

Acute Hydronephrosis in the Setting of Clozapine-Induced Urinary Retention: A Case Report

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HISTORY

A 57-year-old Caucasian male with a known history of schizoaffective disorder, bipolar type presented to the emergency department from a psychiatric group home with the primary concern of blisters on his feet and bunion pain. His medication included 175 mg QD of clozapine, 300 mg QD of lithium, 0.5 mg QD of clonazepam, 20 mg BID of propranolol, 1 mg BID of ropinirole, and 150 mg QD of venlafaxine. The patient was not oriented to person, place, time, or situation, and he was extremely agitated and unable to be redirected by staff. Review of systems was unobtainable due to patient's altered mental status at the time of arrival.

EXAM

General: Patient acutely agitated, disheveled appearance, with noticeably poor hygiene
Cardiovascular: Regular rate and rhythm, No murmur
Pulmonary: Lungs clear to auscultation bilaterally, No wheezes, rales, or gallops
Abdominal: **Distended lower abdomen that was painful on palpation**, Normal bowel sounds
Genitourinary: Urology consulted without evidence of BPH or prostate cancer
Neurologic: Awake, **not oriented to person, place, time, or situation**

Mental Status Exam

Appearance: disheveled, poorly groomed
Speech: disorganized, incoherent
Mood: "fine"
Affect: blunted, incongruent with mood
Thought process: disorganized, tangential
Thought content: **Positive for auditory hallucinations and paranoia**
Insight: poor
Judgement: poor
Behavior: guarded, psychomotor agitation noted

TESTS AND RESULTS

CT head w/o contrast	No acute intracranial process
CTA head and neck w/ contrast	No significant stenosis within the head or neck
Urine Bladder Scan	Showed 800 cc of urine originally Post-void residual was 700 cc
CT abdomen and pelvis w/o contrast	Distended bladder and severe R and L hydronephrosis
Urinalysis	Moderate leukocyte esterase
Pertinent Labs	BUN: 24 (H) Cr: 1.05 (WNL) WBC: 12.6 x 10 ³ /mcl (H) UDS: Negative
PSA	1.78 ng/mL (WNL)

