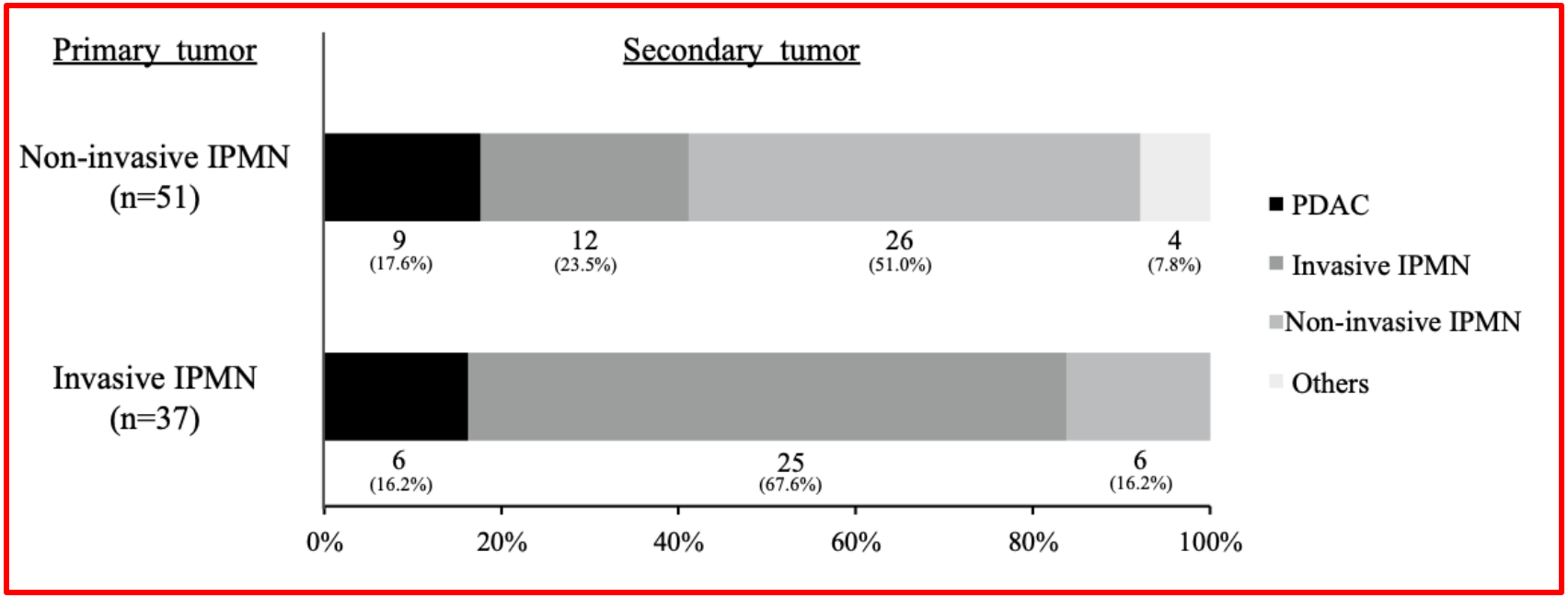




J Gastroenterol 2019

Independent predictors of secondary invasive pancreatic remnant tumors after initial resection of an intraductal papillary mucinous neoplasm: a nationwide large-scale survey in Japan

Yutaka Takigawa[1] · Minoru Kitago[2] · Junichi Matsui[1]



Surgery Today 2020

Independent predictors of secondary invasive pancreatic remnant tumors after initial resection of an intraductal papillary mucinous neoplasm: a nationwide large-scale survey in Japan

Yutaka Takigawa[1] · Minoru Kitago[2] · Junichi Matsui[1]

Table 4 Reports of cases of recurrence in the remnant pancreas and redo-pancreatectomy

