



Case Report

Unexpected Injury to the Urinary Bladder in Women with Multiple Previous Cesarean Scars in Labor: Two Cases - Two Mechanisms

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Abstract

Background: As opposed to injury to the urinary bladder during surgery, this case report of two cases highlights the non-iatrogenic injury that could occur to the urinary bladder, in patients with previous cesarean scars who go into labor. The highlight of the case report is the differing mechanisms of injury to the urinary bladder.

Cases: In case 1 the patient with previous two cesarean scars presented with features of prolonged labor. The patient was discovered to have a laceration in the bladder, at the time of surgery, though the cesarean scar was intact signifying the possibility of ischaemic injury to the bladder. In case 2 a patient with two previous cesarean scars had injury to the urinary bladder along with violent rupture of the uterine scar. In this case the rupture of the uterine scar had extended to involve the urinary bladder. In both the cases the distortion in anatomy due to the previous surgeries could have contributed to the bladder injuries.

Conclusion: Patients with multiple cesarean scars should be monitored closely in labor. While performing emergency cesarean sections in such patients surgeons should have a high index of suspicion for possible urinary bladder injury.

Keywords: Bladder injury; Labor; Non- iatrogenic; Previous cesarean scars

Introduction

Iatrogenic Injury to the bladder during repeat cesarean sections is a known complication. The risk of accidental urinary bladder injury during a cesarean section ranges from 0.07% for a primigravida

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and over 0.47% in case the patient had a previous cesarean scar [1]. However injury to the urinary bladder in pregnancy is rare and here we shall be presenting two cases of injury to the urinary bladder, seen during or as a consequence of labor. In both these patients there was a history of multiple previous cesarean scars. In both these cases the injury to the urinary bladder occurred prior to performance of the repeat cesarean sections. Both these patients were in the active phase of labor and the mechanism responsible for the causation of injury appears to be different. Though injury to urinary bladder is rare in pregnancy, there are a few case reports of simultaneous bladder and uterine rupture in the literature [2,3]. There are also reports of bladder injury in association with vaginal delivery [4,5]. However, to our knowledge this is the first report highlighting the different mechanisms causing injury to the bladder in patients with previous multiple cesarean scars in labor.

Case 1

32 year Gravida 3 Para 2, at 39 weeks of gestation with previous two cesarean sections was referred late in labor to our referral hospital in Sub Saharan Africa. Patient had apparently gone into spontaneous labor at her residence located in a remote location. There was no history suggestive of urinary tract infection. On examination she was of average weight and build and her vitals were stable. Her bladder was not distended and she was getting 3 to 4 strong uterine contractions every ten minutes lasting for 35 seconds. Obstetric examination revealed a term sized uterus with the fetus in longitudinal lie and cephalic presentation, with the head station being just below the brim. Pelvic examination revealed that the vagina was hot and dry. The cervix was taken up and 9cm dilated. Head station was -1/3. The position was occipito-posterior and fetal heart rate was 100 beats per minute.

On passing a Foley's catheter frank hematuria was observed and a diagnosis of previous two cesarean sections at term with obstructed labor and possible urinary bladder injury was made and she was shifted for emergency cesarean section. The surgery was performed with the Foley's catheter *in situ* but bulb deflated. Findings at surgery revealed that the lower uterine segment was intact with no evidence of scar dehiscence. However there was evidence of a subserosal hematoma occupying the lower part of the lower uterine segment at the interphase between the urinary bladder and the lower uterine segment. A high transverse incision on the lower uterine segment, well above the bladder reflection was given. The head which appeared to be crowded was delivered gently without using any instrument. The baby boy was active and weighed 04.1Kg and was handed over to the pediatrician.

After closing the uterine incision in two layers, the hematoma overlying the lower half of the lower uterine segment was explored revealing a rupture of the urinary bladder. The rent in the urinary bladder was separate from the present uterine incision, which as previously mentioned was placed high on the lower uterine segment. The tear in the urinary bladder was repaired in two layers using absorbable suture material. The repair was confirmed water-tight and abdomen was closed. Continuous bladder drainage was continued for seven days postoperatively and thereafter the patient was discharged asymptomatic.

Case 2

A 36 year old Gravida 4 Para3 at 36 weeks of gestation with two previous cesarean sections was referred, as an emergency, from a peripheral clinic for a repeat emergency cesarean section. Patient was received in the Operating Room where she stated that she had been in labor for the past twelve hours. There was no history of urinary tract infections during the antenatal period. She was averagely built and nourished and haemodynamically stable. Obstetric examination revealed a term sized free floating fetus with absent fetal heart rate. Catheterization of the urinary bladder revealed frank hematuria. A provisional diagnosis of complete scar rupture was made and patient was taken up for emergency laparotomy.

Findings at surgery revealed that the abdomen was filled with blood stained amniotic fluid. The fetus was lying completely outside the uterine cavity and was dead. The placenta too had separated and was lying outside the uterus. The uterus was well contracted with minimal bleeding from the ruptured scar margins. The margins of the ruptured scar appeared to have extended laterally to the right without involving the uterine vessels. The urinary bladder was adherent to the lower uterine segment and appeared advanced. Closer inspection of the lower uterine flap revealed the tip of the Foley's catheter visible through a rent in the urinary bladder. This rent was in close proximity to the right sided angle of the ruptured uterine scar. The bladder was dissected free from the uterus and repaired in two layers. A peritoneal wash was given and the ruptured scar margins were freshened and approximated. Postoperative recovery was uneventful.

Discussion

Since the birth passage is closely aligned to the lower urinary tract, this predisposes to injury to it during parturition. The trigone and the bladder base are particularly at risk in view of their close proximity to the cervix, vagina and lower uterine segment [6]. Pathophysiology of urinary bladder injury in labor includes sustained pressure from the fetal head against the bladder during forceful uterine contractions which may lead to ischaemic necrosis of the bladder wall [7]. In case 1 since the previous scar was intact, the cause of the bladder injury could be inferred to be due to the pressure of the fetal head on the advanced urinary bladder, against the bony pelvis.

In case 2 the obvious cause of bladder injury is the forceful lower segment scar rupture with extrusion of the fetus and placenta causing the ruptured uterine scar to also involve the urinary bladder. The adhesion of the urinary bladder onto the lower segment, might have also contributed to the injury [1]. The lesson learnt from these cases is that patients with multiple cesarean scars who are allowed to go into labor could develop injury to the urinary bladder. Moreover since spontaneous injury to the urinary bladder could go unrecognized, early diagnosis would be critical in reducing morbidity. In both our patients' frank hematuria on catheterization was the pointer to the diagnosis. In the absence of frank hematuria the obstetrician needs to have a high index of suspicion and early cystoscopic evaluation/methylene blue dye testing could prevent serious morbidity.

Conflict of Interest

The authors declare that they have no conflict of interest.

Participation

All authors have participated in producing the manuscript.

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