CASE REPORT

Prominent metalware from pelvic surgery causing dyspareunia

Mithun Nambiar,¹ Samuel Raymond Heaton,¹ Andrew John Stevenson,¹
Andrew Thomas Bucknill^{1,2}

¹Department of Orthopaedic Surgery, The Royal Melbourne Hospital, Parkville, Victoria, Australia

²Department of Surgery (RMH), The University of Melbourne, Royal Melbourne Hospital, Melbourne, Victoria, Australia

Correspondence to
Professor Andrew Thomas Bucknill, andrew.bucknill@mh.org.au

Accepted 19 December 2016

SUMMARY

We present a case of female dyspareunia secondary to metalware placement during extensive pelvic surgery following a motor vehicle accident. The patient initially had an uneventful recovery from her operations. However, she noticed pain with vaginal intercourse, due to a screw tip which was palpable on vaginal examination. X-ray imaging confirmed long screws in the medial part of an anterior column plate, which were impacting on the anterior vaginal wall. Subsequent percutaneous removal of two screws resulted in resolution of her symptoms of painful vaginal intercourse. While the pain from mechanical irritation of the vagina was resolved, the patient continues to have difficulty with intercourse, which is related to hip pain as a result of her initial injury and complex pelvic surgery.

BACKGROUND

Sexual dysfunction is a known complication of pelvic fractures, with multiple causes. Pelvic injury can cause muscular, skeletal and genitourinary injury, all of which can contribute to dyspareunia and sexual dysfunction. To the best of our knowledge, this is the first published case of metalware placement directly contributing to dyspareunia due to mechanical irritation. We aim to highlight the steps that could be taken in preventing this type of iatrogenic injury during pelvic surgery.

CASE PRESENTATION

A 33-year-old woman presented with dyspareunia, following extensive pelvic surgery performed 12 months ago at another institution. The patient suffered right pelvic and acetabular fractures, as well as a right tibial fracture after she was struck by a motor vehicle as a pedestrian. Her surgery involved right-sided iliac wing, anterior and posterior column plating and right tibial intramedullary nailing. No postoperative CT scan was performed at the original institution. The patient had a good recovery from her pelvic injuries and is fully weight bearing, however, has an ongoing right-sided foot drop requiring a foot drop splint, as a complication of her tibial fracture. She presented to our institution with her main symptom being pain with penile–vaginal intercourse since her pelvic surgery, and in particular being able to feel a prominent screw from within her vagina during intercourse. She had no urinary symptoms.

INVESTIGATIONS

Examination per vaginam revealed a prominent screw tip emerging from the inferior pubic ramus, palpable near the introitus.

An outlet view X-ray, performed at our institution identified two long cortical screws which extend 11 mm and 4 mm beyond the right inferior pubic ramus ([figure 1](#)). X-ray was sufficient to show that the metalware was prominent, and therefore a CT scan was not performed.

TREATMENT

The patient underwent a percutaneous removal of the two medial cortical screws from the right pubic bone.

OUTCOME AND FOLLOW-UP

Following the procedure, the patient was followed-up for 6 months. The patient reported a resolution of her symptoms of vaginal pain with sexual intercourse after the screw removal. Postoperative X-rays demonstrate the removal of the two medial screws in the anterior column plate ([figure 2](#)). Her sexual function has not fully recovered to preinjury levels, however, due to ongoing hip pain as a result of her initial injury and extensive pelvic surgery.

DISCUSSION

To our understanding, this is the first report in the English language literature of dyspareunia as a direct result of mechanical irritation from pelvic surgery metalware.

Figure 1 Preoperative X-ray showing long pelvic screws on the medial side of the anterior column plate.

To cite: Nambiar M, Heaton SR, Stevenson AJ, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2016-217285

Figure 2 Postoperative X-ray, following the removal of two medial screws in the anterior column plate.

The vaginal canal can be approximated to 3 cm below the inferior border of the pubic symphysis in the cadaveric model.¹ However, the muscular walls allow for the vagina to be stretched beyond its resting state, and therefore the pubic symphysis is readily palpable on examination per vaginam. Our patient had two cortical screws which extended 11 mm and 4 mm beyond the inferior border of the right pubic bone. While the screw tips were not felt at rest, they could be felt during penile–vaginal intercourse, due to anterior vaginal wall impacting on the screw tips. Subsequent removal of the oversized screws resulted in resolution of the patient's vaginal pain during intercourse.

Female dyspareunia, defined as pain with penile–vaginal intercourse, has an estimated incidence of 8–21% in the general population.² There are a multitude of causes of dyspareunia, which include but are not limited to anatomical and congenital causes, physiological causes related to hormonal variation and a lack of vaginal lubrication, deep pelvic pain related to pelvic masses (such as uterine fibroids and ovarian cysts), postmenopausal changes related to vaginal atrophy, infections, bladder pathology (such as cystitis), traumatic causes including direct vaginal and vulvar injury related to parturition and other direct pelvic trauma, dermatological conditions (such as scleroderma and Sjögren's disease), as well as psychological causes.³

Pelvic injury requiring surgical fixation is often the result of a high impact trauma, which can present with other musculoskeletal injuries as well as local bowel, bladder and neurovascular injuries. While sexual dysfunction in men following pelvic injuries is well documented, the literature relating to female sexual dysfunction is comparatively sparse.

