[MUSIC PLAYING]

SPEAKER 1: Thank you so much. Again, thank you everybody for being here. My goal today is to give a little bit of an overview of what advances we have made over the past year. I should say, actually, two years in the world of the pancreas, and hopefully be able to take a couple of take home messages with you if you're an internist, you're in the nursing world, technical world, or a GI. So in the next 15 minutes, I think I'm going, to try to do the impossible which is to cover all of this.

These are my conflict of interests. And today I'm going to divide the talk in four, actually five, parts. First, I'm going to try to review the terminology. We'll talk about general treatment and new concepts. I'm going to briefly talk about ESWL, Extracorporeal Shockwave Lithotripsy, for the treatment of giant stones. In my next talk, I'm going to be talking more about general pancreatic stones.

I also want to talk about total pancreatectomy with islet auto trans, excuse me transplantation which is something that we're doing at the institution just to give you a sense of what's going on in this patient population and the results that we're getting, and also we'll talk about large fluid collections and like Osma said, how exciting it is to be inside of a cyst particularly when you're trying to fix one of these major problems.

So to start and to make sure the world's talking in the same terminology, I want to make sure that we define what I call in June of 2014 pancreatitis. Remember that pancreatitis shares the same word but these are three completely different medical conditions recurring acute pancreatitis yes frequently may lead to the development of chronic pancreatitis.

Even in the world of chronic pancreatitis there's multiple etiologies that lead to the same scientific expression, meaning I can show you a pancreas by CT, EUS a MRI that looks awful and it's impossible for us to know exactly what the underlying etiology is. I have to mention before I even define this that the idea that if you have chronic pancreatitis it's because you're an alcoholic, it's no longer real that's a wrong concept, we know that a very small subset of alcoholics develop chronic calcific pancreatitis, so please keep this in mind when you're working up the etiologies on your patients which is not something that I'm going to talk about today.

So going back to the definition acute pancreatitis by guidelines you need to meet two of the three following criterias, typical pain basically a bomb went off, severe pain lasting for more than a day or two, ten over ten in intensity it radiates, nausea, vomiting we all know about this so it's severe pain.

Number two, amylase and or lipase elevations three times to upper limit of normal, not a little bit it has to be at least three times the upper limit of normal. Why? There's multiple other sources for amylase and or lipase and there's multiple papers for the past five, six, seven years showing how conditions that can be very painful and debilitating like IBS may give you a rise on the amylase and or lipase, so be very careful with these.

And number three images showing pancreatic inflammation. Two of the three you have acute pancreatitis. Acute pancreatitis if you had an episode never again. Recurring acute pancreatitis it's two or more documented episodes of pancreatitis. In general these patients are completely symptom free in between episodes. Chronic pancreatitis we'll talk a little bit about in the, in the slides to come it's a patient that has chronic pain the majority of the time or they come in with exocrine and or endocrine insufficiency actually we will talk in a second.

So what do we know in general? The vast majority of patients with pancreatitis, up to 90%, will have mild interstitial pancreatitis they're in the hospital for two, three days, NPO, IV fluids, they go home. The group that we have an interest on is the 10% or 15% percent which have necrotize, which have necrotizing pancreatitis. Why?

We know that when a patient with necrotizing pancreati-- that patients with necrotizing pancreatitis are prone to developing organ failure. And if you look at the lower part on the mortality necrotizing pancreatitis, this set of patients when they have organ failure and the more organs that are failing goes hand in hand with mortality. So more than one organ failure that is persistent which by definition it's 48 hours or more of having organ failure, their mortality starts to go up very, very rapidly and these are the group of patients that we're very aggressive actually any patient with pancreatitis very aggressive at treating to prevent these type of complications.

So moving along, chronic pancreatitis what have we learned over the past year or two? These patients usually present with chronic pain, they can come in because they have exocrine insufficiency and this is the definition, a pictorial definition of steatorrhea fat and waste with stool. Stool is relatively well formed. The idea that if you have steatorrhea you have diarrhea, it's not true. This is actually how steatorrhea looks.

Significant others are usually saying, oh yes, you know, when you're asking them in the office if they have fat in the stool, they basically go to their bathroom, flush. They don't look. Their significant other is saying, oh yeah, you know, I tend to see these droplets of fat when I go after you to use the bathroom.

So this is something that we'll want to make the diagnosis earlier on and not wait until you have the full blown disease. Approximately 90% of the gland has to be gone for you to see this. So we want to make the diagnosis early on. Remember, at the site, common we have fecal elastase, but it's a very good noninvasive test to do in the stool to make a diagnosis, the early diagnosis, of exocrine insufficiency so we can treat early and prevent the development of these other problems.

