Bladder Injury at Caesarean Birth Guideline

Guideline information

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Summary of document:
This guideline aims to provide guidance on the management of an intraoperative bladder injury that has been identified during a caesarean birth

Scope:
This guideline is applicable primarily to obstetric and urology doctors, however is applicable to all staff who provide care to women and birthing people during a caesarean birth and where an intraoperative bladder injury had been identified This policy uses the term “women” to reflect that maternity and reproductive care are sex-based health needs. It applies equally to all people who are pregnant or have recently given birth, including trans men and non-binary people. Care must be delivered in an inclusive, respectful and responsive way.

To be read in conjunction with:
NICE 2021 – Caesarean Birth
638 Caesarean Birth Guideline -opens in new tab

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Glossary of terms

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Scope

This guideline is applicable primarily to obstetric and urology doctors, however is applicable to all staff who provide care to women and birthing people during a caesarean birth and where an intraoperative bladder injury had been identified.

Aim

The aim of this document is to:

- Provide consistent care and management when a bladder injury is identified during a caesarean birth.

Objectives

The aim of this document will be achieved by the following objectives:

- Support clinicians to recognise an intraoperative bladder injury
- Correctly identify the classification of the bladder
- Provide a clear pathway for the management of intra-operative bladder injury at caesarean birth

Introduction

The urinary bladder is adjacent to the uterus and therefore susceptible to intraoperative injury during Caesarean birth. Bladder injury during primary Caesarean is about 0.2% and during repeat Caesarean is about 0.6%.[1]

Risk factors for intraoperative bladder injury include

- Prolonged or obstructed labour with bladder distension
- Pregnancy with scarred uterus, e.g., previous Caesarean birth, myomectomy, reconstructive surgery to repair a uterine congenital anomaly, repaired uterine perforation.
- Suspected intra-abdominal adhesions, e.g., previous ectopic pregnancy, endometriosis, inflammatory bowel disease, chronic pelvic inflammatory disease.
- Distorted local anatomy – cervical/lower segment fibroid, congenital urogenital system anomaly
- Caesarean birth in advanced labour
- Placenta accreta spectrum
- Caesarean hysterectomy
- Having more than 3 previous Caesarean births, unplanned Caesarean birth and Caesarean birth in labour are associated with a significantly higher chance of intraoperative bladder injury and consideration should be made to minimising the chance of injury with adequate intrapartum bladder care, careful adhesiolysis and the presence of a suitably experienced clinician in the operating theatre.

• Recognition of an intraoperative bladder injury

- Signs suggestive of a bladder injury include
- Urine visualised in the operative field
- Transurethral Foley's catheter bulb visualised in the operative field •
- Haematuria

If there is any suspicion of an injury, it can be confirmed by instillation of diluted dye (methylene blue) through the transurethral catheter into the urinary bladder and observing the coloured leak.

If a large or posterior injury is suspected cystoscopy, ureteric catheterisation, or indigo carmine intravenous administration should be performed by a urologist.

Iatrogenic bladder injury can be classified as follows

Grade 1: contusion, intramural hematoma or partial thickness laceration

Grade 2: extraperitoneal bladder wall laceration <2 cm

Grade 3: extraperitoneal >2 cm or intraperitoneal <2 cm laceration

Grade 4: intraperitoneal bladder wall laceration >2 cm

Grade 5: intra- or extraperitoneal bladder wall laceration involving the trigone or bladder neck
The involvement of the posterior area of bladder may raise the suspicion of trigonal and ureteral involvement. [2]

