

**IMAD ABSAH:** My name is Imad Absah. I'm a pediatric gastroenterologist at Rochester, Minnesota at the Mayo Clinic. I'll be talking to you today about the mucosal healing or the rate of mucosal healing in children with celiac disease who are already treated with gluten-free diet. There is no specific test or noninvasive test to assess the true healing rate. More recent report looking at the antibodies found that negative inter-measles antibodies is the most predictive antibody or blood test to assess the true rate of healing and resolution of them because of injury.

The rate of healing in children has been always presumed historically to be complete within six months or 12 months on the gluten-free diet, based on all data when people used to use what's called Crosby capsules to get us more about biopsy. Recent adult GI or adult studies found that the rate of healing is low and variable, maybe only 66% after five years healed their gut and there has been no recent data in children.

Because of that, we looked at our own records between 1997 and 2013. We identified all the children with celiac disease and we looked into the ones that had a repeat biopsy. We found 40 children out of 222, which is about 18%, had a small bowel biopsy repeated.

Now the downside that this is a retrospective and also it is small sample size, and almost all the children who had repeat biopsy had symptoms. So it wasn't a true follow-up biopsy, but it was an indirect way of assessing the rate of healing. Most of these kids had abdominal pain. The second complaint was diarrhea, said the third one was constipation, and there was few patients with other symptoms like dysphasia.

The biopsies were reviewed by one pathologist and the frame between the first and the second biopsy was 24 months average. We found that only 64% of these children had complete healing. 23% has mild inflammation with only lymphocytic, but no villous atrophy. And the rest had persistent injury.

Again, as I said, most of these patients had symptoms, but when we reviewed the biopsies we found there was no good correlation between the symptom persistence and also villous atrophy. So there was 20 patients with abdominal pain. Only two had persistent injury of the gut, and seven patients with diarrhea and only one had persistent injury.

So in conclusion, in the selected group of patients with treated celiac disease, only 64% had complete healing. If you add the ones had only lymphocytic, but no villous atrophy, that would be about 85%, so 15% had persistent injury. And there was poor correlation between the symptom persistence and mucosal injury. Thank you.