Acute Abdominal Pain Accompanied by High Creatinine in a Female Patient With Schizophrenia

Esteban Mauerhofer, Martin Lüscher, Cedric Poyet, Karim Saba, Gustav Andreisek, Tullio Sulser, and Ashkan Mortezavi

CASE REPORT

A 33-year-old woman with acute schizoaffective psychosis was referred to our emergency department from a psychiatric hospital with a 24-hour history of progressive abdominal pain and vomiting. Three weeks earlier, the patient had undergone uncomplicated laparoscopic bariatric gastric bypass surgery and was discharged in good general health. Shortly afterward, she was admitted to a closed psychiatric ward after an acute exacerbation of her known schizoaffective disorder. Because of massive psychiatric deterioration and a catatonic status, various psychotropic drugs were administered orally and intramuscularly over a period of 14 days during her stay in the psychiatric ward. Table 1 presents an overview of the drugs that were administered to the patient. After 3 days of intravenous fluid replacement, the patient became more cooperative and capable of oral fluid and food intake. On discharge, the patient's psychiatric medication consisted of lorazepam, biperiden, haloperidol, and olanzapine. A full medical history was difficult to obtain in the emergency department because of a disease-related lack of patient cooperation. Because the patient had been under close supervision in the psychiatric ward, abdominal trauma and foreign body ingestion were ruled out. Constipation was the only abdominal complaint documented since her bypass surgery.

The clinical examination on admission revealed a tender, distended abdomen. Her vital signs were as follows: temperature 36.9°C, blood pressure 150/95 mm Hg, and pulse rate 120 beats/minute. Laboratory findings revealed an elevated white blood cell count of 22,000 cells/mcL, a C-reactive protein level of 195 mg/L, a creatinine level of 12.9 mg/dL, and a blood urea nitrogen concentration (BUN) of 113.3 mg/dL. All other tested blood parameters were in the normal range. The urinalysis was positive for red (>1000/μL) and white blood cells (71/μL) but negative for nitrites, yeasts, and microbes.

DIFFERENTIAL DIAGNOSIS

In patients with acute abdomen and histories of gastric bypass and vomiting, the most likely diagnoses are an internal hernia or bowel obstruction. Because the amylase level, aspartate and alanine transaminase level, bilirubin level, and alkaline phosphatase level were within the normal ranges, the suspicion of acute pancreatitis or cholestasis remained low. On the basis of the abnormal urinalysis report and the accumulation of BUN and creatinine, a genitourinary cause (eg, obstructive urolithiasis) was considered to be a possible differential diagnosis, although the creatinine level was very high.

DIAGNOSTIC ASSESSMENT AND IMAGING

A noncontrast abdominopelvic computed tomography (CT) did not reveal any signs of intestinal perforation or obstruction (Fig. 1A,B). However, significant bladder wall thickening, retroperitoneal stranding, and perivesical fluid collection were described by the radiologist. On the basis of the clinical, laboratory, and radiology findings, a diagnosis of hemorrhagic cystitis was proposed by the surgeon on call. A urinary catheter was inserted, and empiric intravenous antibiotic therapy with tazobactam was initiated after urine cultures were collected.

Within 48 hours, the white blood cell count (9300 cells/mcL), creatinine level (0.9 mg/dL), and BUN (19.9 mg/dL) normalized, and C-reactive protein decreased to 118 mg/L. The patient was pain-free under basic analgesia and had a normal urine output.

All blood and urinary culture samples remained negative. Because the patient had a persistent subfebrile temperature on the fifth day of hospitalization, a follow-up CT scan of the abdomen with contrast was performed and revealed contrast leakage in the pelvis, which led to the diagnosis of a spontaneous extraperitoneal bladder rupture (Fig. 1C). We opted for further conservative treatment by leaving the indwelling urinary catheter

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Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

From the Department of Urology, University Hospital Zurich, Zurich, Switzerland; and the Department of Diagnostic and Interventional Radiology, University Hospital Zurich, Zurich, Switzerland

Address correspondence to: Ashkan Mortezavi, Klinik für Urologie, Universitätsspital Zürich, Frauenklinikstr. 10, 8091 Zürich, Switzerland. E-mail: Ashkan.Mortezavi@usz.ch

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Table 1. Overview of psychotropic drugs administered to the patient during the psychiatric hospitalization

Drug	Class/Effect
Biperiden	Anticholinergic
Clozapine	Atypical antipsychotic
Diazepam	Benzodiazepine
Haloperidol	Typical antipsychotic
Lorazepam	Benzodiazepine
Olanzapine	Atypical antipsychotic
Venlafaxine	Serotonin-norepinephrine reuptake inhibitor
Zuclopenthixol	Typical antipsychotic

in place. Cystographies performed in the third and seventh weeks revealed a persistent urinary leak (Fig. 2A,B). A final cystography in the ninth week revealed no further leakage (Fig. 2C), and the urinary catheter was removed at this point.

