

Bladder Injury during Caesarean Section, Surgical and Anaesthetic Management: A Case Report and Review of the Literature

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ABSTRACT

Urinary bladder injury is a rare complication during caesarean section but its incidence is increasing due to growing trend in caesarean deliveries. In this case report, we reported a 32 year old pregnant female with previous history of caesarean section who presented during labour. Emergency caesarean was done and the case was complicated with bladder injury intraoperatively. The injury was immediately identified and was repaired in two layers. This case highlights the anaesthetic and surgical management of inadvertent bladder injury during caesarean section.

Keywords: Bladder injury, caesarean section, Emergency caesarean

INTRODUCTION

Intraoperative urinary bladder injury during caesarean section is a rare but serious complication. Its incidence is increased in cases of previous caesarean section or obstetrical hysterectomy¹. Intraoperative complications are expected to increase with the increase in the number of repeat caesarean sections^{2,3}. Mostly bladder injuries are identified intraoperatively. Methylene blue infusion into the bladder through foley's catheter helps to identify the leak. Surgical repair should be done at the earliest as delay can result in further complications like formation of fistulas, mainly vesicouterine and vesicovaginal⁴.

CASE REPORT

A 32 year old pregnant patient G2P1001 with gestational age 36 weeks and 2 days, with a previous history of lower segment caesarean section 2 years back, presented with labour pains in the labor room. On examination by the gynaecologist, meconium stained liquor was observed and the patient was planned for emergency caesarean in the OT. After a short pre-anaesthesia checkup, the patient was taken in and was given sub arachnoid block at L4-L5 level with injection bupivacaine (H) 0.5% 2.2 ml in the left lateral position. The sensory level was obtained upto T4 level and the surgery was started.

Intraoperatively a few minutes later while entering the peritoneal cavity, bladder injury occurred by the gynaecologist. The baby was immediately taken out. Foley's bulb became visible in the operative field. On examining the urine bag, gross haematuria was observed. Urgent call to the general surgeon was sent. On arrival, the surgeon confirmed it to be a grade 3 bladder injury and planned for immediate repair.

Subsequently, the anaesthesia plan was converted to general anaesthesia. Premedication was done with injection glycopyrolate 0.2 mg IV, injection fentanyl 100 microgram IV, injection ondansetron 4 mg IV, injection loxicard 100 mg IV. Induction was done with injection propofol 100 mg IV. Using rapid sequence induction with Injection succinylcholine under direct

laryngoscopy, cuffed endotracheal tube of 7.0 mm internal diameter was inserted. Injection atracurium 25 mg IV stat was then given. Isoflurane was used for maintenance of anesthesia.

The surgery was then proceeded. The repair was done in 2 layers. Catgut sutures 2-0 were used. An interrupted simple suture was made by the surgeon. After completing suturing of the 2 layers, about 300 ml of saline was instilled into the bladder through the Foleys catheter. Leakage was absent at the surgical site, thus adequate repair was confirmed. However suction drain was kept in the perivesical space. The surgery was completed in 2.5 hours. The patient maintained stable intraoperative vitals throughout the surgery. The patient was then smoothly extubated and shifted to the post operative care unit. The suction drain was removed on the 3rd day and the Foley's catheter was kept for 2 weeks and then removed. The patient was then discharged healthy from the hospital.

DISCUSSION

Iatrogenic bladder injury during caesarean section is a rare complication with incidence ranging from 0.0016% to 0.94%⁵. It occurs mostly in multiparous women, previous caesarean deliveries and emergency caesarean sections⁶. The incidence in women with previous caesarean deliveries is 58.5% compared to 41.2% in primigravida women⁷. Phipps et al and Rahman et al in their study have also demonstrated that the incidence of iatrogenic bladder injury was three times higher in women who had a previous caesarean delivery. In our case report also, the patient had a history of previous caesarean delivery and was presently posted for an emergency caesarean section. Caesarean section in laboring women also carries more risk of bladder injury compared to nonlaboring women (83% vs 61%)⁸.

The preventive measures include emptying the bladder before incision. In suspected intra-abdominal adhesions, the peritoneum should preferably be entered by

blunt dissection. During intraoperative injury to urinary bladder, the urine usually dribbles out in the operative field. Haematuria might occur in 95% cases⁹. Foley's bulb may become visible in the operative field. In case of doubt, methylene blue dye is instilled through transurethral catheter into the urinary bladder and the colored leak is observed. In our patient, we observed gross hematuria and Foley's bulb started becoming visible in the operative field. This is how bladder injury was confirmed in our case.

