

# Behavioral changes in patients with Prader-Willi syndrome can mask severe physical illness

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## Background

The lack of expression of genes inherited from the paternal chromosome 15q11-q13 region (due to uniparental maternal disomy, paternally inherited deletion of the 15q11.2-q13 region, imprinting defects or translocations), causes Prader-Willi Syndrome (PWS). Apart from the typical clinical features (dysmorphism, hypogenitalism, axial hypotonia, and neonatal feeding difficulties gradually progressing towards excessive eating and insatiability), cognitive impairment and psychiatric comorbidity, PWS is associated with impaired peripheral somatosensory function (resulting in altered pain tolerance and self-stimulating activities such as skin-picking and self-injurious behavior). Autonomic dysfunction, more specifically diminished parasympathetic activity, causes faulty central thermoregulation in patients with PWS. Together with the high threshold for vomiting, it is no surprise that intra-abdominal pathology is a frequent cause of morbidity and mortality in patients with PWS, with diagnosis often being delayed due to atypical presenting symptoms and diminished ability to express complaints.

We present two patients where diagnosis of severe intra-abdominal pathology was delayed due to the presenting symptom of newly onset behavioral symptoms in addition to non-specific abdominal complaints. We urge caution if PWS patients present with newly onset abdominal symptoms or change in behavior, as these could be the only signs of life-threatening underlying illness.

**A thirteen-year-old girl with PWS** presented with behavioral changes (increasing episodes of self-harm, skin-picking and aggression), constipation and soiling. A genital physical examination was not performed because of her lack of cooperation. She was treated with laxatives.

It was only after five months, when vaginal soiling was reported by the parents, that abdominal CT and MRI scans were performed, showing a pyosalpinx and intra-abdominal mass. An explorative laparoscopy followed and, she was diagnosed with an infected tailgut cyst.

After drainage of the abscess and therapy with intravenous antibiotics, the constipation, soiling and behavioral symptoms ceased.

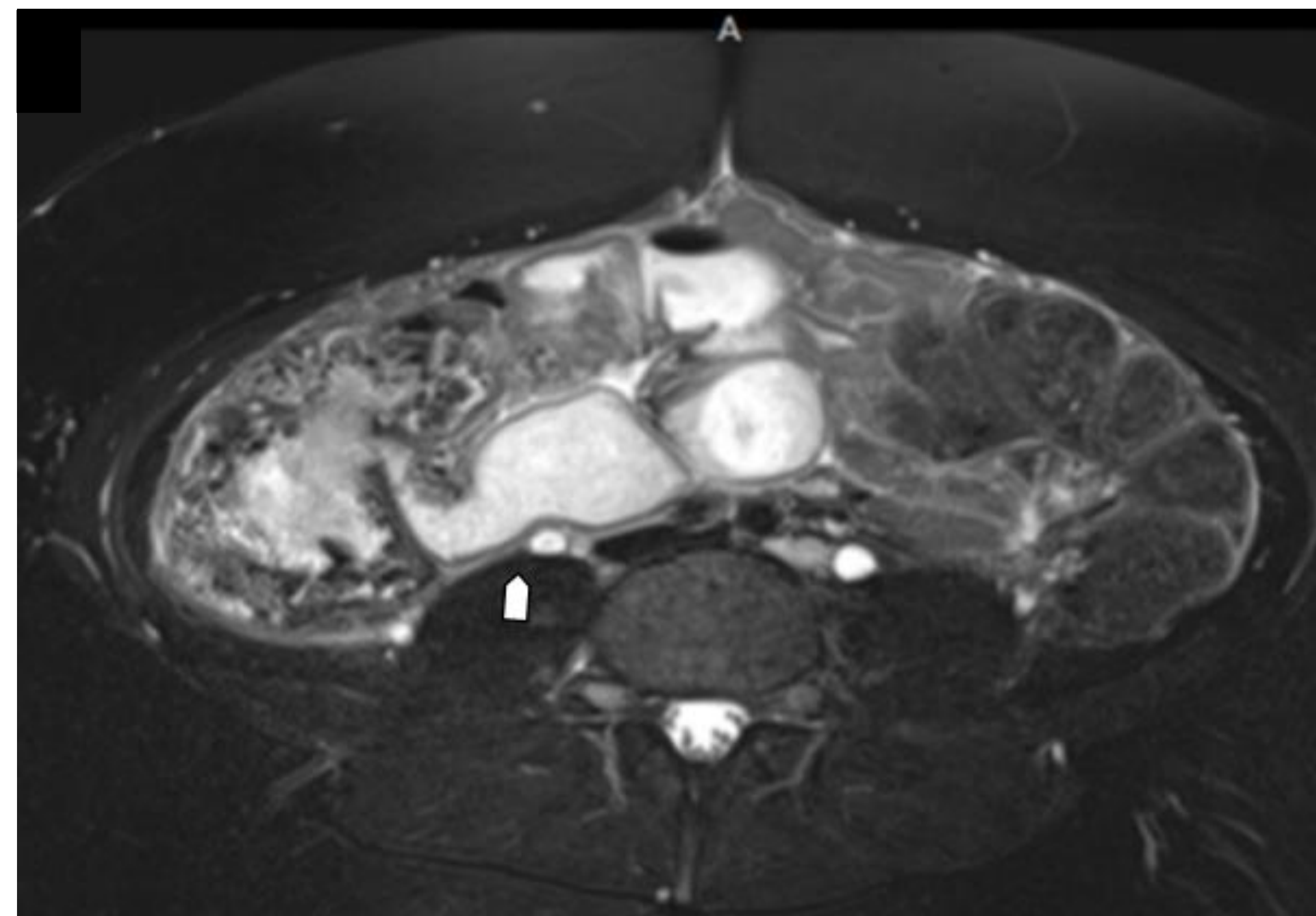


Figure 1. T2-weighted MRI scan showing an intra-abdominal mass and pyosalpinx (arrow)

**A 38-year-old man with PWS** had symptoms of inguinal and abdominal, leg and back pain, tingling in the hands and nightly headaches, additionally he developed non-epileptic paroxysmal seizures (PNES). He was treated with physiotherapy, anti-epileptics, muscle relaxants, antidepressants and corticosteroids and was hospitalized several times to both medical and psychiatric services, causing him to develop post-traumatic stress disorder.

Several years after symptom onset, due to worsening seizures, irritability, abdominal pain and urinary incontinence, an abdominal CT scan was performed, showing bilateral inguinal hernia with incarcerated bowel loops. Corrective surgery resolved all symptoms, including the behavioral change and PNES.



Figure 2. CT scan showing a bilateral inguinal hernia with incarcerated bowel loops (arrows)

## Learning points

- Behavioral problems including temper tantrums, stubbornness, aggressive outbursts and self-injurious behavior, as well as psychiatric comorbidities including autism spectrum disorder, anxiety, mood disorders and psychosis are common in PWS.
- Individuals with PWS have a high pain threshold, impaired temperature regulation and a high threshold for vomiting leading to a risk of delay in the diagnosis of severe physical problems.
- PWS patients can have difficulty expressing their health problems, therefore, information from caregivers and family can provide important clues in the diagnostic odyssey.

- Health care providers should be cautious about underlying physical disease when behavioral changes occur in patients with PWS.

- **A change in behavior can be the presenting symptom of serious physical illness in PWS patients and should not be mistaken as part of their behavioral phenotype causing diagnostic delay.**



Want to read more? Van Loo L, Vogels A, Rochtus A. Behavioral Changes in Patients With Prader-Willi Syndrome Can Mask Severe Physical Illness. JCEM Case Rep. (2023)