Dyspareunia following pelvic trauma falls under the wider umbrella of female sexual dysfunction which also includes issues related to musculoskeletal back, hip and lower limb pain during intercourse, as well as psychological causes related to their injury resulting in decreased sexual drive and feelings of unattractiveness.⁴ A systematic review of the literature involving 1462 pelvic fracture patients found a female sexual dysfunction rate of 39.6%, which was higher than 35.9% identified for males.⁵

The causes of dyspareunia after pelvic fractures have not been clearly delineated but have been attributed to perineal soft tissue and neurovascular injury,^{6,7} direct vaginal lacerations⁸ and concurrent urinary tract injury.⁹ A unique case of dyspareunia 3 years after a pelvic fracture due to the formation of a pubic rami exostosis palpable per vaginam highlights the anatomical changes that can take place after injury which can impact on sexual function.¹⁰

Vallier *et al*⁶ in a study of 187 women under the age of 55 years with pelvic ring injury noted 56% of patients had dyspareunia. In particular, the rate of dyspareunia was higher in patients with anterior–posterior compression type injuries, as per the Young–Burgess classification¹¹ (91%), B-type injuries (partial posterior pelvic ring injury), as per OTA classification¹² (78%) and all patients who had a bladder rupture (total of five patients).⁶

The study also noted that patients who had surgical fixation were more likely to experience dyspareunia (74% vs 35%),⁶ which is likely due to the fact that the requirement of surgical fixation implies a greater severity of injury. Sixty-eight per cent of women with pubic symphysis injury experienced dyspareunia; however, this was not a significant risk factor on analysis.⁶ Furthermore, Copeland *et al*¹³ found incidence of dyspareunia was increased in patients with fracture displacement ≥ 5 mm at follow-up compared to minimally displaced fractures (43% vs 25%). Vallier *et al*⁶ noted that dyspareunia led to a decrease in sexual activity in 75% of patients. Sexual dysfunction following pelvic injury has been associated with a decreased quality of life¹⁴ and is therefore an important aspect of rehabilitation.

In our case, the complication could have been avoided if the long pelvic screws were detected intraoperatively during pelvic fixation. The use of intraoperative fluoroscopy is vital in pelvic surgery, and its appropriate use can guide fracture reduction and appropriate metalware placement. In this case, an outlet view could demonstrate that the screws were of an inappropriate length, allowing the surgeon to revise them intraoperatively.

Learning points

- The pubic symphysis is intimately related to male and female reproductive structures, and therefore accurate fracture reduction and metalware placement is important to prevent further patient morbidity.
- Intraoperative assessment of fracture reduction and metalware placement via fluoroscopy is vital. In this case, an outlet view could demonstrate the long pelvic screws and provide the surgeon with the opportunity to revise the screws intraoperatively.
- Pelvic surgery occurs in patients who have suffered high impact trauma, and these patients may have ongoing musculoskeletal injuries and, in certain cases, bowel and bladder injuries.

Contributors All authors contributed to the manuscript composition and editing. MN contributed to information collection, literature review and writing the manuscript. SRH involved in information collection, drafting and editing the manuscript. AJS contributed to drafting and editing the manuscript. ATB contributed to information collection, drafting and editing the manuscript. ATB is the principal and communicating author.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Fang RH, Chen TJ, Chen TH. Anatomic study of vaginal width in male-to-female transsexual surgery. *Plast Reconstr Surg* 2003;112:511–14.
- 2 Latthe P, Latthe M, Say L, *et al*. WHO systematic review of prevalence of chronic pelvic pain: a neglected reproductive health morbidity. *BMC Public Health* 2006;6:177.
- 3 Meana M, Binik YM. Painful coitus: a review of female dyspareunia. *J Nerv Ment Dis* 1994;182:264–72.

- 4 McCarthy ML, MacKenzie EJ, Bosse MJ, *et al.* Functional status following orthopedic trauma in young women. *J Trauma* 1995;39:828–36; discussion 836–7.
- 5 Harvey-Kelly KF, Kanakaris NK, Eardley I, *et al.* Sexual function impairment after high energy pelvic fractures: evidence today. *J Urol* 2011;185:2027–34.
- 6 Vallier HA, Cureton BA, Schubeck D. Pelvic ring injury is associated with sexual dysfunction in women. *J Orthop Trauma* 2012;26:308–13.
- 7 Bellabarba C, Stewart JD, Ricci WM, *et al.* Midline sagittal sacral fractures in anterior-posterior compression pelvic ring injuries. *J Orthop Trauma* 2003;17:32–7.
- 8 Giannoudis PV, Chalidis BE, Roberts CS. Internal fixation of traumatic diastasis of pubic symphysis: is plate removal essential? *Arch Orthop Trauma Surg* 2008;128:325–31.
- 9 Black PC, Miller EA, Porter JR, *et al.* Urethral and bladder neck injury associated with pelvic fracture in 25 female patients. *J Urol* 2006;175:2140–4.
- 10 Wilkes RA, Seymour N. Dyspareunia due to exostosis formation after pelvic fracture. *Br J Obstet Gynaecol* 1993;100:1050–1.
- 11 Burgess AR, Eastridge BJ, Young JW, *et al.* Pelvic ring disruptions: effective classification system and treatment protocols. *J Trauma* 1990;30:848–56.
- 12 Association OT. Fracture and dislocation compendium. *J Orthop Trauma* 1996;10:66–70.
- 13 Copeland CE, Bosse MJ, McCarthy ML, *et al.* Effect of trauma and pelvic fracture on female genitourinary, sexual, and reproductive function. *J Orthop Trauma* 1997;11:73–81.
- 14 Wright JL, Nathens AB, Rivara FP, *et al.* Specific fracture configurations predict sexual and excretory dysfunction in men and women 1 year after pelvic fracture. *J Urol* 2006;176:1540–5.

Copyright 2016 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow