

**Case Report**

# Management of a Bladder Wound During a Cesarean Section: A Case Report at Urology Service in the Military Hospital OBO

Smith Giscard Olagui<sup>1,2,\*</sup>, Mariette Nsa Bidzo<sup>1</sup>, Christelle Mezene<sup>1</sup>, Crepin Olende<sup>2</sup>, Jean Placide Owono Bouengou<sup>2</sup>

<sup>1</sup>Urology Service, Military Instruction of Omar Bongo Ondimba Hospital, Urology Department, Faculty of Medicine, University of Health Sciences, Libreville, Gabon

<sup>2</sup>Visceral Service, Military Instruction of Omar Bongo Ondimba Hospital, Urology Department, Faculty of Medicine, University of Health Sciences, Libreville, Gabon

**Email address:**

golagui@icloud.com (Smith Giscard Olagui), nsabidzomariette@gmail.com (Mariette Nsa Bidzo),

christellemezene@yahoo.fr (Christelle Mezene), crepinollende@gmail.com (Crepin Olende),

jpowono2@yahoo.fr (Jean Placide Owono Bouengou)

\*Corresponding author

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**Abstract:** *Introduction:* Bladder wounds are classic complications of gynecologic surgery. They remain rare given the considerable number of operations performed. The effectiveness of the treatments is directly proportional to the precocity of the diagnosis. Peroperative diagnosis allows direct repair of these lesions. The treatment remains surgery. Our goal is to present our emergency care, from diagnosis to treatment. *Observation:* 37-year-old patient, G4P3, including 2 caesarean sections, BMI 28, irregular follow-up, with anterior placenta previa percreta, who presented in an early labor picture at 38 WA+4d. the indication for a caesarean section was formal. During the caesarean section, the pfannenstiel incision allowed the emergency extraction of the fetus, and the intraoperative discovery of a large wound in the bladder. A closure in 2 muscular and serous planes had been carried out. The suites had been simple. postoperative follow-up at 1 and 3 months was normal. *Discussion:* The bladder is an intra and extra peritoneal organ, placed directly in front of the uterus, a seat that makes it exposed to lesions at the time of caesarean sections. The indications for caesareans are increasing. Our patient was carrying a placenta previa percreta on a bi-scarred uterus, arriving in labor, all risk factors for a possible bladder injury. Emergency caesarean section is responsible for 31% of bladder damage. The treatment is direct suture on a bladder probe for 15 to 21 days. *Conclusion:* The adult ureterocele is a rare entity, which must be recognized quickly in order to limit the serious consequences on the upper tract. diagnosis must be early. Its treatment is endoscopic, and vesico-ureteral reflux is the most frequent complication.

**Keywords:** Cesarean, Injury, Bladder

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## 1. Introduction

Cesarean section is the most common surgery performed in the United States at approximately 30% [1]. This trend is also true in Saudi Arabia where the rate is close to 80% [2]. These figures tend to increase almost everywhere in the world given the decrease in the rate of vaginal delivery after a caesarean

section, and an exponential maternal demand for caesarean sections in primiparae, for personal convenience, which includes an inherent risk of intraoperative complications [1].

Urological lesions are the most common lesions during obstetric or gynecological surgery, the bladder being the organ most frequently affected. Lesions can be extraperitoneal (60-65%) or intraperitoneal (25%). These are the ones that

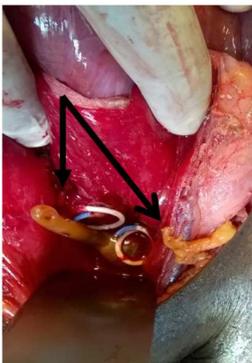
really indicate the indication for surgical treatment, most often at the same time, operative, the diagnosis must be made quickly, and the treatment immediate. This, allowing a significant reduction in patient mortality [1, 2]. Our objective is to show our immediate care on an early diagnosis of a bladder lesion.

## 2. Observation

37-year-old patient, G4P3, including 2 caesarean sections, BMI 28, irregular follow-up, with anterior placenta previa percreta, who presented in an early labor picture at 38 WA +4d. The indication for caesarean section was obstetrical. Informed consent was signed before the surgery. Under Spinal anesthesia, after operability assessment resumption of the pfannenstiell incision, parietal crossing, hysterotomy, manual fetal extraction. Intraoperative diagnosis of a bladder wound more than 2cm wide, which had reached the trigone and the ureteral ostia (figure 1 & figure 2). Decision on immediate repair after having protected the ureters by raising the JJ bilateral endoprosthesis ch7.6 (figure 3). We sutured the bladder in two planes (mucosa/submucosa and serosa) using two hemi-overlocks of single-strand rapid resorption sutures of decimal 3.0 and 2.0 (figure 4). Drainage was performed by a 22 ch urethral catheter, double current, and an intra-abdominal redon. The consequences were simple, the urethral catheter and the ureteral catheters were removed on D30. Controls by monthly cystoscopies at 1, 3, and 6 months. No urinary fistula at 6 months had been detected. No additional examination had been useful.



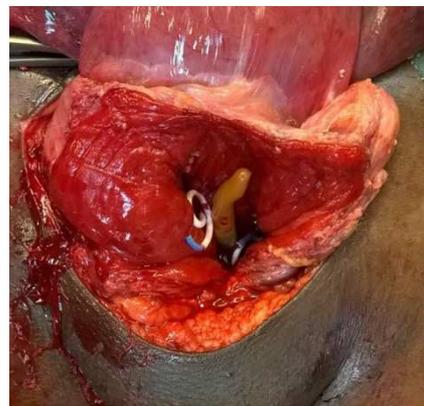
**Figure 1.** Bladder open.



**Figure 2.** Lesion of the bladder trigone (arrow).



**Figure 3.** Urinary and ureteral catheter.



**Figure 4.** Bladder closure in 2 planes.

## 3. Discussion

The bladder is an intra and extra peritoneal organ, placed directly in front of the uterus, a seat which makes it exposed to lesions at the time of cesarean sections [3, 4]. The indications for a caesarean section are obstetrical, unfortunately, we are witnessing a broadening of these indications. In our establishment, 2% of caesarean sections during the year 2020 were carried out for personal convenience. This number is expected to increase in the future for multiple reasons. First, there is currently a huge debate about the risks and benefits of elective primary caesarean section on personal convenience. The American College of Obstetricians and Gynecologists defended the ethics of validating such an indication only to informed patients of the morbidity and mortality incurred during a cesarean section [5]. The other concern is that less than 10% of women who have a first caesarean will have a successful vaginal delivery, which unfortunately perpetuates the saying “once caesarean always caesarean” [1, 6]. From these findings, it is clear that obstetrician-gynecologists should be aware of potential complications, although fortunately cesarean delivery has been associated with low rates of maternal mortality and morbidity over the past century. [1]. However, urological involvement remains, which represents the most frequent complication of pelvic surgery and the bladder the most affected organ at the time of cesarean

section whatever the indication, with an incidence rate from 0.08 to 0.94% [1, 3]. Prolonged labor, scarred uterus, intra-abdominal adhesions, emergency cesarean section, advanced labor, hysterectomy for hemostasis per cesarean, are factors predisposing to bladder lesions [1, 2, 5].

Our patient was carrying a placenta previa percreta on a bi-scarred uterus, arriving in labor, as many risk factors for a possible bladder injury. The risk of a bladder wound is multiplied after each cesarean, it is multiplied by 5 after 3 cesareans [1, 4, 6]. With this increase in the cesarean rate, there is also an increase in the incidence of placenta previa, itself associated with many bladder injuries during pregnancy, and during cesarean section. It would be responsible for 21.7% of total involvement of the urinary tract, 11.7% of bladder involvement, 4.7 ureters and 5.3% (ureter and bladder) [4]. Emergency cesarean section is responsible for 31% of bladder involvement [1, 7, 8]. Diagnosis can be easy intraoperatively, as in our patient with the presence in the operating field of the urinary catheter, and urine, which can be misleading and suggests an opening of the bag of waters; but sometimes it can seem difficult when the lesion is extraperitoneal and less than 2cm [4, 9]. All lesions must be recognized quickly and repaired immediately, which has the advantage of reducing morbidity and mortality [4, 10]. Failure to recognize these lesions exposes patients to vesico-vaginal, vesico-uterine, or ureterovaginal fistulas. Twenty-one (21%) of lesions are diagnosed at the time of bladder dissection, 12% at entry into the peritoneal cavity, 5% at the end of the procedure before abdominal closure [4, 11].

Ninety-five (95%) of bladder injuries during caesarean section occur on the dome of the bladder, the rest in the trigone, combined dome and trigone injuries are rare [12, 13]. 33% of bladder injuries occur when the abdominal cavity is opened, 43% during bladder dissection, and 24% during hysterotomy [1, 14].

The treatment of an extra-vesical lesion is done by bladder catheterization for 14 to 21 days. On the other hand, an intraperitoneal bladder opening requires bladder repair. If there is any doubt about trigonal damage or damage close to the ureteral meatus ostia, JJ stents can be placed to secure the meatus. This is what we did in our patient. The repair of the bladder wound is done by overlocking single-strand sutures, preferably of decimal 2 or 3.0, absorbable, by performing a transverse closure in two planes (mucosa and submucosa/serosa), associated with drainage by a bladder catheter of good caliber (ch 20 or 22), which can be mono or double current, and drainage of the Retzius space [3, 15]. We had decided to remove the ureteral endoprosthesis and the bladder catheter on D30. The prevention of these bladder lesions lies in knowing the predisposing factors. Some authors even propose median incisions rather than repeating the previous incisions [14-15]. Some suggest filling the bladder before, but this opinion is not unanimous [6, 16]. A careful dissection of the bladder dome must be performed, except of course in an emergency, where the bladder lesion will take a back seat. Urinary fistula remains the most common complication, around 20 to 37% depending on the series [1, 4, 8]. Should we systematically search for it? some authors

suggest injecting methylene blue, others prefer clinical monitoring postoperatively [1, 6, 16]. Our patient was monitored for up to 6 months, no urinary fistula was detected. The pace of monitoring is not consensual.

## 4. Conclusion

The incidence of bladder injury during caesarean section is relatively rare. However, the cesarean delivery rate is high and is expected to increase in the coming years. It is therefore important to anticipate the management of patients at risk. Intraperitoneal lesions must be recognized quickly and repaired immediately. The urinary fistula remains the complication that must be monitored postoperatively.

## Conflicts of Interest

The authors declare no conflict of interest.

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