IMAGING

Image 1 (right): Severe Right Hydronephrosis in our patient

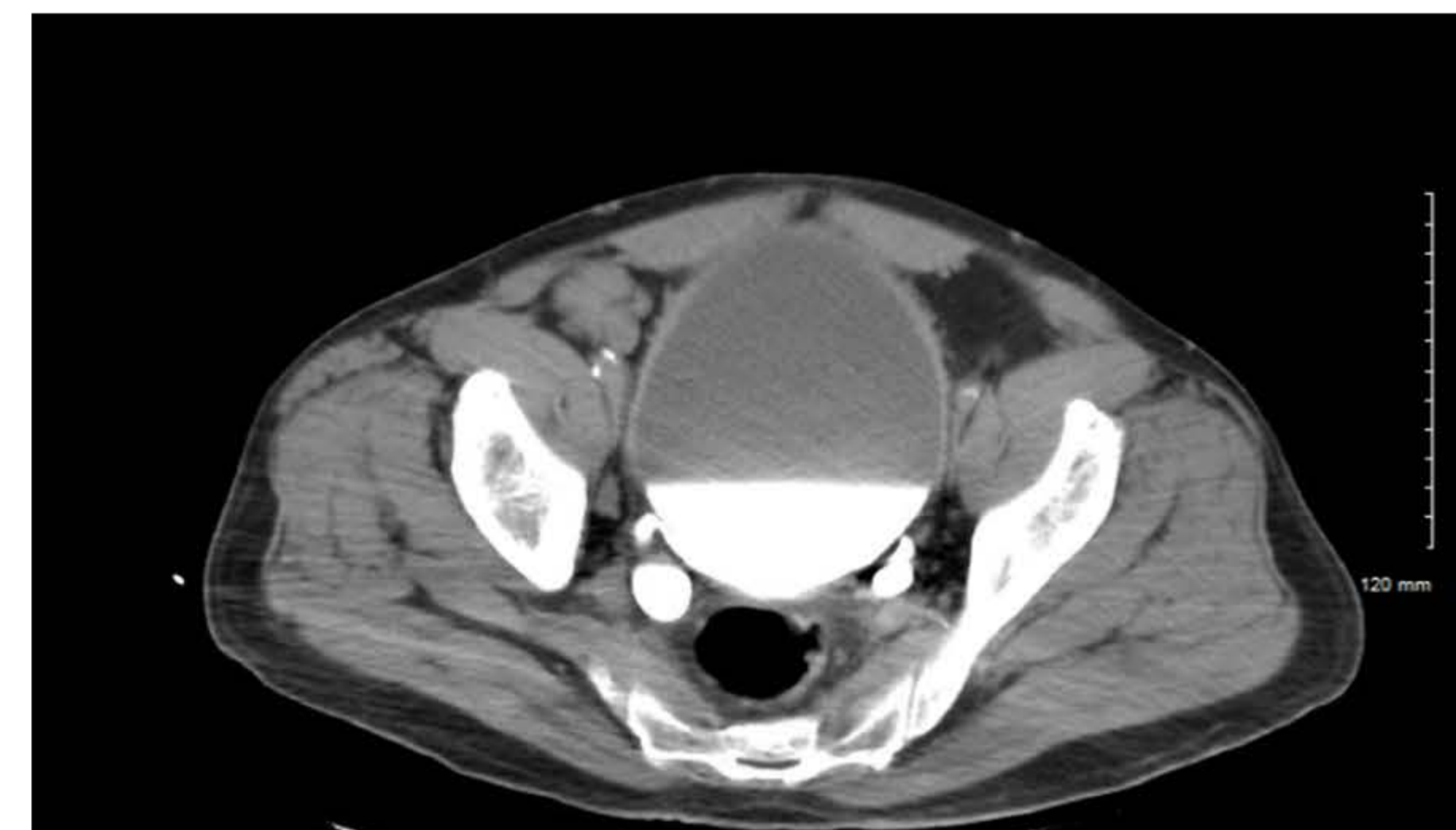
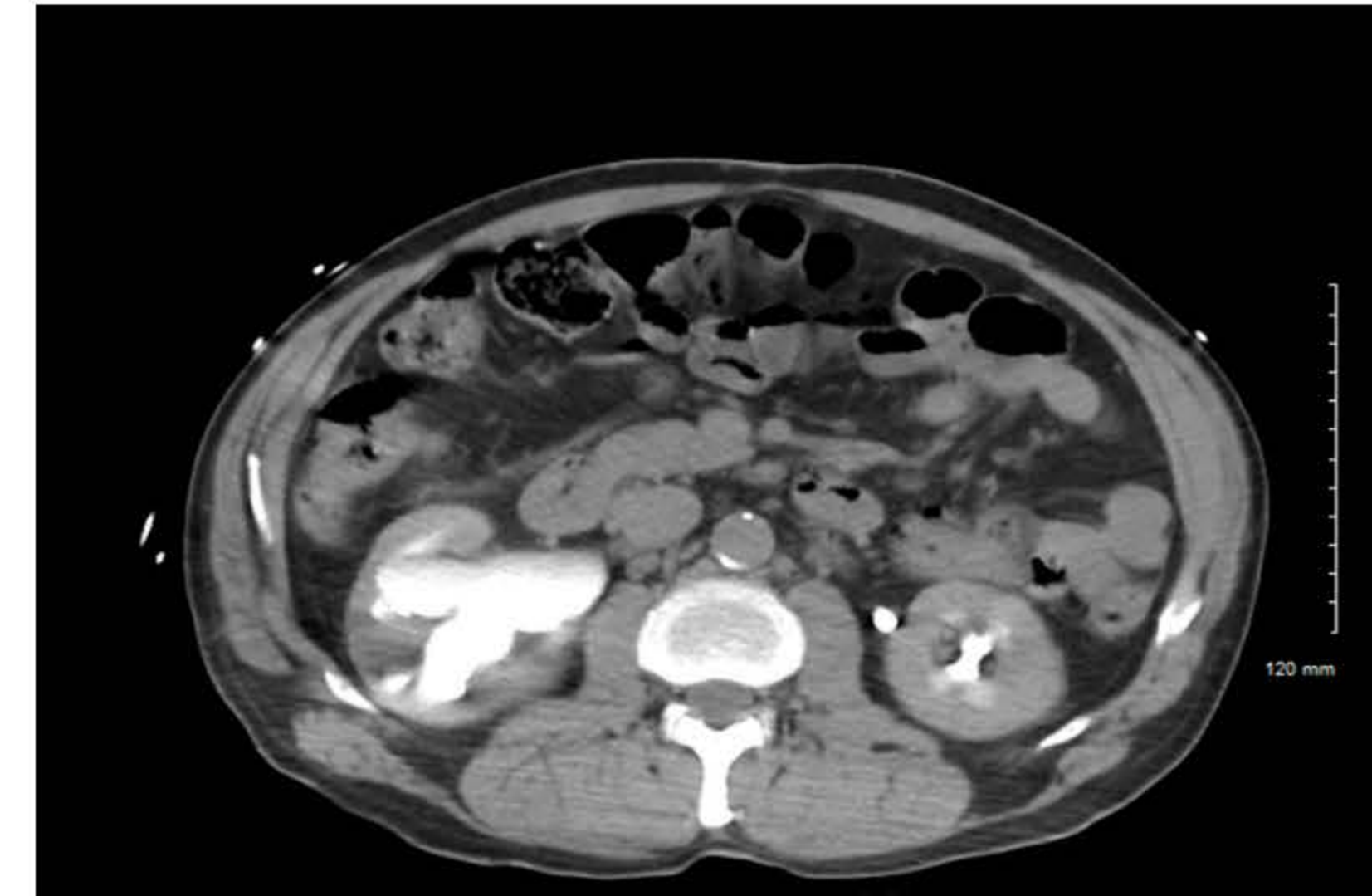


