MARK D. TOPAZIAN: Hi. I'm Mark Topazian. I'm a gastroenterologist at Mayo Clinic. And I work in our pancreas clinic, together with a multi-disciplinary team of pancreatologists, enoscopists, radiologists, pathologists, and pancreatic surgeons. I see a lot of patients with known, or suspected, pancreatic disease, and unexplained abdominal pain. Today I'm going to talk to you about pancreatic cysts, and some of the work we're doing here at Mayo. When I went to medical school, it was thought that pancreatic cysts were uncommon, and they were usually pseudocysts or inflammatory collections full of pancreatic juice. What we know now, is that pancreatic cysts are actually common. And the great majority of them are cystic neoplasms, or cystic growths, within the pancreas. It's quite typical to see a patient referred with the incidental finding of an asymptomatic pancreatic cyst. And several questions commonly come up.

The first is, what kind of cyst is it? And then second is, what management strategy is appropriate? Pancreatic cysts come in several types. There are inflammatory collections, such as pseudocysts, which I've already mentioned. And those usually accompany a well-defined attack of pancreatitis, or are present in the setting of clear cut chronic pancreatitis.

The next category is non-neoplastic true cysts. These are relatively uncommon, and may be seen, for instance, in polycystic disease affecting the pancreas. There may be lymphangiosiles or other miscellaneous diagnoses. Cystic growths are, actually, the commonest cause of a cystic lesion in the pancreas. Some of these, such as, mucinous cystic neoplasm and branch duct intraductal papillary mucinous neoplasm, are mucus producing cysts, and they have some malignant potential over time. Other lesions, such as a serous cystadenoma, have negligible malignant potential. And require no intervention, unless they're symptomatic or quite large.

So the first issue is often differential diagnosis. Figuring out what kind of cystic lesion the patient has. An endoscopic ultrasound with aspiration of cyst fluid and analysis of the fluid can often be helpful in diagnosis. We oftentimes employ endoscopic true cut biopsy of the cyst, to obtain a piece of the cyst itself for definitive histologic diagnosis. My colleague Mike Levy, and the rest of our EUS group, are leaders in this area of diagnosis.

There are consensus criteria for a resection of mucinous pancreatic cysts. And these include cyst size of over three centimeters, the presence of a mural nodule in the cyst, which is most often diagnosed by endoscopic ultrasound, and the presence of symptoms related to the cyst or positive cytology. If you follow these criteria for resection, about 15 out of every 100 resected cysts will actually have cancer, or high grade dysplasia in the cyst. And the remaining lesions will tend to be low grade dysplasia. We, and other groups, have been interested in tightening up on those criteria, and avoiding resections that might actually be unnecessary.

In this regard, we recently performed a study of mural nodules in pancreas cysts. We found that the presence of a mural nodule was, indeed, a predictor of the presence of high grade dysplasia, or early cancer, in a cystic neoplasm. However most focal ecogenic lesions seen in pancreatic cysts, here in the US, are not true epithelial mural nodules, they're balls of mucus.

During the study, we identified EUS criteria that distinguish mucus from true mural nodules. And also described methods to distinguish them during EUS, including turning the patient and using EUSFNA. And we hope that these findings will become widely known to endostonographers and will help to refine the use of the consensus criteria for resection of cysts.

Finally, we're interested in endoscopic therapy for mucin producing pancreatic cysts. I think it would be great if we had a non-surgical outpatient therapy, that could ablate these cysts, and allow patients to avoid having part, or sometimes all, of their pancreas removed, with resultant diabetes.

We've been doing a clinical study of EUS guided ethanol ablation of these cysts. During this procedure, an endoscope, with a miniature ultrasound transducer, is passed via the mouth, while the patient is sedated. The cyst in the pancreas is visualized from either the stomach or the duodenum, and a needle is passed, under ultrasound guidance, through the gut wall, into the cyst. The cyst fluid is aspirated out, through the needle, collapsing the cyst. And then we inject an 80% ethanol solution, through the needle, re-expanding the cyst, with the ethanol solution. Alcohol, at that concentration, is toxic to tissues, and our goal is to chemically burn off the cells that line the cyst, which are the cells producing the mucus that fills the cyst. And those are also the cells that have malignant potential.

We found, so far, that the majority of cysts have shrunk considerably in size, after one such treatment. What we don't know yet, is whether, long term, this truly decreases the risk of pancreatic cancer in the cyst. But we believe that this sort of research is important to make progress, and to further refine our management of patients with pancreatic cysts.