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Case Report

CASE REPORT

Foley catheter erosion through bladder wall causing intraperitoneal bladder injury: a case report

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Abstract

Bladder perforation due to indwelling catheters is regarded to be a very rare incident. Most cases of catheter-induced rupture were in patients with chronic catheterization due to chronic bladder diseases. An 80-year-old male with neurogenic bladder on chronic catheterization presented to the emergency room with abdominal pain and anuria. On CT, the tip of the catheter was eroding through the bladder into the peritoneum. The patient underwent a laparotomy with adhesiolysis. The tip of the Foley catheter was seen eroding through the bladder dome. A new open tip catheter was inserted per urethra to prevent the catheter tip from eroding again through the bladder wall. Bladder erosion or rupture is associated with high morbidity and mortality. Our case demonstrates the deleterious effects of chronic catheterization and the need for a high level of suspicion when dealing with such cases.

INTRODUCTION

Bladder perforation due to indwelling catheters is regarded to be a very rare incident [1]. Most cases of catheter-induced rupture were in patients with chronic catheterization due to chronic bladder diseases like neurogenic bladder or benign prostatic hyperplasia [2].

CASE REPORT

Our patient is an 80-year-old male known case of ischemic heart disease, hypertension and diabetes. He has been following with urology since 2010 as he was having recurrent urinary tract infections and high post-void residuals. A urodynamic study was done for the patient and was diagnosed with atonic bladder due to diabetic cystopathy. The patient has been on a Foley catheter since his diagnosis was established with catheter exchange in the urology clinic every 6–8 weeks. In 3 weeks from the last catheter exchange, the urology on-call team was called to the emergency room as the patient presented with a change in mental status, lower abdominal pain for 3 days which have worsened on the day of admission and no urine output from the catheter for 24 h. The pain was generalized, severe and dull in nature. The patient reported vomiting three times and has been having decreased oral intake for 2 days. Fever, chills or rigors were denied. No history of trauma or urine leakage per urethra. His abdomen was distended, and rigidity was noted in the suprapubic area. Upon flushing the catheter with normal saline, minimal output was noted with aspiration. All vital signs were within normal. He had a history of undergoing laparotomy 2 years prior to his presentation due to bowel ischemia. Bedside ultrasound was showing unclear margins of the bladder. Computerized tomography (CT) was done and showed multiple urinary bladder diverticula and the Foley catheter tip was traversing the dome of the urinary bladder and located in the intra-peritoneum (Fig. 1). The patient was taken to the operating room where laparotomy was done. Intraoperatively, adhesiolysis was carried out with difficulty in identifying the bladder. Bladder's dome was seen where the tip of the Foley catheter was eroding through the bladder dome. A figure-of-eight stitch was taken using Vicryl suture. A leak test was done with no evidence of leakage. A new open tip catheter was inserted per urethra to prevent the catheter tip from eroding again through the bladder wall.

DISCUSSION

Bladder erosion or rupture is seldom described in the literature and is associated with high morbidity and mortality. A variety of etiologies have been associated with bladder rupture. Trauma, mainly pelvic fracture,

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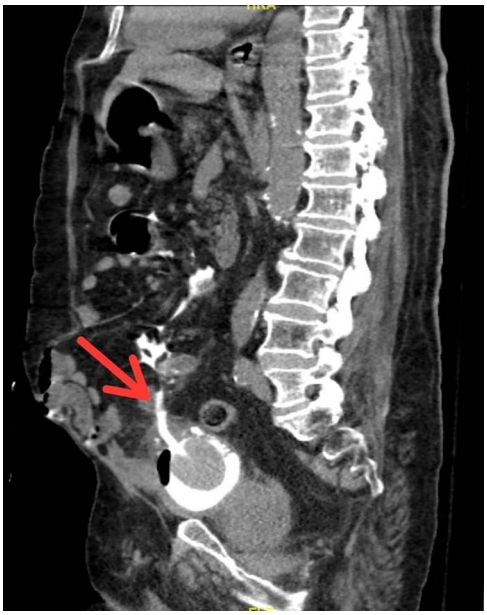

Figure 1. Sagittal view of CT scan showing Foley catheter protruding into peritoneal cavity.

remains the most common cause. The majority of bladder injuries are extraperitoneal. Intraperitoneal injuries are associated with a higher mortality rate. Keeping patients on Foley catheters is a common practice that takes place for multiple reasons including calculating urine output, urethral injury after urethral repair or bladder injury post repair. Twelve percent of hospitalized patients are estimated to have a Foley catheter by CDC [2]. Chronic catheterization has been associated with multiple complications such as urinary tract infections, bladder stone formation and iatrogenic hypospadias [3]. The challenge that faces health care professionals when dealing with similar cases is the lack of specificity of symptoms which may range from vague abdominal pain, nausea, vomiting to peritonitis due to peritoneal irritation secondary to urea, leading to delayed diagnosis and management [2, 3]. Spontaneous bladder perforation can happen in the setting of radiation, recurrent urinary tract infections, bladder tumors, chronic Foley catheter and catheter obstruction [4]. Multiple theories have been proposed to explain the mechanism by which Foley catheters can cause bladder rupture or perforation. Chronic catheterization is associated with bacteriuria and chronic colonization which will weaken the bladder wall due to continuous recurrent inflammation [2, 5, 6]. Another mechanism is bladder distention and rupture secondary to catheter obstruction [2, 6]. This mechanism is caused by the negative pressure produced by the column of urine and the drainage tubing in the catheter could cause prolapse of the bladder mucosa into the side holes of the catheter and leading to pressure necrosis and perforation [7]. These mechanisms can cause weakness in the bladder wall which will result in ulcerations and in perforation in rare cases [7].

CONCLUSION

Bladder erosion or rupture is seldom described in the literature and is associated with high morbidity and mortality. Our case demonstrates the deleterious effects of chronic catheterization and the need for a high level of suspicion when dealing with such cases.

CONFLICT OF INTEREST STATEMENT

None declared.

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