

Imaging of pancreatic intraductal papillary mucinous neoplasm (IPMN)

What imaging modality to use?

- Use of MRI is preferred over CT
- MRI must include high resolution MRCP images to evaluate communication with pancreatic duct
- If CT is used, thin slice CT in pancreatic parenchymal and portal venous phase with multiplanar reformations should be performed

Where to measure size of IPMN?

- Bi-dimensional measurement of lesions with the longest dimension of lesion in any plane and the corresponding perpendicular dimension is to be recorded
- When using MRI, the lesions are to be preferably measured on thin slice coronal or axial MRCP images
- When using CT, use axial, coronal and sagittal reformatted images to assess the longest dimension

What to measure for size of branch duct IPMN?

- Measure the cystic lesion including the wall of the lesion
- Need not include the non-dilated portion of the pancreatic duct side branch in assessment of size of lesion
- If there is a cluster of cystic lesions, it could be difficult to determine if the cluster represents adjacently located lesions versus single cystic lesion with septation. In such case, measure the combined largest dimension of the cystic lesion and not the largest locule.

How many IPMNs are to be measured?

- In case of multiple IPMNs, report the measurement of the lesion(s) with worrisome imaging features.
- If no lesions have concerning imaging features, report measurement of largest lesion

What imaging features predict malignant transformation of IPMN?

- 2012 International consensus guidelines (Fukuoka guidelines):
 - High risk stigmata:
 - Dilated main pancreatic duct ≥ 10 mm
 - Solid enhancing mural nodule
 - Worrisome features:
 - Branch duct IPMN size ≥ 3 cm
 - Dilated main pancreatic duct of 5 – 9 mm
 - Non-enhancing mural nodule
 - Thickened enhancing wall
 - Focal stenosis of pancreatic duct with distal parenchymal atrophy

Reporting template for known/suspected pancreatic IPMN

Number of lesions: [Single] [Multiple]

- If multiple, describe the lesion with most worrisome imaging features
 - If no lesions have concerning imaging features, report measurement of largest lesion

Location: [Uncinate process] [Head] [Neck] [Body] [Tail] [outside]

Size: [_ x _ cm]

Wall: [Thin, imperceptible] [Thick, perceptible]

Septa: [Present] [Absent]

Solid mural nodule: [Absent] [Present: Size [_ mm], [Non-enhancing] [Likely-enhancing] [Enhancing]

Calcification: [Present] [Absent]

Communication with main pancreatic duct: [Yes] [No] [Indeterminate]

Main pancreatic duct (MPD): [Non-dilated] [Dilated: _mm]

Location of MPD dilation: [Segmental: (Location)] [Diffuse]

Mural nodule in MPD: [Present] [Absent]

Enhancing wall of MPD: [Present] [Absent]

Focal narrowing of pancreatic duct with distal parenchymal atrophy: [Present] [Absent]

CBD narrowing: [Present] [Absent]

Lymph node enlargement: [Present] [Absent]

Guidelines for imaging follow-up of asymptomatic pancreatic IPMN

No universally accepted consensus guidelines.

Synopsis of current recommendations for follow-up of asymptomatic IPMN without any worrisome imaging features, are as follows:

- American Gastroenterological Association (AGA)
 - Published 2015
 - Any size < 3 cm: Repeat MRI in 1 year and then every 2 years for 5 years. If no worrisome features at 5 years, stop surveillance
- International consensus guidelines (Fukuoka guidelines):
 - Published 2012
 - < 1 cm: CT/MRI in 2 – 3 years
 - 1 – 2 cm: CT/MRI yearly for 2 years, then lengthen interval if no change
 - 2 – 3 cm: EUS in 3-6 months, then lengthen interval alternating MRI with EUS as appropriate
- American College of Radiology (ACR)
 - Published 2010
 - < 2 cm: Single follow-up MRI in 1 year. if stable, no further follow-up
 - 2 – 3 cm: Follow-up every 6 months for 2 years. If no growth after 2 years, follow yearly

References:

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3. Managing incidental findings on abdominal CT: white paper of the ACR incidental findings committee. Berland LL, Silverman SG, Gore RM, Mayo-Smith WW, Megibow AJ, Yee J, Brink JA, Baker ME, Federle MP, Foley WD, Francis IR, Herts BR, Israel GM, Krinsky G, Platt JF, Shuman WP, Taylor AJ. *J Am Coll Radiol*. 2010 Oct;7(10):754-73