Late diagnosis of pseudo-renal failure associated with bladder injury after cesarean section

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Abstract

Nowadays bladder injury during cesarean section is quite uncommon and potentially serious complications are urinary tract infection and formation of vesicovaginal or vesicouterine fistula. There are only few case series of bladder injury at the time of cesarean section in the literature. Most injuries were found intraoperatively, but rarely some may not be recognized during the case. We present a case of late diagnosed bladder perforation at the time of cesarean section and managed by conservative approach. Her clinical picture mimicked renal failure. Conventional cystography failed to demonstrate the bladder perforation, cystoscopy allows recognition of undetected urinary system injury by conventional cystography and intravenous pyelogram. Nonoperative management by concomitant transuretral catheter drainage and ciprofloxacin treatment could be a safe alternative treatment option for even late diagnosed small injuries.

Keywords: *bladder, injury, renal failure, fistula*

Introduction

As a consequence of rising cesarean delivery rate worldwide, complications associated with cesarean delivery have gained importance. Potentially serious complications are urinary tract infection and formation of vesicovaginal or vesicouterine fistula. There are only few cases of bladder injury at the time of cesarean section in the literature and the reported incidence of bladder injury in cesarean delivery ranges from 0.14 to 0.94%[(1)]. Most injuries were found intraoperatively, but rarely some may not be recognized during the case[(2)]. Here we present a case of late diagnosed bladder perforation at the time of cesarean section which managed conservatively.

Case report

A 33 years old woman who had second cesarean presented to our hospital reported abdominal pain in postpartum day 5th. Gross ascites was detected by ultrasonography. Approval for the study was obtained from the Hospital Ethics Committee.

She had complaints of abdominal pain and anuria. Physical examination revealed a distended abdomen and abdominal ultrasound showed gross ascites. Foley catheter was applied to patient. The differential diagnosis included acute renal failure, Budd-Chiari syndrome (acute hepatic vein trombosis in pregnancy), ureteric or bladder injury. Serum creatinine (2.5 mg/dl) and urea (86 mg/dl) were elevated. Diuresis was obtained at 8 hours after Foley catheter was applied to patient (20 cc/h). Biochemistry analysis of ascites (urea 83.46 mg/dl and creatinine 12.7 mg/dl) confirmed urine leakage and ruled out Budd Chiari syndrome and acute renal failure. Intravenous pyelogram (IVP) was normal and ruled out ureteric

Figure 1. Conventional cystography showing intact bladder without leakage of contrast

Received: *August 05, 2011*
Revised: *November 07, 2011*
Accepted: *December 20, 2011*

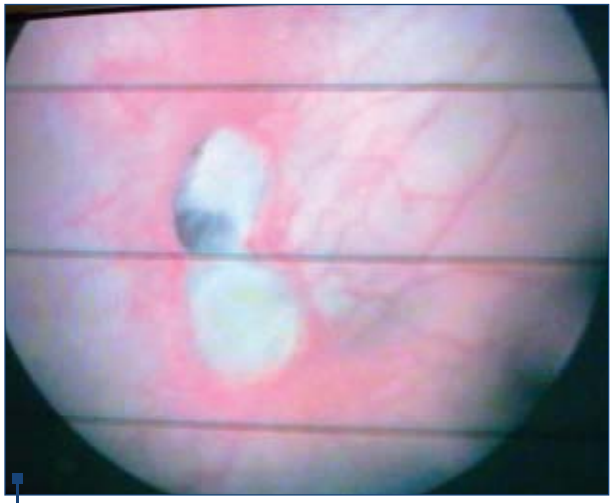

Figure 2. Cystoscopy showing a 15x20 mm perforation at the dome of the bladder

injury. Bladder injury was suspected but conventional cystography showed intact bladder without leakage of contrast (Figure 1).

Radiologic examinations failed to demonstrate urinary system injury and further investigation by cystoscopy was decided. Cystoscopy showed a 15x20 mm perforation at the dome of the bladder whereas the rest of the bladder and bilateral ureter orifices were normal (Figure 2).

We chose the next step to treat bladder perforation by drainage and oral ciprofloxacin treatment. At postpartum day 8th after treatment, serum creatinine was 0.7 mg/dl and serum urea was 9 mg/dl. The abdominal distention came down. The patient was discharged with a Foley catheter. Both ultrasonography and cystogram demonstrated grossly normal bladder 3 weeks after discharge and Foley catheter was removed on the 21st day.

Discussion

Bladder injury at the time of cesarean section is an infrequent occurrence. Identification of risk factors is important to counsel patients before operation. Phipps and colleagues classified bladder injury like the most important risk factor in which the risk is 4 times higher in women who had a prior cesarean than women who had not a prior cesarean delivery[1]. Other risk factors are previous pelvic operation, emergency cesarean section, and labor before cesarean, attempted vaginal birth after cesarean, concurrent uterine rupture. Adhesions between bladder and lower uterine segment are also an important causative factors, most of the injuries occurred during formation of bladder flap and from that reason bladder dome is the frequent site of bladder injuries[1].

Most of the bladder injuries were found intraoperatively, which indicate injury including extravasation of urine, visible detrusor muscle laceration, sudden appearance of the Foley's bulb in operative field. Moreover, a ratio of serum urea to creatinine far excess can occur as a result of intraperitoneal extravasation of urine.

Conventional retrograde cystography has long been considered standard imaging in evaluating bladder injuries, although false negative findings also have been reported in the literature[3]. Likewise in our case, conventional cystography showed intact bladder without leakage of contrast. Computed tomography (CT) cystography is an alternative imaging method, accurate for identifying bladder injury and has the advantage of revealing small collections. Contrary to our study, Tai et al. reported that CT cystography clarified the bladder perforation diagnosis which conventional cystography failed to demonstrate[2].

Having in the view that cystoscopy is a more simple and effective procedure to evaluate even small injury in bladder, we choose this method on our patient. Injury detection rate is over 95%[4]. By direct visualization, cystoscopy allows recognition of undetected urinary system injury by conventional cystography and IVP.

Bladder injuries are classified as either intraperitoneal or extraperitoneal. Extraperitoneal injuries could be safely managed by drainage alone. Intraperitoneal perforation should be surgically repaired. However, in small intraperitoneal injuries that do not involve uretra, transuretral catheterization is a safe and effective method. Under some circumstances, conservative management is appropriate in intraperitoneal perforation[5].

Although our case was late diagnosed, with concomitant ciprofloxacin treatment and transuretral catheter drainage, ascites disappeared and renal functions were improved one day after the drainage and perforation healed smoothly at the 21st day of treatment.

In conclusion, bladder perforation at the time of cesarean delivery may not be recognized during the case. Oligo-anuria, ascites, and acute renal failure may be seen in late diagnosis. Cystoscopy is a more accurate method than conventional cystography for identifing the localization of the bladder injury. Furthermore, non-operative management could be a safe alternative treatment option for even late diagnosed small injuries. ■

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