Question: How to manage a pancreatic pseudocyst by endosonography?

Answer: EUS is an excellent imaging modality for evaluation as well as treatment of pseudocysts. With EUS detailed morphology of pseudocysts including proportion of solid necrotic content can be easily evaluated thus allowing accurate differentiation from walled off necrosis. EUS allows guided drainage of pseudocysts which is more safer than blind endoscopic drainage as pseudocyst is punctured under real time EUS guidance avoiding intervening blood vessels in the drainage route.

Question: What are the causes of solid sols in the pancreas?

Answer: There are a wide variety of benign as well as malignant causes of solid SOL in the pancreas. The differentials include ductal adenocarcinoma, ductal adenocarcinoma variants (Mucinous non-cystic Adenocarcinoma, Signet-ring cell Adenocarcinoma, Adenosquamous Carcinoma, Undifferentiated (Anaplastic) Carcinoma, Mixed Ductal-Endocrine Carcinoma, Other rare Carcinomas), Osteoclast –like Giant Cell Tumour, Acinar cell Carcinoma, Acinar cell Carcinoma variants (Acinar cell Cystadenocarcinoma, Mixed Acinar-Endocrine Carcinoma), Pancreatoblastoma, Solid-Pseudopapillary Epithelial Neoplasia, Miscellaneous Carcinomas (Oncocytic Carcinoma, Choriocarcinoma, Non-mucinous glycogen poor Cystadenocarcinoma), Mature Teratoma, Differentiated endocrine tumours (Insulinoma, Glucaganoma, Somatostatinoma, Gastrinoma, VIPoma, Enterochromaffin Cell tumour, Tumours with multiple syndromes, Nonfunctioning tumours), Poorly differentiated (Small Cell) Carcinoma, Nonepithelial tumours (Benign soft tissue tumours, Malignant soft tissue tumours, Malignant lymphoma), Metastasis, Inflammatory mass in chronic pancreatitis, Autoimmune Pancreatitis, Duct changes (Squamous metaplasia, Mucinous cell hypertrophy, Ductal papillary hyperplasia, Adenomatoid ductal hyperplasia, Severe ductal dysplasia), Acinar Changes (Focal acinar transformation, Heterotopic pancreas, Heterotopic (Ectopic) Spleen, Hamartoma and Pseudotumour, Pseudolipomatous Hypertrophy, Pseudo lymphoma, Tumour like lesions of the endocrine pancreas (Islet hyperplasia, Nesidioblastosis, Persistent neonatal hyperinsulinemic hypoglycemia, Persistent hyperinsulinemic hypoglycemia in adults, Dysplasia, Pancreatic Intra-epithelial Neoplasia)

Question: Can CT guided biopsy useful for pancreatic SOL?

Answer: If SOL is resectable CT guided biopsy to be avoided in order to prevent needle seeding. If unresectable, CT guided biopsy can be done to confirm the diagnosis.

Question: What is the role of CEUs in Detection of small masses?

Answer: CEUS combined the high resolution of EUS along with real time vascular enhancement pattern of SOL. It is particularly useful for detection of small isoechoic pancreatic SOL that are difficult to detect on conventional grey scale EUS.

Question: Role of Ig4 in sol of pancreas?

Answer: It has poor discriminating value as high levels of IgG4 are not specific for autoimmune pancreatitis and moderately elevated levels are also seen in few patients with pancreatic cancer. Also IgG4 levels are normal in majority of patients with type 2 AIP.

Question: Why CA 19-9 is elevated in obstructive jaundice?

Answer: Biliary epithelial cells produced large amounts of CA 19-9, which get accumulated and regurgitate into blood stream due to reduced hepatobiliary clearance of CA 19-9 as a result of cholestasis.

Question: CA 19-9 can be false positive, any cut off??

Answer: It can be falsely positive in cholangitis, cholestasis, as well as benign disease like inflammatory mass as well as autoimmune pancreatitis. There is no cut off which gives an ideal discriminating value. Increasing the cutoff value increased specificity but at the expense of reduced sensitivity. In patients with diagnosed pancreatic cancer, elevated levels of CA 19-9 prior to treatment are associated with a poorer prognosis as well as are consistent with advanced disease.

Question: Which guidelines to follow for incidentally detected pancreatic cyst?

Answer: There is no approach that can be considered ideal and will characterise all cystic lesions accurately.

Question: Role of diagnostic laparoscopy in pancreatic sol?

