



Emphysematous Cystitis

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Keywords

Emphysematous cystitis; Diabetes mellitus

Clinical Image

This case describes a 62-year-old female with type 2 diabetes mellitus who presented to the Department of Emergency with abdominal pain, nausea, and vomiting. Ultrasound, plain radiograph and computed tomography of the abdomen showed diffuse gas within the bladder wall. The predisposition of diabetes mellitus and urine culture of *Escherichia coli* was considered to precede the manifestation of emphysematous cystitis. Upon antimicrobial therapy completion, the patient was recovered uneventfully.

A 62-year-old female patient with a medical history of cured typhoid, poorly controlled type 2 diabetes mellitus, and diabetic retinopathy presented to the Department of Emergency with a ten-day history of abdominal pain, nausea, and vomiting. A physical examination revealed the following: temperature, 37.1°C; respiration, 18 times per minute; heart rate, 91 beats per minute; and blood pressure, 148/83 mmHg. Percussion in the right upper quadrant of the abdomen and around the umbilicus elicited pain. Routine blood test showed leukocytosis (white blood cell: 10.2 × 10⁹/L), mild anemia (hemoglobin: 78 g/L), and hyperglycemia (blood glucose: 14.6 mmol/L). Urinalysis indicated glucosuria (urine glucose 2+) and pyuria (urine leukocyte 2+). After admission, biapenam was administered as empiric therapy for urinary tract infection. Ultrasound images showed distended bladder with diffuse hyperechoic appearance with posterior shadowing (Figure 1A and B). Plain radiograph of the abdomen displayed increased bladder diameter and a prominent air-fluid level in the shape of bladder region (Figure 2). Computed tomography of the abdomen showed diffuse gas within the bladder wall (Figure 3). Subsequently, urine culture revealed *E. coli* resistant

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Figure 1: Ultrasound scan of the patient's bladder before and after treatment. (A) Ultrasonographic image through the abdomen showing blurred vision of bladder wall with "drape-like" sign (arrow). (B) Ultrasonographic image through the pelvis showing diffuse hyperechoic appearance and "comet tail" sign (arrow) within the thickened bladder wall, Longitudinal. (C) Ultrasonographic image through the pelvis showing diffuse hyperechoic appearance and "comet tail" sign (arrow) within the thickened bladder wall, Latitudinal. (D) Ultrasonographic image through the abdomen showing the normal bladder wall without any hyperechoic appearance after systematic treatment.



Figure 2: Plain radiograph of the patient's bladder. X-ray of the abdomen showing increased bladder diameter and a prominent air-fluid level in the shape of bladder region.

to ampicillin, cefazolin and levofloxacin, whereas blood culture was negative. These findings suggested emphysematous cystitis. Repeated urine culture revealed *Stenotrophomonas maltophilia* growth after antimicrobial therapy with intravenous biapenam for one week, and blood culture remained negative. Therefore, the antimicrobial

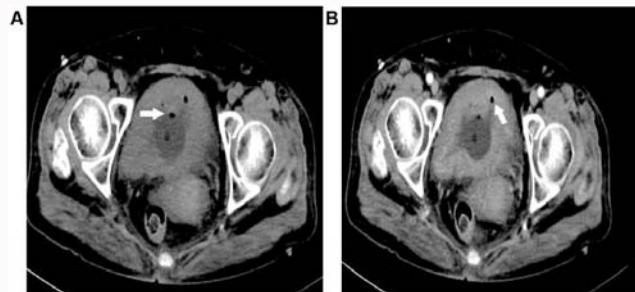


Figure 3: Computed tomography scan of the patient's bladder. (A) Non-enhanced computed tomography image of the abdomen showing diffuse gas (arrow) within the thickened and hydropic bladder wall. (B) Contrast-enhanced computed tomography image showing presence of gas (arrow) within bladder wall.

agent was escalated to cefoperazone sodium and sulbactam sodium. Upon therapy completion, the emphysematous changed in bladder returned to normal (Figure 1C and D) and the patient was recovered uneventfully.