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Vesical calculus formation on non-absorbable sutures used for open inguinal hernia repair

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ABSTRACT

INTRODUCTION: Iatrogenic injuries to the urogenital tract are rare, with the bladder being the organ most affected. We describe a case of a vesical calculus that formed on non-absorbable sutures that were used to repair an inguinal hernia.

PRESENTATION OF CASE: A 45-year-old male presented with frank haematuria and dysuria 2 years following an open left inguinal hernia repair. A CT urography showed a vesical calculus adherent to the left antero-lateral wall of the bladder. Cystoscopy revealed that the calculus formed on non-absorbable sutures. Cystolapaxy was performed followed by cystoscopic excision of the sutures. The patient's post-operative course was uneventful.

DISCUSSION: Foreign bodies in the urinary bladder always act as a nidus for formation of a calculus. Iatrogenic bladder injuries are common during hernia repair. It is however rare for sutures used to repair an inguinal hernia to involve the urinary bladder wall. The patient most likely had a full bladder at the time of hernia repair or the bladder was part of the contents of the hernia sac.

CONCLUSION: This case illustrates the need to ensure that the bladder is empty prior to pelvic surgery and for surgeons to have a good understanding of inguinal anatomy to avoid injuring the contents of the hernia sac.

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1. Introduction

Iatrogenic bladder injuries (IBT) are the commonest among urogenital tract injuries.¹ IBT can be broadly divided into external and internal bladder injuries. The former type is associated with pelvic procedures and mostly occurs during obstetric and gynaecologic procedures, followed by general surgical and urologic interventions.^{1–3}

Internal bladder injuries mainly occur during cystoscopic procedures, namely transurethral resection of bladder tumours (TURBT) where bladder wall perforations can occur. There are two types of bladder wall perforations, intra- and extra-peritoneal, with the

former being more common and requiring intervention.¹ Iatrogenic foreign bodies inside the bladder can be caused by dislodgment or breaking of the intra-vesical instruments, forgotten surgical gauze, non absorbable sutures, or staples used in pelvic procedures. In addition, unrecognised perforations can occur due to erosion of urinary incontinence meshes.⁴ We present the case of an unrecognised iatrogenic transvesical sutures into the bladder wall during an open left inguinal hernia (LIH) repair.

2. Case report

A 45-year-old male presented with a 1 year history of intermittent macroscopic haematuria associated with dysuria. The patient had no significant past medical history apart from a LIH repair 2 years prior to presentation. The hernia repair was carried out in a developing country. He is a smoker of 20 pack years.

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Fig. 1. CT scan of the abdomen and pelvis showing a calculus (black arrow) on the antero-lateral wall of the urinary bladder.

The only abnormality on physical examination was bilateral inguinal hernias. Urine microscopy showed RBC, but no bacterial growth.

Urine cytology was negative. He had a normal urinary flow rate. Haematological and biochemical profiles were grossly normal. CT urography showed bilateral inguinal hernias and multiple bladder stones with the largest measuring 7 mm as shown in Fig. 1.

Cystoscopy revealed multiple vesical calculi which were adherent to the left antero-lateral wall of the bladder. The calculi were fragmented using Laser. During laser lithotripsy, it was noted that the calculi were attached to 3 prolene sutures that were used for the LIH hernia repair (Fig. 2). Cystoscopic scissors were used to cut the sutures and release them off the bladder wall, followed by forceps extraction of the excised sutures. Patient's postoperative course was uneventful. Upon discharge, the patient was referred to a General Surgeon for repair of RIH and repair of recurrent LIH.

3. Discussion

As reported in the literature, the presence of foreign bodies in the bladder is rare with only a very few small case series reporting

both self-introduced and iatrogenic introduction of foreign bodies into the bladder. Iatrogenic bladder injuries following hernia repairs have also been reported in the literature in the paediatric population following open herniorrhaphy procedures.^{5,6} Furthermore, since the advent of laparoscopic hernia repairs there has been a growing trend of reports of bladder injuries. These injuries are divided into direct injuries to the bladder wall in the form of lacerations, thermal injuries, surgical clips, or indirect in the form of mesh migration or migration of intrauterine contraceptive devices (IUCDS).⁷ The literature reports that direct injuries are usually recognised intra-operatively and the latter tends to have a delayed presentation, mimicking bladder neoplasms in some instances.^{1,8} To the best of our knowledge this may be the first case report on vesical stones secondary to the presence of prolene sutures in the bladder wall following open inguinal hernia repair. There have been reports of bladder stones secondary to sutures and vaginal tapes in the bladder.^{4,9,10} For example, the use of non-absorbable sutures in closing the bladder or in performing ureteroneocystostomy almost always invariably leads to vesical calculus formation on such non absorbable sutures.¹⁰ There are also reports where following orthopaedic pelvic surgery and in some

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