DISCUSSION BY TULLIO SULSER AND ASHKAN MORTEZAVI

Most bladder ruptures are caused by blunt trauma to the abdomen. However, spontaneous bladder ruptures (SBRs) are defined as ruptures that are not associated with trauma and are therefore rare events. The incidence of SBR is approximately 1 in 73,400 hospital admissions,[1] and the majority of the reported cases have had underlying bladder diseases or outflow obstructions in common. Haddad et al[2] described the following 4 groups of etiologic factors: dulled sensorium, weakening of the bladder wall, increased intravesical pressure, and vascular lesions (because of, eg, radiotherapy, arterial embolism, and vesical infarction). Table 2 summarizes an overview of the factors that have been reported to lead to SBR.

The reported cases of SBR without pre-existing damage have occurred almost exclusively in association with alcohol intoxication alone or in combination with substance abuse.[3,4] Although it has been thought that woman, because of the shorter length of the urethra and the less distinct sphincter mechanism, would exhibit a tendency to leak rather than rupture, several cases of spontaneous bladder perforation in women after binge drinking have been reported.[5] In terms of pathophysiology, the combination of overdistention from increased urine volume and decreased perception of the need to void causing ischemia and possible vesical (micro) infarction has been suggested. Generally speaking, urinary retention should be considered as the underlying etiologic factor in SBRs without pre-existing bladder wall damage.

Here, we present the first documented case of SBR in a patient with no clear predisposing factors that was induced by psychotropic drugs. Significant abdominal trauma was ruled out on the basis of the clinical findings (ie, no physical marks) and the medical history (ie, close patient surveillance in a locked psychiatry ward). Because of the localization of the leakage (the left lateral bladder wall, Fig. 2), an injury through an inserted foreign body was also unlikely. Thus, a perforation secondary to drug-induced acute urinary retention that was not noticed in the psychiatric ward remains the most plausible

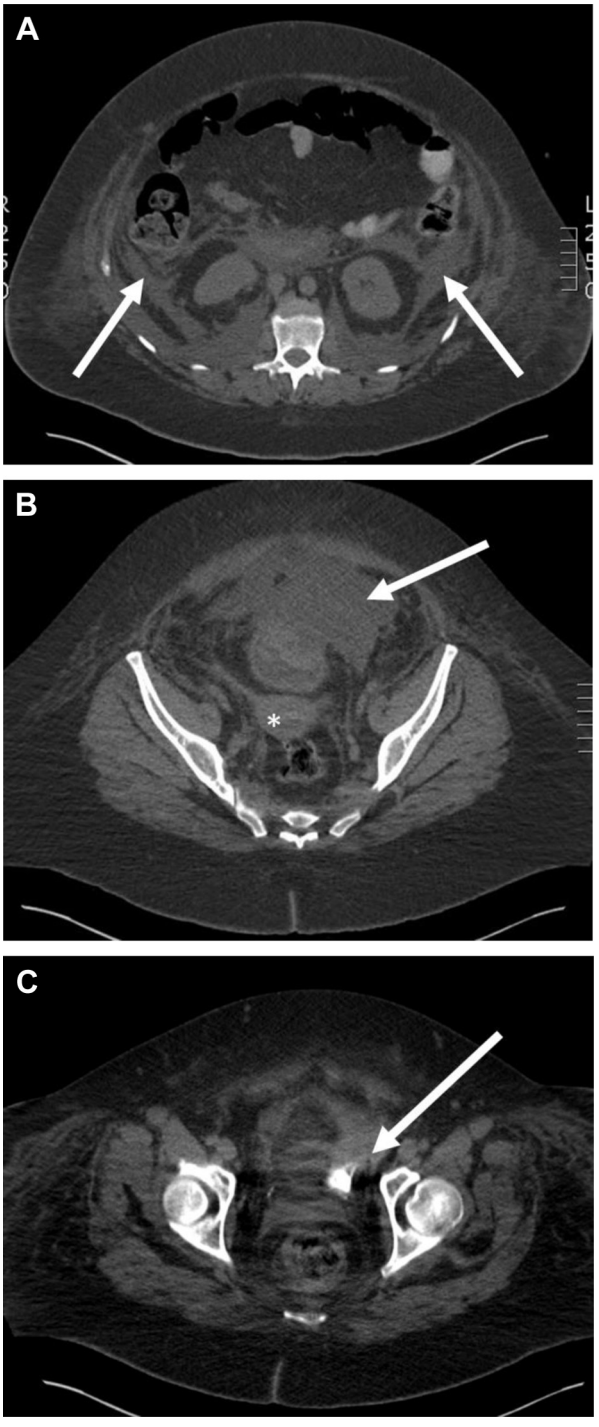

Figure 1. **(A)** Non–contrast-enhanced abdominopelvic CT at the level of the lower renal poles showing retroperitoneal fluid and stranding (arrows). **(B)** Non–contrast-enhanced abdominopelvic CT at the level of the uterus (asterisk) showing extraperitoneal fluid ventral to the bladder (arrow) and intravesical hyperintense inhomogeneity. **(C)** Contrast-enhanced abdominopelvic CT taken 5 days later at the level of the hip joints showing contrast leakage (arrow) as a direct sign of the retroperitoneal rupture of the bladder.