Endocrine insufficiency, I hope that you are aware of what Type 3C is, this is pancreatogenic diabetes. It's not Type I autoimmune. It's not Type II insulin resistant because of morbid obesity. This is a gland that is gone for surgery, for a chronic pancreatitis from different etiologies, and it's not working.

Remember, vitamin deficiencies, there were at least two posters with very good numbers of patients who [INAUDIBLE], not to mention the previous year paper in the Red Journal with over 300,000 patients. And I think it was 40,000 patients with chronic pancreatitis showing the high risk that patients with chronic pancreatitis have of developing bone fracture. Because everybody knows that if you have celiac IBD, steroids, cirrhosis you are prone in developing bone density problem metabolic bone disease. But people don't make the connection with chronic pancreatitis. Very important. And my nutrition, of course, it's something that we want to prevent and treat these patients, recognize them before they develop the problems.

As a general rule we treat all of these patients with smoke cessation. You can't smoke, you can't drink, or you have to try to stop. Frequently, we feel silly telling them to stop, but they have to do it and there's plenty of support out there. We know that both of them are independent risk factors for disease progression and smoking, particularly, a risk factor for the development of pancreatic cancer. Small meals, well hydrated, very important low in fat, pancreatic enzymes in general as a summary that's in work.

Analgesics, if you're going to be using them, particularly narcotics, for severe pain, long acting are better than short acting. Ultra type rarely work, very expensive. We actually stopped using them a while a go. Antioxidants, there's two very well done randomized placebo controlled studies. One showed it worked, the other one showed that it didn't work. We tend to give them. They're cheap, safe, so we tend to give them.

Endoscopic therapy I'll show in a minute, actually now a lecture to come as well. It's something that we're doing more and more for large stones. And surgery, Doctor Matthews is going to be talking a little bit more about these.

Without getting into too much details, we just published in March of this year in our North American pancreatic study group, 515 patients with documented chronic pancreatitis. And the aim was to evaluate the frequency and the effectiveness of endoscopic therapy versus surgery. This is a group that all of us are endoscopists I think there's only two or three surgeons in this group and the conclusion is surgical therapy were performed less frequently but it had better long term results. So very important to approach these patients as a group so we can offer these patients what's best for them and we'll talk about this in the slides to come.

What do we do with these large stones that we frequently see in these patients? Only when they have symptoms and you see these stones like you can see down here in the head of the pancreas, with a large proximal main pancreatic duct dilation, minimal atrophy, a lot of pain again no pain, no treatment. Very important to remember that. We can actually bring these patients and do what is called extra corporeal shockwave lithotripsy.

We put these patients in this machine that is similar to the one that is used for kidney stones and we shock these patients 6,000, 5,000 to 7,000 times to try to destroy and break into little pieces these stones. For the sake of time, the idea is to break up big stone into tiny pieces. And for those of you who follow this literature inside this study, that is coming from India, from Doctor Redding and Doctor [INAUDIBLE], 636 patients, uh 96 we're followed up to 90 in 96 months I'm sorry, 272 patients were followed and 60% were pain free by that time. Again this is India it's a different disease, different etiologies but we're getting the message that this treatment work, works.

So this is what we do before we try to do the shockwave. We try to place a catheter in this patient that I just showed. Large stone, impossible to bypass, not even a wire, not even contrast. You see in the image to the left a very ruddy, opaque image, stone large. To the right it starts to get a little bit grayish. That's after treatment. And then we can go in, easily pass-- and we do this actually the same day-- easily pass a wire, look at the rest of the main pancreatic duct, and place a stent at the end of the procedure and remove all of the stone fragments after doing shockwave lithotripsy.

This is what we see, this is painless it's ecchymosis at the site where the shock is going in, frequently we see a little bit of hematuria the following day, we let the patients know that that's expected and not to worry. Three months later the patient comes back for an exchange, you can see how the duct has been decompressed most of the stones are out. We finish the work, finish cleaning, and after two or three procedures, these patients do not need to come back unless they redevelop stones.

What about a total pancreatectomy with islet autocelltransplantation? Just to give you the message, this is something that we are doing. And we're getting more patients actually doing this procedure. It's a very radical procedure that we do in a very selective group of patients. The majority of the them are younger patients with genetic etiologies that led to pancreatitis.

The pancreas is taken out in the operating room, what you see in this cartoon it's a 3 and 1/2 or three hour procedure to separate the cells. This is the pancreas being injected with collagenase to separate the islet cells that we-- this is how they look when they're clean and purified, and they're ready to go into the patients portal to have the new home which is going to be the liver.

