[MUSIC PLAYING]

JULIE HEIMBACH: Obesity-related liver disease is the most common liver disease in the United States today.

TODD KELLOGG: As we have become a more obese nation, the incidence of liver failure associated with obesity, including non-alcoholic fatty liver disease and non-alcoholic steatohepatitis, has increased. And we're seeing more liver transplants as a result.

JULIE HEIMBACH: The idea is to combine both the liver transplant and a sleeve gastrectomy is a unique practice that we began here at Mayo Clinic.

TODD KELLOGG: To put those procedures together, I thought it was a great idea. It had the potential to serve a population of patients that otherwise didn't really have a treatment.

JULIE HEIMBACH: The combination of the sleeve gastrectomy and the liver transplant has dramatically changed the future for patients who essentially had no other treatment option. They were dying of liver disease, and they also had obesity. We were able to address both problems together.

TODD KELLOGG: The results of the program so far are favorable. We've seen benefits to the patient, both in the short and long term. There are a number of hospitals that don't consider doing a liver transplant in patients who are obese.

JULIE HEIMBACH: What should the approach be for the patient who is obese and needs a liver transplant? There's basically three strategies that a center could employ. You could say no to the patient, ask them to come back when they've lost the weight. The problem with that approach is, many patients can't do that. Certainly they can't do that on their own.

The second approach is just to go ahead with the transplant, accept that the patient has extra body weight, and accept that they may have problems in the short and in the long term related to that body weight. The third, which is the approach that we've taken, is to try to develop a structured program where you face both of those problems together.

For patients who are not successful, prior to transplant, losing their weight, either because they've been referred too late or because their weight is simply too high for them to be successful, or their liver disease has progressed too quickly, then in selected cases, we can offer the combined weight loss surgery with the liver transplant, in the hope that we can address both of their life-threatening problems at the same time.

TODD KELLOGG: If we were to have to do two separate surgeries on these patients, often the liver transplant would come first. The liver transplant is a big, complicated operation that requires a big incision. That can lead to a lot of scar tissue in the abdomen. And any further surgeries would require managing that scar tissue during the operation, which makes it difficult.

JULIE HEIMBACH: Going back a second time for a surgery in a delayed fashion, which certainly would be tempting, because you don't have to deal with the massive surgery of a liver transplant at the same time-- the problem with that is now the patient is on long term immunosuppression. He has a lot of scar tissue that has developed from his first surgery. And it becomes a technically more demanding surgery.

TODD KELLOGG: The risk would be higher for patients who have had a transplant because of the need for immunosuppression, which can also impair healing.

JULIE HEIMBACH: Plus, the patient has a second hospital stay and a second recovery. Many patients who've already gone through a liver transplant simply can't face the idea of going through another big surgery with a hospital stay associated with it. To me, it didn't make sense to just address the liver transplant part of things and leave the obesity without a solution, because it seems like the same problem would occur again-- that the new liver would be injured by the obesity over time.

TODD KELLOGG: If they don't control their weight after surgery, their new liver will be at risk for the same disease.

JULIE HEIMBACH: We had the idea to combine them, because the exposure for a liver transplant provides excellent exposure to the upper abdomen, which is where the stomach is. So the sleeve operation is technically very straightforward to do at the same time as the liver transplant. We don't need to change our incision or even change our retraction in order to accomplish that.

TODD KELLOGG: The reason we chose to do a sleeve gastrectomy instead of a gastric bypass is because, first of all, the sleeve gastrectomy is a technically simpler and quicker operation to do. And when you're doing it at the end of a liver transplant, which is a long, complicated operation, it's more favorable to do the technically easier and quicker operation. Also, there are advantages, in that there's no malabsorption with the vertical sleeve gastrectomy so that absorption of transplant medications after the surgery would be less impaired.

JULIE HEIMBACH: Liver transplant itself is very transformative. A patient goes from being essentially moribund or gravely ill to being able to be independent and functioning and almost back to normal life within weeks to months after transplant. And with the sleeve gastrectomy, patients who've struggled with obesity for the majority of their adult life and even, in some cases, adolescent and childhood, they now have this new freedom to be independent.