A nonverbal 18-year-old with a history of autism, seizures, and profound intellectual disability presented to the emergency department with difficulty walking, emesis, chills, decreased energy, and decreased activity as described by his family. His white blood cell count was 22,070 cells/mcL, serum aspartate aminotransferase was 65 mmol/L, and serum alanine aminotransferase was 63 mmol/L. A computed tomography (CT) scan of the head and a lumbar puncture were normal. Upon arrival to the general medical floor, the patient’s physical examination was notable for a temperature of 100.8°F and agitation. He had active bowel sounds, and his abdomen was soft, nondistended, and nontender to palpation. The remainder of his examination was unremarkable. By hospital day 1, initial blood and urine cultures showed no growth. Abdominal ultrasound showed focal nodular hyperplasia of the liver without biliary disease. Rapid plasma reagin, monospot, human immunodeficiency virus, hepatitis B virus, and hepatitis C virus serologies were negative. The epilepsy service did not feel that the increase in his serum aminotransferases was due to his antiepileptic medications. The patient remained persistently febrile up to 102.5°F in the absence of an obvious infectious source. On hospital day 3, the infectious disease service was consulted and recommended abdominal and pelvic CT, which showed an abscess of 9.7 by 8.3 cm in the right hepatic lobe and a long metallic foreign object in the cecum and ascending colon (Figure 1). Interventional radiol-

Figure 1. Frontal computed tomography scan demonstrating a 9.7-cm × 8.3-cm hepatic abscess (indicated by the white star) located within the right hepatic lobe.
ogy drained the hepatic abscess and placed a hepatic drain. Fluid cultures grew *Streptococcus milleri* and the patient was started on ceftriaxone. After drainage of the abscess, the patient quickly defervesced, and his other clinical symptoms improved as well.

**DIAGNOSIS**

*Streptococcus milleri*

Liver Abscess Secondary to Cecal Foreign Body

Initial gastroenterology and surgery recommendations included a laxative regimen to encourage spontaneous passage of the object. After 4 days, the foreign object failed to progress on serial abdominal radiographs (Figure 2). The gastroenterology service subsequently performed a colonoscopy and retrieved a metallic spoon handle (Figure 3). After the CT findings were reported, the team obtained further history from the patient’s family. According to the patient’s mother, the patient would eat anything in reach when he felt stressed or in the time surrounding a seizure. Specifically, he often broke handles off of spoons, occasionally swallowing them. The family monitored him closely and limited access to potentially dangerous items as much as possible.

The drain was removed 23 days later, with no residual intrahepatic abscess on CT. The patient did not have clinical recurrence of the abscess in 8 months of observation.

**DISCUSSION**

Adults with autism spectrum disorder (ASD) constitute an emerging population. Although it is unclear whether the increase in prevalence reflects an increase in awareness, changing diagnostic classifications, or true increases in the incidence of ASD, the overall prevalence of ASD in children age 8 years increased by 78% to 11.3 per 1,000 children between 2002 and 2008. Autism is a lifelong disease, and as these children age, health care providers will care for increasing numbers of adults with ASD.

This case features an adult with ASD accompanied by profound intellectual disability, which co-vary at high rates. In 2008, the US Centers for Disease Control reported that 38% of children with ASD also had intellectual disability (IQ <70) and 24% had borderline intellectual functioning (IQ 71-85). Adults with ASD and intellectual disability frequently display challenging behaviors (CBs), which include pica, aggression, tantrums, destructive behaviors, and self-injurious behaviors.

The majority of CBs serve to get attention, gain access to intangibles, escape physical or emotional discomfort, or self-stimulate.

Both CBs and the inability to verbally communicate can interfere with medical care in patients with ASD and intellectual disability. However, increases in the frequency and intensity of these problem behaviors can be directly correlated to pain or illness, and can thus provide diagnostic clues indicating illness or physical pain that the patient is unable to verbalize. Therefore, all medical providers should obtain a thorough history from caregivers about recent changes in amount, type, pattern, and intensity of CBs, as well as any previous history of CBs associated with discomfort.

Pica is the most notable CB in the patient we have described, and it is common in patients with intellectual disability. The prevalence

Figure 2. This radiograph of kidneys, ureters, and bladder demonstrates the 10-cm × 1-cm metal spoon handle in the right lower quadrant.

Figure 3. This image demonstrates the spoon handle as encountered in the cecum during colonoscopy. The handle was found to be mobile upon repositioning the patient and was subsequently extracted from the cecum using a small snare that grasped its sharp end.
of pica is estimated to be between 4% and 26% in patients with intellectual disability and as high as 60% in patients with both intellectual disability and ASD.²⁶ Of the CBs, it is particularly important to be aware of pica, because it can cause significant medical consequences including small bowel obstruction, parasite infestations, gastrointestinal perforations, and death.⁷,⁸

Our patient was found to have an *S. milleri* hepatic abscess. The most common causes for *S. milleri* hepatic abscesses are cholecystitis, cholangitis, and bacteremia,⁹ and risk factors include diabetes, cancer, cirrhosis, alcoholism, and immune suppression.¹⁰ Our patient did not have any of these acute medical conditions or risk factors; therefore, the only likely cause of his hepatic abscess was the large foreign body in his cecum. Because our patient did not have perforation visible on CT, we hypothesize that the sharp edges of the spoon handle caused radiographically undetectable injuries to the gut mucosa as it traversed his gastrointestinal tract, and that hematologic seeding via the portal system likely caused the hepatic abscess. This mechanism has been reported previously in cases of foreign body ingestion and hepatic abscesses where there is no evidence of perforation on imaging.¹¹

Even in patients with normal intellectual ability and a suggestive physical examination, there have been case reports of delays in diagnosing hepatic abscesses secondary to foreign body ingestion. These delays were due to vague constitutional symptoms, non specific results from CT and ultrasound, and lack of memory of the foreign body ingestion.¹⁰,¹²,¹³ Several additional factors led to diagnostic delay in our patient, including a benign examination, a nonverbal patient, and an initial history that did not address pica. To minimize potential delays in diagnosis in patients with ASD and intellectual disability, we recommend thoroughly screening this population for a history of pica and CBs. Furthermore, in patients with a history of pica who present with vague constitutional signs and symptoms, intra-abdominal pathology such as hepatic abscess should be considered, even if the examination appears benign, and imaging may be needed for definitive diagnosis.

**CONCLUSION**

Our patient’s diagnosis was delayed by 2 days because the treatment team did not ask about a history of pica or other CBs. Adults with ASD and intellectual disability are an emerging population, and their unique medical and behavioral issues significantly affect their health. This case, and the delay in diagnosis due to its specific challenges, emphasizes the importance of increased awareness and education among health care providers regarding medical complications of CBs in patients with ASD.

**REFERENCES**


