Bladder Stones Secondary to Migratory Gauze Strand Postcesarean Delivery: A Case Report and Literature Review

Neba Francis Fuh^{1,2}, Osagie Edwin Lawani¹, Tijani Idris Ahmad Oseni^{1,2}

¹Department of Family Medicine, Irrua Specialist Teaching Hospital, Irrua, ²Department of Family Medicine, Ambrose Alli University, Ekpoma, Nigeria

Abstract

Gauze is commonly used in surgery. Sometimes strands of gauze are left *in situ* during surgery. These gauze strands could cause problems later. We report a case of bladder stones secondary to migratory gauze strand postcesarean section. We present a 62-year-old widow who presented with lower urinary tract symptoms of 13-year duration following a cesarean section 15 years before presentation. She had a radiologic diagnosis of multiple bladder stones which on surgical removal, a gauze strand was found to be the nidus for stone formation. A migratory gauze strand from surgery done 15 years before presentation served as a nidus for bladder stone formation in a 62-year-old patient. Surgeons should be careful during pelvic surgeries/procedures not to leave behind foreign bodies like gauze strands that could migrate and cause bladder stones and its attendant sequelae.

Keywords: Bladder stones, cesarean delivery, case report, gauze strand, migratory

INTRODUCTION

Bladder stones account for 5% of all urinary calculi and are rare in women accounting for about 2% of cases.^[1-3] When they occur, it is commonly secondary to pelvic infection, previous pelvic surgery including cesarean section, procedures like urethral catheterization and intrauterine contraceptive device (IUCD) insertion, or neurogenic bladder. Therefore, women presenting with a history suggestive of bladder stones should be evaluated for previous pelvic surgery or procedures. Foreign bodies such as IUCD, suture material, or hair have been reported as a nidus for bladder stone formation.

Surgical gauze is commonly used in surgery. Poor surgical techniques by way of the surgeon not removing every foreign body before closing could lead to strands of gauze being left *in situ* during surgery which could cause problems later as these strands could cause infection or migrate to nearby organs like the bladder where they could serve as a nidus for stone formation. We report a case of multiple bladder stones in a 62-year-old woman with a previous history of a cesarean section where a migratory gauze strand served as a nidus for the stone formation. The case was reported following the Surgical Case Report 2020 guideline.^[4]

Access this article online	
uick Response Code:	Website: www.njgp.org
	DOI: 10.4103/njgp.njgp_6_22

CASE REPORT

We present Mrs. OA, a 62-year-old P_6^{+1} (five alive) postmenopausal widow and retired teacher who presented to our general outpatient clinic with recurrent lower abdominal pains, dysuria, and a frequency of 13-year duration. Symptoms were noticed 2 years after her last delivery which was through a cesarean section in a private hospital on account of multiple gestation 15 years before presentation. She then presented to a private hospital where she was diagnosed with bladder stones and placed on liberal fluid intake. Two years later, she noticed she passed some stones while urinating. Symptoms have been recurrent to date when she decided to present to Irrua Specialist Teaching Hospital, a tertiary health facility in Edo State, Nigeria. She was not a known hypertensive or diabetic and had no other significant symptoms of note. She also did not smoke or take alcohol.

Address for correspondence: Dr. Tijani Idris Ahmad Oseni, Department of Family Medicine, Ambrose Alli University, Ekpoma, Nigeria. E-mail: tijanioseni@aauekpoma.edu.ng

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Fuh NF, Lawani OE, Oseni TI. Bladder stones secondary to migratory gauze strand postcesarean delivery: A case report and literature review. Niger J Gen Pract 2022;20:36-8.

Submitted: 04-Jul-2022 Accepted: 15-Sep-2022 **Revised:** 02-Sep-2022 **Published:** 12-Nov-2022

C

On examination, she was afebrile, not pale, anicteric, and not dehydrated. Her pulse rate was 82 bpm and her blood pressure was 110/70 mmHg. Her abdomen was full with a Pfannenstiel scar and suprapubic tenderness. Urinalysis revealed blood ++, urine M/C/S, and serum E/U/ Cr were normal. An abdominopelvic scan and abdominal radiograph were done which revealed multiple bladder stones [Figure 1]. A diagnosis of bladder stones was made and open cystolithotomy was done and multiple (6) bladder stones were surgically removed [Figure 2]. Four of the bladder stones were free, whereas the remaining two were attached to the bladder wall by gauze strands. One of the strands is shown in Figure 2. The patient had an uneventful recovery with a bladder catheter in situ for 2 weeks. She was discharged 1 week postoperative and had two follow-ups; 2 weeks postoperative when the catheter was removed and 1 month after catheter removal. Both visits were uneventful.

DISCUSSION

Bladder stones usually occur as a result of obstruction, infection, or foreign bodies.^[5] They usually result from migratory kidney stones or urinary stasis in the bladder which could result from bladder outlet obstruction, neurogenic bladder, or foreign body.^[6] Bladder stones are rare in women and when present are commonly due to pelvic surgeries where either the bladder was injured or materials used in surgery such as stitches or gauze migrate to cause stones.^[2] Our patient was a 62-year-old woman with a previous history of pelvic surgery (cesarean section) where a gauze strand was found intraoperative. The strand is thought to have been from the previous surgery she had.