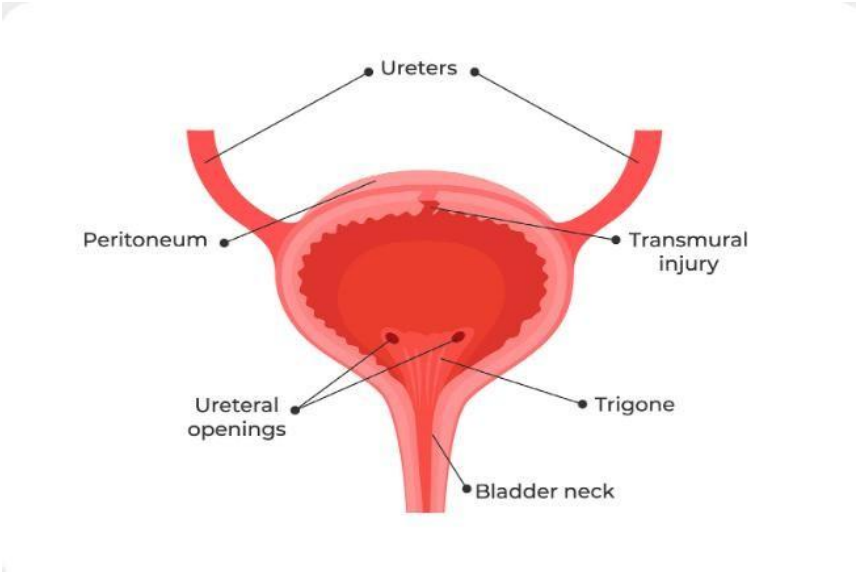


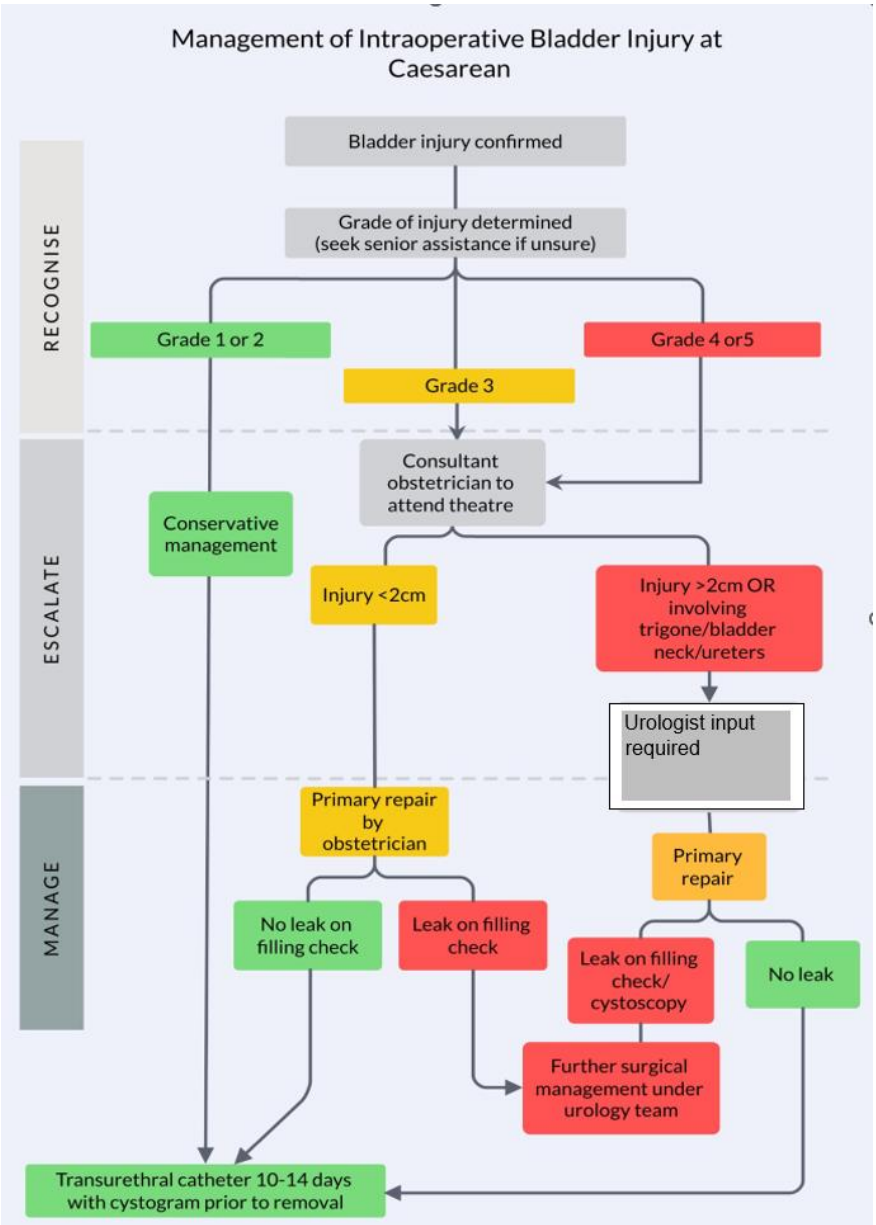
Fig. 1 Anatomy of the bladder [2]

Most of the bladder injuries which occur during Caesarean are intraperitoneal injuries to the dome of the bladder, 6-10cm away from the trigone. Intraperitoneal injuries are generally more significant and involve a higher risk of complications than extraperitoneal injuries.

Grade 1, limited to the serosa, and Grade 2 injuries should be managed conservatively with prolonged drainage with indwelling transurethral catheter for at least 10 to 14 days. These do not typically warrant surgical management.

Bladder injuries of Grade ≥3 require surgical management. It is good practice to escalate all Grade 4 and 5 injuries to a urologist.

Management of Interoperative Bladder injury at Caesarean



Repair of the injury

Immediate repair is recommended. Exceptions to immediate repair include some cases of placenta accreta spectrum or intractable post-partum haemorrhage in which case the injury can be repaired in stages after controlling the bleeding.

Repair of Grade 4 and 5 injuries should be performed by a urologist. Repair of a complex injury may require conversion to a general anaesthetic and a vertical midline incision to enable access to the apex of the injury. If there is no specialist support available at the time of Caesarean, haemostasis should be secured, and the woman should be transferred to a unit with facilities and expertise to perform complex repairs. The second surgery is usually performed within 24–48 hours.

The repair is usually done in one or two layers with non-locking sutures. Injuries >2 cm require a 2layer closure. Polyglactin suture (Vicryl) 2-0/3-0 should be used. For a two-layer technique the first layer closes the mucosa and muscularis and the second layer closes the serosa. The repair should be checked with at least 300 ml of saline with or without dye (e.g., methylene blue), which is instilled into the bladder through a transurethral Foley catheter.

If leakage is present through sutures, a urologist should be requested to attend. A top-up layer of overlapping sutures can be considered to achieve a watertight closure. The effectiveness of the repair should be confirmed by a further bladder-filling assessment and/or cystoscopy.

The site, size and grade of the injury should be clearly documented in the operative notes, marked on a diagram, if possible, as well as the details of the surgeon performing the repair and the technique used.

Post-operative

An indwelling transurethral catheter should be used for at least 10 to 14 days. If an additional abdominal drain is used to identify urinary leakage in the pelvis this can be removed within 48–72 hours if the output remains minimal. If there is high volume output consider sending a sample of the fluid for assessment of creatinine to compare to plasma levels and/or radiological imaging of the urinary tract.

Delayed identification of bladder injury

A bladder injury that was not identified at the time of Caesarean or where the primary repair has been unsuccessful will usually present clinically in the early postoperative period.

Signs can include

- Drainage from the surgical incision
- Increased output from surgical drains
- Vaginal leakage of urine
- Abdominal distension secondary to ileus or urinary ascites • Oliguria

A CT cystogram can be used to confirm the diagnosis. Any delayed or secondary repair should be performed by a specialist in urology.

References

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