Immediate repair is always better. Exception includes case of placenta percreta with intractable haemorrhage which is repaired in stages after controlling bleeding. Repair is usually done in two layers¹⁰. Polyglycolic acid sutures number 3-0 is used. In resource poor setting, atraumatic chromic catgut 2-0 can be used. In our patient, catgut 2-0 sutures were used. An interrupted simple suture is made. 1st layer closes mucosa by through and through repair. 2nd layer includes muscularis and peritoneum¹¹. The important part is recognition of injury intraoperatively and early repair in the same sitting. In our case report, the injury was identified immediately and was repaired by the general surgeon there and then.

Suprapubic cystotomy is recommended for large bladder rents and a large transurethral Foley's catheter is sufficient for small rents. A closed suction drain can be kept at the perivesical space and pelvis to look for urinary leak¹². The closed suction drain is usually kept for 48-72 hours. Transurethral catheters are kept for atleast 10-14 days. Barbieri RL¹³ in his study has stated that catheter should be kept for a minimum of 7 days. In our case report the catheter was removed after 2 weeks, following which the patient was discharged healthy from the hospital.

CONCLUSION

Pregnant women with previous history of caesarean delivery now undergoing emergency caesarean section are

at high risk of intraoperative urinary bladder injuries. They should be intimated about the significant risk of inadvertent surgical complications. Such complications, if recognized early and repaired immediately has a favourable prognosis.

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REFERENCES

1. N.P. Buchholz, E. Daly-Grandeau, and M.M. Huber-Buchholz, "Urological complications associated with caesarean section," *European Journal of Obstetrics Gynecology and Reproductive Biology*, vol.56, no. 3, pp. 161-163, 1994.
2. S. Brink, "Too posh to push? Cesarean sections have spiked dramatically. Progress or convenience?" *U.S. News & World Report*, vol. 133, no. 5, pp. 42-43, 2002.
3. H. Minkoff and F. A. Chervenak, "Elective primary cesarean delivery," *The New England Journal of Medicine*, vol. 348, no. 10, pp. 946-950, 2003.
4. J. M. S. Merino, C. G. Maquieira, L. P. Muntaner, S. C. G. Cisneros, M. P. L. Pes, and J. G. Alonso, "Transvesical repair of non- complicated vesicovaginal fistula," *Actas Urologicas Espanolas*, vol. 24, no. 2, pp. 185-189, 2000.
5. Aghaways, R. Bapir, T.A. Hawrami et. al. Conservative management of delayed presentation of intraperitoneal bladder rupture following caesarean delivery: A case report. *Int J Surg Case Rep*. 2019. 59:31-34; DOI: 10.1016/j.ijscr.2019.04.050
6. M.G. Phipps, B. Watabe, J.L. Clemons et. al. Risk factors for bladder injury during cesarean delivery. *Obstet Gynecol*. 2005 Jan; 105(1):156-60. doi: 10.1097/01.AOG.0000149150.93552.78.
7. M. Rahman, T.Gasem, S. Al Suleiman, F.E. Al Jama, S. Burshaid, J. Rahman. Bladder injuries during cesarean section in a University Hospital: a 25-year review. *Arch Gynecol Obstet*, 279(2009), pp.349-352
8. Tarney CM. Bladder injury during cesarean delivery. *Curr Womens Health Rev* 2013;9:70-6.
9. Corriere JN Jr, Sandler CM. Diagnosis and management of bladder injuries . *Urol Clin North Am* 2006;33:67-71.
10. Baskett TF, Calder AA, Arulkumaran S. Obstetrics hysterectomy. In: Munro Kerr's *Operative Obstetrics*. 11th ed. Edinburgh: Saunders Elsevier;2007.p. 309-14.
11. Wheelless CR Jr, Roenneburg ML. Wedge resection of bladder. In: *Atlas of Pelvic Surgery (on-line edition)*. Available from:www.atlasofpelvicsurgery.com/3bladderandUreter/10WedgeResectionOfBladder.
12. Matsubara S, Ohkuchi A, Yashi M, Izumi A, Ohwada M, Kuwata T, et al. Opening the bladder for cesarean hysterectomy for placenta previa percreta with bladder invasion. *J Obstet Gynaecol Res* 2009;35:359-63.
13. Barbieri RL. How to repair bladder injury at the time of cesarean delivery. *OBG Management* 2011;23:6-9.

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