**BACKGROUND:** Enterochromaffin-like cell hyperplasia and neuroendocrine tumors are relatively rare in childhood.

**CASE CHARACTERISTICS:** A 15-year-old girl who presented with epigastric pain and a 6-year-old boy who was admitted with hematochezia. Endoscopy revealed nodules in the stomach in Case 1, and polyploidy lesion in the rectum in Case 2.

**OUTCOME:** Enterochromaffin-like cell hyperplasia in Case 1 and neuroendocrine tumor in Case 2.

**MESSAGE:** A low index of suspicion for neuroendocrine tumors in children can result in delay in the detection of these rare but potentially malignant diseases.