To give you a long story short, up to 70% of these patients are going to be completely pain free, 25% significant reduction in narcotic use, 5% will continue to have phantom pain syndrome. And basically, what we think is that these patients have had pain for such a long time that the visceral pain has become central. And you can remove this pancreas, you can do whatever you want, but by now it's going to be extremely difficult to treat the pain.

There's data coming from Beth Israel in Boston that if you do a magnetic stimulation that is called TMS, transcranial magnetic stimulation, these patients actually their pain significantly improved. The problem is that by one week or less the pain tends to come back. But we're starting to get a message that there are different modalities for treating these patients. I just like to show these pictures because to the right you see a pancreas that it comes from a motor vehicle accident donor, a patient that died. And to the left and in the middle you see the challenge that our team has in separating the beta cells to be infused into the liver. How sick these patients, these pancreases looked.

Again for the sake of time, I'm just going to remind you definitions extremely important, acute fluid collections, acute necrotic collections less than four weeks very important to communicate in the same language.

Then we have patients that have after four weeks a very walled, very well organized collections that you can see a good capsule, that you can see very organized site. When it's fluid only, water only, pancreatic juices only, these are called serous cysts. When there's some mixture of fluids with necrotic debris, they're called walled off necrosis.

How do we treat them? Like the patient that you have here with symptoms, we go in either directly when you have a nice bulge or under endoscopic ultrasound if you have no bulge or if there's varices puncture the side, dilate, so we can go inside of the cavity. As Doctor Osma was just saying, it's very exciting procedure. You have to have these patients intubated. You always have to have the backup of other surgeons, because when things go wrong the patient can get very sick, very fast.

These are the chunks of dead pancreatic tissue and parapancreatic tissue that we're taking out. And below, to the right, you see all of the stents that we place, soft stents to keep the opening open. And everything that you have left behind hopefully will continue to come out.

This is the same patient almost two liters of fluid that were removed. And what you see here, it's approximately six weeks later. Complete collapse of the cavity. You can go back in and remove the stents or you can leave some of them in.

Doctor Marcus, I'm sure, is going to be talking a little bit more about this. This is a pleasure that I have had on working in this institution at the University of Chicago, to do hybrid, combined procedures. We works as a team with the surgeons with intervention on radiology. Larger lesions like this one that you see, we can go endoscopically and debris transcopically or to do it venally, the cavity. And we can have flushing ports, one or more, being placed to enhance the recovery. There's actually a study from this month from Doctor Ross that is very good talking about this subject.

This is a patient that we just got as a transfer. As you can see, severe necrotizing pancreatitis. In this case, infected. You can see that the necrotic debris, it's very pancreotic going all the the way down to the pelvis. There's no way in the world that endoscopic treatment only or combined with peritoneal draining only will cure this.

So here we get our surgeons involved in which, I was saying before, which is a pleasure to have Doctor Matthews doing what is called VARD, Video-Assisted Retroperitoneal Debridement. This idea came from a New England Journal article from 2010. Randomized, minimally invasive with a more invasive access. And we saw that minimally invasive doing VARD, the patients did much better. Again, without going into too much details.

We have these patients are generally very sick with multi-organ failure, in this case intubated requiring pressure support. A total of six peritonical strains had to be placed in order to access the cavity in all ways. You have here the back of Doctor Matthews and the fellows those that are helping with the port that is being used to access the cavity and debride the cavity as much as possible. Frequently more than one treatment is needed.

What you see here is the CT scan from two days ago and you can see in the image to the right the significant improvement and they matched to the left prior to treatment. You can see that the high rate temperature have all dissipated and improved. You have to be careful with complications if you don't have complications you're not doing enough the important thing is to recognize early so you can prevent a catastrophe.

To the upper left you see a cyst that got infected. To the right we're in the cyst cleaning more, debriding more to the left, it's time to stop. And in the right you can see more stents and a not so cystic a flushing port to prevent further infection.

And to conclude, these are all the complications, transmural perforation. This procedure was going perfectly well. Suddenly we see air. We have the back up of our surgeons. A couple of minutes later, the patient is in the operating room. The patients sign a consent. They know that there's a risk for these type of complications. Woke up with the problem solved and doing well.

This is a nice CT with 3D reconstruction showing that double pigtails are out in the peritoneal cavity. So with this, I would like to conclude and just mention that this is, again, a group approach. These are patients that are presented in our [? multi-disciplinary ?] conference every Wednesday, and we come up with treatment options, what's best for the patient as a group. And this is all the people that are working together.

And to conclude, this is our cert new unit. This is where most of the cases that you have seen Osma and I present today, where they're taking place.