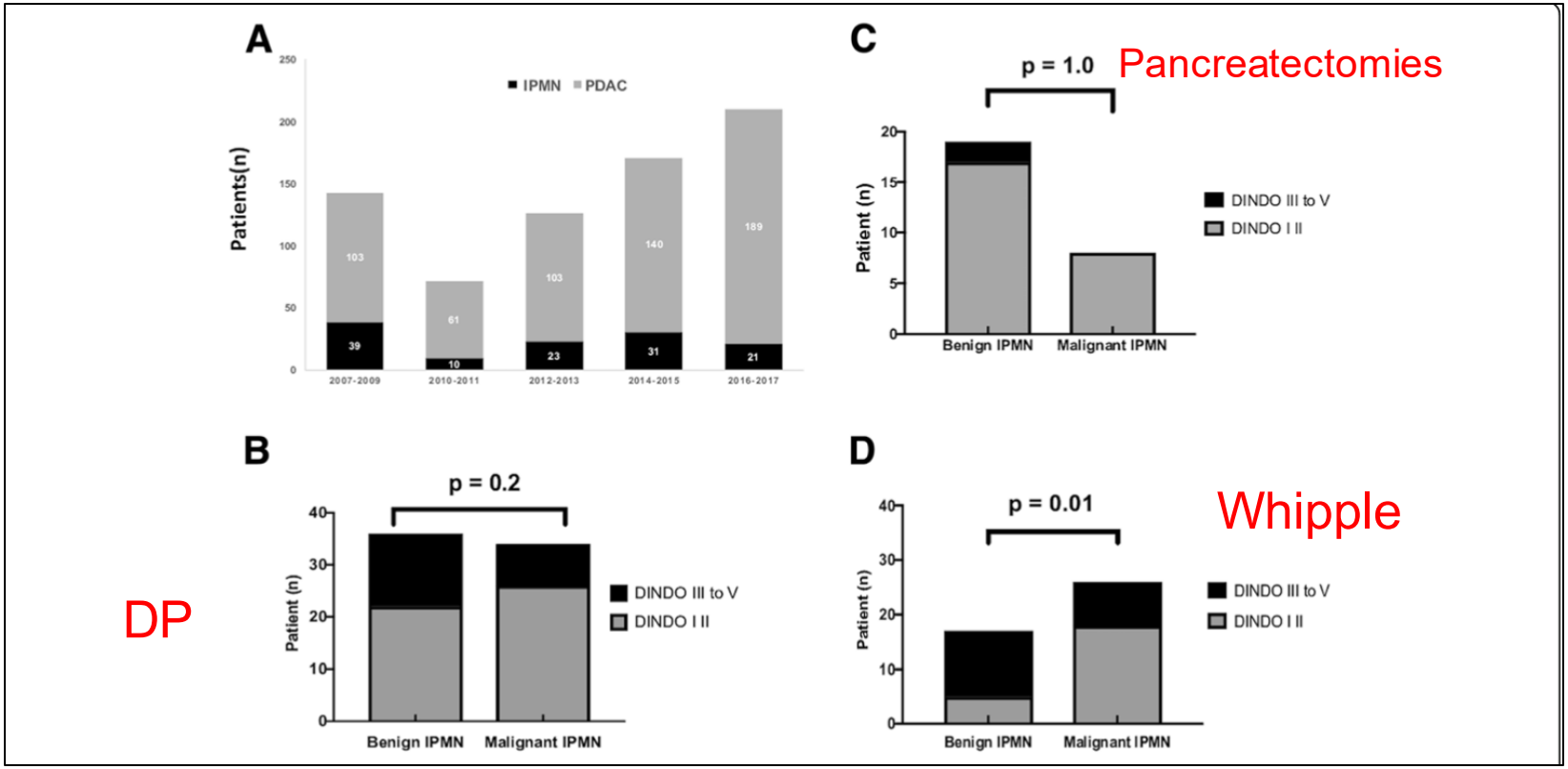
Author	Year	Initial IPMN *n*	Non-invasive; invasive (%)	Recurrence in the remnant pancreas *n* (%)		Interval period (months)	Redo-PTX *n* (%)		Invasive IPMN in redo-PTX, *n* (%)		PDAC in redo-PTX *n* (%)	
He [10]	2013	130	100: 0	22	(16.9%)	46	11	(8.5%)	3	(27%)		
Kang [11]	2014	366	81: 19	24	(6.6%)	40	5	(1.4%)	4	(80%)	1	(20%)
Yogi [20]	2015	153	77: 23	10	(6.5%)	43	6	(3.9%)	3	(50%)		
Marchgiani [23]	2015	381	78: 22	36	(9.4%)	52	9	(2.4%)	7	(78%)		
Miyasaka [24]	2016	195	82: 18	13	(6.7%)	45	10	(5.1%)	4	(40%)	4	(40%)
Hirono [18]	2016	257	67: 33	14	(5.5%)	36	8	(3.1%)	2	(25%)	2	(25%)
Blackham [19]	2017	100	100: 0	9	(9.0%)	15	3	(3.0%)				
Hirono [14]	2020	1074	77:23	70	(6.5%)	40	36	(3.4%)	16	(44%)	8	(22%)

a. Initial HGD/IPMC
b. Positive margins
c. Family history

Surgery Today 2020

Intraductal papillary mucinous neoplasms of the pancreas and European guidelines: importance of the surgery type in the decision-making process

Etienne Buscail[1,6,7*], Thomas Cauvin[1,6,7], Benjamin Fernandez[1,7], Camille Buscail[2], Marion Marty[3], Bruno Lapuyade[4], Clément Subtil[5], Jean-Philippe Adam[1], Véronique Vendrely[6], Sandrine Dabernat[6], Christophe Laurent[1,6,7] and Laurence Chiche[1,6,7]



BMC Surgery 2019

ΕΚΤΑΣΗ ΧΕΙΡΟΥΡΓΙΚΗΣ ΕΚΤΟΜΗΣ

- Ανάλογα με την εντόπιση του IPMN

  1. PD 2. DP 3. TP

- Λεμφαδενεκτομή / Ταχεία βιοψία ορίου εκτομής LGD
- MIS HGD/PDAC
- TP σε:

  α. πολυεστική νόσος HGD/IPMC
  β. διηθημένο όριο εκτομής
  γ. οικογενής καρκίνος παγκρέατος
  δ. επισφαλής αναστόμωση

- Περιορισμένες σφηνοειδείς εκτομές σε καλοήθη BD-IPMN :

  ΠΡΟΣΟΧΗ! α. υποτροπή
  β. διαφυγή βλέννης – ψευδομύξωμα περιτοναίου
  γ. παγκρεατικό συρίγγιο

JAMA 2021

Summary

- All IPMN are precursor lesions for pancreatic cancer
- Also main-duct IPMN with 5-9mm have a significant risk for malignancy and should therefore be resected
- Management of branch-duct IPMN is still controversial
- Surveillance vs. resection for branch-duct IPMN often remains an individual decision
- Better markers are needed for robust risk stratification