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DR. SHYAM VARADARAJULU: The case that I'm going to demonstrate now is that of an elderly lady with a mass lesion in the tail of the pancreas. She has not reported any weight loss, but has complained of abdominal pain and discomfort. So we will do a linear array EUS examination of the pancreas. And when we find the lesion, we will perform an FNA and procure tissue for diagnosis.

Once the aorta is identified, the first branch of the aorta is the celiac artery that you can see here. So this is the aorta, and the first branch of the celiac artery. And here I am identifying the celiac. And I am advancing the scope forward and letting go of my [INAUDIBLE] dial on my scope.

To track the pancreas to the tail what you do is [INAUDIBLE] the scope clockwise and withdraw the scope gradually. And you trace the pancreatic duct to the tail region of the pancreas. The pancreas in this particular patient is a little indistinct. But what we have here is a very nice pancreatic duct. It's a little bit dilated. This is the pancreatic duct. And I'm going to measure the size of the pancreatic duct, which is approximately three millimeters in the tail of the pancreas.

Usually the pancreatic duct is one millimeter on the tail. But this patient is about 75 years old. And you can expect some dilation. The pancreatic [INAUDIBLE] is not very homogeneous in this patient. There are some features of chronic pancreatitis, such as stranding and foresight. The pancreatic duct is dilated. The margins of the pancreatic duct are bright, which is called hyperechoic margins.

And now with the pancreatic duct in view, all that I do is retract the scope to my right. This is a clockwise [INAUDIBLE]. And then I move my shoulder to the right and it trace the pancreatic duct. And here as I trace the pancreatic duct, I come into view in a structure that is a little indistinct from the rest of the pancreas. Now this lesion measures 2.17 by 1.7 centimeters. It's a little hyperechoic. And by looking at this EUS image it is very hard for me to say whether this is a malignant or a benign lesion. And we have to procure tissue to make a definite diagnosis.

So for any transgastric [INAUDIBLE] I usually prefer the 22 gauge needle, because the needle will exit straight out of the echoendoscope. And scope [INAUDIBLE] is not an issue. So we will perform the FNA on this lesion. And we have access to on-site cytopathology to procure tissue and make an on-site evaluation.

Whenever you do a pancreatic exam and if you are worried about a pancreatic mass, it is very important to look at the left lobe of the liver. Because we have shown in previous studies that 3% of lesions in the liver can be missed by CT imaging. Particularly if the lesion is less than 0.5 centimeters. So now I am going to scan my scope back and forth, scanning the liver at both ends to make sure that we are not missing any small lesion in the liver.

So I'm going to now pass a 22 gauge expect needle. And I affix the needle with a lower lock mechanism to the scope. And now I'm going to identify this pancreatic [INAUDIBLE] lesion once again. This vascular structure that you find very close to the pancreas is the splenic artery. And you can see the splenic artery is in contact with this mass lesion.

Usually splenic artery invasion does not preclude surgery, because the surgeons can always do a distal pancreatectomy and a splenectomy. Now to perform the FNA I'm going to release my knob on the expect needle. And I'm going to pull the stylet back a little bit. And I'm going to advance my needle till it comes in view on endoscopic ultrasound. The needle always makes its view at the 4 o'clock position, which is right here. And now my angle is going to be a straight pass. And I would expect the needle to go straight into this lesion following this particular angle. I do not have to use an elevator. This would be a direct pass.

Not with the mass in position and the needle out of my sheath, I am going to use my elevator a little bit to get the lesion exactly in position I want it. And I'm going to advance my needle into this mass. It's going to be a quick jabbing moment. And as you can see, the needle is already inside the lesion. Here is the tip of the needle, which is very ecogenic. And here again, is the mass. And an important part of the EUS FNA needle assembly is the ability to visualize the needle within the mass at all times.

Now since the needle is inside the lesion, I'm now going to remove the stylet. Can you pull the stylet out? And once your assistant removes the stylet, you go back into the mass lesion close to six or 10 times to procure tissue. And all that I do here is to to move my thumb back and forth. I go into the lesion back and forth. And this can be visualized on EUS imaging continuously and in real time.

Once you do about 10 passes within the mass lesion, you withdraw the needle and you express the specimen to your slide, which we will do very shortly. It is very important not to have the needle outside the mass lesion for fear of contaminating the needle with the GA mucosa. Now, having completed my passes, I am going to retract the needle back and disengage the needle assembly from the scope.

So we've got pathologists in the room who assist us with all of our procedures. Our cytopathology team is a very busy team. And now, we are going to express the specimen onto slides. The FNA sample is expressed to the slides by having the tip of the needle positioned on the slide. And then using a stylet we express the specimen out into the slides. And once you have reached the very end of the stylet, and then we usually use a syringe to flush air into the needle apparatus to get all the specimen onto the slides.

Usually we make about three slides. And usually the pathologist will render an analysis within two or three passes. So in this particular patient, after the very first pass, we have a diagnosis of pancreatic cancer. We also found similar [INAUDIBLE] material on the second pass, as well. So this patient has resectable pancreatic cancer. There is only invasion of this splenic artery, which does not preclude surgery.