Answer: Can be helpful for accurate staging especially for detecting peritoneal as well as omental deposits as well as small deposits in liver. However, similar information can be obtained on EUS done by an experienced operator.

Question: Its very difficult to differentiate chronic pancreatitic changes from Carcinoma head of pancreas, whats your approach?

Answer: Yes, indeed it is one of the biggest diagnostic dilemma in pancreatology. One has to use combination of clinical as well as imaging features to differentiate between the two. A properly done EUS with elastography and contrast EUS can help in differentiating between two. However, it is important to remember that despite best efforts we may still miss malignancy in patient with underlying chronic pancreatitis.

Question: When do you say pancreatic carcinoma is unresectable in Eus imaging?

Answer: If you detect liver metastasis, distant lymphadenopathy, peritoneal metastasis and Superior mesenteric artery/celiac artery/Splenic artery involvement in case of head of pancreas. Venous involvement per se does not preclude resection but detailed venous involvement needs to be evaluated on EUS so that feasibility of venous reconstruction on surgery can be assessed.

Question: Role of percutaneous fna in resectable adenocarcinoma Risk of seeding?

Answer: If SOL percutaneous FNA to be avoided in order to prevent needle seeding. If unresectable, percutaneous FNA can be done to confirm the diagnosis.

Question: Sir, what is the initial imaging test of choice for pancreatic cyst? Is it CECT or MRI/MRCP (acg 2018)?

Answer: MR is better than CT for evaluating detailed morphology of cyst as well as relation of duct with CT.

Question: Any role of Pancreatoscopy and Bx in 16 y F with suspected IPMN?

Answer: In distinguishing benign from malignant IPMN, the endoscopic visualization of fish egg-like projections with prominent vasculature, villous, and vegetative protrusions correlates with malignant lesions, with a sensitivity and specificity of 68

and 87 percent. A properly done EUS may have similar diagnostic yield for most IPMN as pancreatoscopy. More studies are needed to determine its exact role in management of cystic lesions.

Question: It EUS is best then why CT and MRI?

Answer: EUS is not best but better for local evaluation of pancreatic SOL. However for evaluation of distant lesions a cross sectional imaging with wider anatomical evaluation like CT or MRI to be done.

Question: Post Ca pancreas surgery - persisting pain abdomen: how you evaluate for recurrence - what should be protocol? Ct vs EUS vs MRI vs Ca 19-9?

Answer: In this situation FDG PET CT is an important modality. Also if preoperatively CA 19-9 was elevated and it normalised after surgery, serial CA 19-9 can be used for detecting recurrence.

Question: Use of PET CT for diagnosis of autoimmune pancreatitis?

Answer: Can be used in situations of diagnostic dilemma where it can help in diagnosis of type 1 AIP by detecting lesions at other locations like salivary glands and kidney.

Question: Focal pancreatitis vs Pancreatic Ca on EUS?

Answer: Difficult to differentiate as both have almost similar morphological appearances on EUS. On elastography, Pancreatic Ca has more stiff pattern in contrast to variable stiffness in cases of focal pancreatitis. On contrast EUS, Pancreatic Ca is hypoenhancing in contrast to variable enhancement in focal pancreatitis. However, none of these features high sensitivity and specificity.

Question: TB in head of pancreas have similar presentation as well as imaging characteristics , how we can differentiate between the two?

Answer: Both have similar imaging characteristics and therefore they can be differentiated only by cytology/histology.

Question: Risk of needle seeding if trans gastric FNA?

Answer: There is a theoretical risk but has been very rarely reported.

Question: How do you approach pancreatic SOL in the background of CCP?

Answer: The problem in setting of CCP is detection of pancreatic SOL. But if SOL is detected in CCP the diagnostic algorithm remains the same.

Question: Is same approach for tail masses?

Answer: Yes

Question: Is it possible to make a diagnosis of Type II AIP without resection and HPE

Answer: Yes, can be done on EUS guided fine needle biopsy but is very difficult.

Question: EUS finding of SPEN?

Answer: A mixed solid and cystic appearance with well defined wall. Variable echoes would be seen in the cystic lesion.

Question: Can you elaborate more on EUS elastography?

Answer: Elastography allows analysis of tissue stiffness and assessment can be performed either qualitatively or quantitatively. Qualitative elastographic assessment is mainly based on predominant color seen and hence limited by subjective assessment. Quantitative elastography provides an objective measurement of tissue hardness. Malignant lesions are more stiffer as compared to benign lesions. Meta-analyses have demonstrated EUS elastography to be reliable technique for the differentiation of solid pancreatic masses with pooled sensitivity of 95%-97% and specificity of 67%-76%, respectively. The strain ratio of SR >6.04 is 100% sensitive for classification of tumors as being malignant.

Question: Is FNA or FNAB recommended in all hypoechoic or hypodense pancreatic Solid SOLs?

Answer: If unresectable, CT guided FNA can be done. If resectable, either upfront surgery in good surgical candidate with clinical presentation and imaging typical for resectable cancer or EUS guided tissue confirmation followed by surgery can be done.

Question: Role of steroids in differentiating autoimmune pancreatitis?

Answer: Can be used in cases of diagnostic dilemma but one has to be very careful with keeping patient in close follow up. Patients with discrete masses undergoing corticosteroid therapy should have complete resolution of the mass as determined by imaging within 2-3 weeks. Carcinoma of the pancreas can have some response to

steroids, but complete resolution of the mass will not occur. Steroids can be used under the following circumstances: (1) patients with typical imaging findings who have appropriate collateral findings of AIP or (2) patients without typical imaging findings who have negative work-up for cancer and have appropriate collateral evidence of AIP. A steroid trial in the complete absence of collateral evidence of AIP is not to be done.

Question: Is MRI as initial imaging is better than CT?

Answer: For Solid SOL No but for cystic lesion yes.

Question: How commonly contrast eus is done as it is expensive

Answer: Not commonly done. Usually done at few specialised centres as it requires software as well as contrast that costs approximately Rs 4000/-

Question: any role of CEA?

Answer: No role of serum CEA in solid SOL but fluid CEA helpful in pancreatic cystic lesions.

Question: How many times can we do FNA/FNB for diagnosis pancreatic SOL?

Answer: No consensus on this but I feel twice if done by expert and ROSE present.

Question: IHC possible from EUS FNAC Sample ?

Answer: Yes if you prepare cell block. We do ICC on these samples.

Question: what is the risk of peritoneal seeding of the tumor with eus guided fnac. ?

Answer: Theoretically yes especially for trans-gastric FNA of body and tail masses. However, studies have shown similar peritoneal recurrences in patients who underwent surgery with and without FNA. Hence, published evidence does not suggest increased risk.

Question: Sir, we have seen CA19. 9 elevated in inflammatory head mass of pancreas in multiple occasion, and that too a very very high titre (>1000). Your thought on that.?

Answer: Agree. It can happen.

Question: Any contraindications for EUS FNA/FNB

Answer: Coagulopathy, thrombocytopenia, abnormal vessel in the line of needle track, inability to clearly visualise lesion

Question: Can AIP be painless?

Answer: Yes it is usually painless. The most common sign of autoimmune pancreatitis, present in about 80 percent of patients is painless jaundice,

Question: WHAT IS THE ROLE OF ROUTINELY CPN WHILE DOING EUS?

Answer: Not recommended.

Question: FNA/B can be done in pancreatic sol located in tail or body ?

Answer: Yes

Question: How far we should extend our liver segment examination to assess any metastoccult liver metastases

Answer: An experienced endosonologist can evaluate almost whole of liver except part of segment 7 and 8. But it requires considerable time and expertise especially to evaluate right lobe. MDCT will give almost similar information in most patients.

Question: What is your needle of choice for FNA/FNB of souls lesions and aspiration of cystic lesions?

Answer: Solid SOL: 22G FNB needle except in uncinate where 25G preferred

Cystic SOL: 19G FNA needle except in uncinate where 22G preferred

Question: When do u think one can proceed directly to surgery after cross-sectional imaging without eus?

Answer: Patient good surgical candidate & clinical presentation and imaging typical for resectable cancer: may proceed without tissue diagnosis

Question: If lesion of uncinate process is encasing the SMA & SMV and EUS FNA in inconclusive then what could be done?

Answer: All attempts should be made to establish the tissue diagnosis.

Question: Sir what wd be the first investigation if incidentally found SOL a cystic looking lesion on USG? MRI or CT

Answer: MRI

Question: Any blood markers other than Ca19.9 or combination of them having better sensitivity ?

Answer: No

Question: Panceatic Ca presenting as acute pancreatis, ur protocol for Eus?

Answer: EUS to be done after 4 weeks to better characterise lesion once inflammation has subsided.

Question: what is the role of biopsy from papilla in diagnosing AIP

Answer: One study found it to be useful for diagnosis of AIP. But similar results not reproduced by other studies and we also did not find its utility.