Image 2 (left): Distended Bladder in our patient

Anticholinergic Risk Scale (ARS) of Common Psychotropic Medications

Drug	Class	Anticholinergic Risk Scale (ARS) Score	Anticholinergic Risk Level
Clozapine	Atypical antipsychotic	3	High—Marked anticholinergic activity
Lithium	Mood stabilizer	0	None—No known anticholinergic activity
Venlafaxine	SNRI	1	Low—Mild anticholinergic activity

Table 1: Anticholinergic Risk Scale (ARS) of Common Psychotropic Medications¹

DIFFERENTIAL DIAGNOSES

- Delirium
- Mental decompensation secondary to Schizoaffective disorder
 - Medication side effect
- Benign Prostatic Hyperplasia
- Bilateral hydronephrosis
 - Urinary retention
- Urinary tract infection

FINAL DIAGNOSIS

Clozapine-Induced Urinary Retention

HOSPITAL COURSE

Inpatient medicine was consulted, and the patient was admitted for altered mental status. Psychiatry and urology were consulted. A foley catheter was placed prior to admission.
Day 1 Morning: Patient was initially treated with 0.4 mg QD of tamsulosin for his urinary retention. He was also chemically sedated due to violence and physical aggression towards staff. For patient safety, the foley catheter was removed due to patient's repeated attempts to self-discontinue the foley.
Day 1 Afternoon: Psychiatry made the decision to stop clozapine, as it was suspected that the urinary retention and bilateral hydronephrosis could be secondary to anticholinergic burden from clozapine. The patient was started on 1 mg BID prn of risperidone in place of clozapine. He was also started on 25 mg TID of bethanechol for urinary retention.
Day 1 Night: Patient was transferred to the ICU for increasing agitation, aggression, and threats at medical staff.
Day 2: Patient began having good urine output and urinating freely. Still on bethanechol. Patient remained on bethanechol for 3 days with consistent improvement and eventual resolution of his urinary retention. He was started on 6 mg QD paliperidone and long-acting injectable Invega sustenna. He was discharged on the fourth day to an inpatient psychiatric unit.

DISCUSSION

This case highlights a rare but potentially serious adverse effect of clozapine that is likely underrecognized due to limited clinician awareness and sparse representation in the psychiatric literature. Current literature on clozapine-induced urinary retention predominantly attributes this adverse effect to the drug's anticholinergic properties.² The Anticholinergic Risk Scale (ARS), developed in 2008, is a clinical tool that was developed to quantify the anticholinergic burden of many medications, including psychotropic medications.¹ It assigns a score to commonly used medications based on their known anticholinergic activity, with the goal of identifying those patients that are at an increased risk of anticholinergic side effects, such as urinary retention, dry mouth, blurred vision, and constipation.³ The scale scores medications from 0-3, with 3 representing very strong anticholinergic potential.¹

The patient in this case was on two anticholinergic medications that could have increased his risk of developing urinary retention, the most noticeable one being clozapine. This is further supported by the fact that bethanechol, a cholinergic agent, successfully resolved this patient's urinary retention.

Clozapine-induced urinary retention, while rare, can significantly impact patient quality of life and treatment adherence. Without prompt management, urinary retention can quickly progress to kidney disease and possibly even renal failure in severe instances. Early recognition and appropriate management strategies—such as dose adjustment, symptomatic treatment with bethanechol and tamsulosin, and close monitoring—can allow providers to best care for patients with refractory schizophrenia.

REFERENCES

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