Our patient presented with lower urinary tract symptoms (dysuria, frequency, and hematuria). This is the common presentation of bladder stones as reported in the literature.^[5] These symptoms are also common in patients with urinary tract infection, inflammation, and cancers of the urinary tract

like cancer of the bladder. It is important that bladder stones be ruled out in patients with lower urinary tract symptoms through a thorough evaluation including a detailed history and physical examination and appropriate investigations including a cystoscopy where necessary.

Bladder stones could also occur secondary to systemic diseases such as hypertension and diabetes.^[7] Wood *et al.* reported a significant association between systemic diseases such as diabetes and hypertension with the increased risk of urinary stone formation.^[7] This is due in part to increased acidity of the urine from elevated uric acid and oxalic acid, leading to the formation of urate and oxalate stones. Our patient was neither hypertensive nor diabetic.

The foreign body in the bladder can act as a nidus for stone formation.^[2] There have been reported cases of IUCD;^[8] sutures used during pelvic surgeries^[1,2,6] and hair^[9] acting as a nidus for stone formation in the bladder. There have been reported cases of IUCDs and abortion sticks migrating from the uterus to the bladder^[8,10,11] and if not detected early could serve as a nidus for stone formation.^[8] There is therefore the need for good surgical techniques and adherence to surgical protocols to prevent occurrence. In the case of our patient, the nidus was a strand of gauze which was used during the cesarean section patient had. A similar case of migratory gauze strands following cesarean section was reported in China in a 35-year-old woman.^[12] Oduemene and Onuh also reported a case of bladder stones secondary to migratory gauze to the bladder following a hysterectomy.^[13] Both patients presented with urinary symptoms and suprapubic pain as noticed in the index patient and were also treated surgically through open cystostomy.

If not promptly diagnosed and treated, bladder stones could lead to recurrent urinary tract infection, cause obstructive uropathy, and could lead to renal disease from ascending infection as a result of urinary stasis.^[1,2,5] There is therefore the need for surgeons to be careful during surgeries, particularly pelvic surgeries not to leave behind any foreign body no



Figure 1: Pain abdominal radiograph showing bladder stones



Figure 2: Bladder stones and strand of gauze removed from the patient

matter how small as it could cause problems later as evident in the index patient and others reported in the literature. This can be achieved by adhering to standard surgical protocols during surgeries.

CONCLUSION

Bladder calculi occurred secondary to migratory gauze strand from a surgery done 15 years earlier. The gauze strand migrated to the bladder and served as a nidus for bladder stone formation.

Recommendations

Surgeons should be careful during pelvic surgeries/procedures not to leave behind foreign bodies that could migrate and cause bladder stones and its attendant sequelae.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Julian AS, Agil A. Hanging bladder stone due to misplaced surgical suture several years after hysterectomy: A case report. Int J Surg Case Rep 2021;89:106586.
- Su CM, Lin HY, Li CC, Chou YH, Huang CH. Bladder stone in a woman after cesarean section: A case report. Kaohsiung J Med Sci 2003;19:42-4.
- Ismail SF, Abdullah J, Ab Rahim MF, Saiful MI, Ramli R. A successful delivery of giant bladder stone by obstetric forceps: A case report. Int Surg J 2021;8:1589-91.
- Agha RA, Franchi T, Sohrabi C, Mathew G, Kerwan A, SCARE Group. The scare 2020 guideline: Updating consensus surgical case report (SCARE) guidelines. Int J Surg 2020;84:226-30.
- Verhelst AH, De Fré MA, Vergauwe EJ. A submucosal bladder stone in a 65-year-old woman. Urol Ann 2022;14:93-5.
- Mahdavi A, Mostafavi H. Hanging bladder calculi secondary to misplaced surgical suture. Iran J Radiol 2015;12:e11303.
- Wood K, Boyd C, Whitaker D, Ashorobi O, Poore W, Gower B, *et al.* Impact of demographic factors and systemic disease on urinary stone risk parameters amongst stone formers. Rev Urol 2019;21:158-65.
- Wan L, Wang Y, Xiao C, Li X, Cao J, Wang S, *et al*. Four cases of heterotopia of an intrauterine device embedded in the bladder muscular layer causing cystolithiasis: Case report and review of the literature. J Int Med Res 2021;49:1-9.
- Joshi M, Mittal N. Bladder calculi formed over a hair Nidus in spinal injury cases. J Spinal Cord Med 2014;37:346-8.
- Waqar M, Moubasher A, Ameen T, Robinson D, Walker NF. Erosion of an intrauterine contraceptive device into the urinary bladder: A case report. Case Rep Womens Health 2021;29:e00274.
- Sadhwani MA, Janu VH, Modi HH, Patel GR. Intravesical foreign body: A rare case report and review of literature. IJSS J Surg 2015;1:20-2.
- Kashima S, Yamamoto R, Miura Y, Abe A, Togashi H, Ishida T, *et al.* An intravesical foreign body by migration of remnant gauze into the bladder: A case report. Hinyokika Kiyo 2014;60:83-6.
- Odoemene CA, Onuh CA. Foreign bodies in the urinary bladder Case series. J West Afr Coll Surg 2017;7:124-36.