Question: Patient with acute abdominal pain, imaging suspected groove pancreatitis, amylase lipase normal 24 hours apart. Can eus help sir

Answer: Yes EUS can help by demonstrating thickened duodenal wall with small fluid collections in duodenal wall with inflammatory changes on surrounding pancreas.

Question: Why SPEN has been classified under cystic lesions of pancreas ?

Answer: On CT it gives a cystic appearance.

Question: Should every cystic SOL be subjected for FNA / FNB

Answer: No.

Question: Is mri necessary for management of a patient diagnosed to have pseudo cyst based on history and CT abdomen

Answer: Helpful if walled off necrosis is suspected.

Question: Should we routinely order CA-19-9 nad IgG4 levels in all HOP solid masses?

Answer: No

Question: After doing fna on a cystic lesion do we need to send both amylase and lipase or is one enough?

Answer: Amylase is enough

Question: Asymptomatic cystic SOL...should we needle all?

Answer: No

Question: What is the inter observer variability in measuring size of cyst on EUS

Answer: Yes size has significant inter observer variability depending upon scanning angle.

Question: If we are planning for surveillance for PCN, How frequently ? By which imaging ? Duration ?

Answer: Depends upon size of largest cyst. Details mentioned in the flow chart presented in my talk.

Question: Should ipmn FNA done if suspicious

Answer: Yes

Question: As part of surveillance for the cysts is EUS a comparable option to MRI for surveillance

Answer: Yes, but MRI is preferred as it is non invasive.

Question Is it recommended to do SMAD 4 mutation on FNA/FNB samples from pancreatic adenocarcinomas?

Answer: No. But with advent of personalised medicine and treatment molecular marker analysis may be recommended in future.

Question Approach to patient with asymptomatic polycystic pancreas detected incidentally on CT done for other purpose

Answer: Similar as for single cyst with detailed evaluation of all the cysts

Question For fnac of cystic lesion. From where should we take the sample, cystic component or wall or from mural nodule if present.

Answer: Aspirate fluid and FNA from mural nodule

Question Validity and use of doing CA 72_4 vs CEA cyst fluid analysis?

Answer: CEA and CA 72-4 are present in high concentrations in the cyst fluid from mucinous cystic neoplasms with various optimal levels and accuracies However,

additional tumor markers like CA 72-4, CA 125, CA 19-9 and CA 15-3 do not provide additional diagnostic accuracy. Instead, cyst fluid concentration of CEA alone is more accurate than combination testing.

Question Patient having pancreatic cyst with another cystic lesion within on EUS with suspicion of pancreatic hydatid, should it be aspirated for diagnosis?

Answer: Should not be aspirated. Can visualise daughter cysts on EUS and confirm with hydatid serology.

Question Why type I autoimmune pancreatitis is painless? Does presence and absence of pain can be taken as imp point while differentiating between adenocarcinoma and type I ap?

Answer: They are usually painless but even malignant lesions can be occasionally painless.

Question Any difference between severity of pancreatic pain benign vs malignant?

Answer: No

Question Medico-legal issues related to dilemaa between autoimmune pancreatitis vs pancreatic adenocarcinoma

Answer: Difficult to answer as this is a real diagnostic dilemma. Patient information and obtaining informed consent is key.

Question can PET help to differentiate inflammatory and neoplastic mass in case of chronic pancreatitis

Answer: No

Question How common is TB in a pancreatic SOL? How to proceed for its confirmation?

Answer: Rare. FNA and histology.

Question Suspected inflammatory pseudotumor of pancreas. Ca 19-9 persistently elevated over 6 months. What should be approach?

Answer: See progression of mass lesion in aspect of size and symptoms.

Question How can nesidioblastosis be diagnosed

Answer: Focal nesidioblastosis is a rare cause of endogenous hyperinsulinemic hypoglycemia in adults. Because it is difficult to localize and detect with current imaging modalities, diagnosis of nesidioblastosis is challenging. ^{68}Gallium-DOTA-D-Phe^{1}-Tyr^{3}-octreotide PET scanning and ^{111}indium-pentetreotide diethylene triamine pentaacetic acid octreotide scanning may be superior to conventional imaging modalities in localising nesidioblastosis

Question How to manage acute pancreatitis with large walled of necrosis in a case of call head of pancreas.? Whether to do drainage or give neoadjuvant chemo?

Answer: Both need to be treated simultaneously.

Question: What antibiotics do you prefer for peri procedure EUS for pancreatic cystic lesions?

Answer: Flouroquinolone