

Migration of a metal clip into the urinary bladder

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Abstract Migration of metal clips into the urinary tract is rare. We present a case in which migration of a metal clip into the urinary bladder occurred after retropubic radical prostatectomy. A 75-year-old man, who had undergone retropubic radical prostatectomy three years before, presented with painful micturition and gross hematuria. Radiography and cystoscopy showed two vesical stones. As treatment for these stones, transurethral holmium laser lithotripsy was performed. One of the stones had formed around a metal clip that had presumably migrated into the urinary bladder. After removal of both stones, the patient was able to void freely. In conclusion, it is important to remember that metal clips may migrate postoperatively and cause secondary complications. Therefore, metal clips should be applied sparingly at the vesicourethral anastomosis during retropubic radical prostatectomy.

Keywords Radical prostatectomy · Metal clip

Introduction

Retropubic radical prostatectomy is a widely utilized surgical procedure for selected patients with localized cancer of the prostate [1]. Use of metal clips can save time and reduce blood loss during this operation [2]. Recently, performing hemostasis with metal clips has become widespread during laparoscopic surgery in general [3].

However, the excessive use of metal clips can lead to various complications [3]. It is not uncommon that foreign bodies migrate and erode into unintended locations since they have been inserted into the body. However, migration of these clips into the urinary tract is very rare, and only three cases of such migration have been reported [2–4].

Here, we report a case of a vesical stone forming around a metal clip that had migrated into the urinary bladder after retropubic radical prostatectomy.

Case report

In December 2004, a 75-year-old man presented to us with the twin complaints of painful micturition and gross hematuria. His history included a diagnosis of prostatic carcinoma. The initial prostate specific antigen (PSA) level was 55 ng/mL and there was no extracapsular extension or metastatic disease detected by imaging studies. Transrectal biopsy of the prostate revealed well differentiated adenocarcinoma and he underwent retropubic radical prostatectomy at our hospital in July 2001. Histopathological examination revealed well differentiated adenocarcinoma and residual tumor at the resection margin of the urethra. Postoperatively, the patient was treated with luteinizing hormone-releasing hormone and external beam radiotherapy using a conventional four-field box technique to deliver 45 Gy to the whole pelvis, with an additional boost of 15 Gy to the prostatic bed (60 Gy in total). The patient did well postoperatively, and he was reviewed every 3 months for postoperative follow-up. PSA remained undetectable and there was no evidence of local disease.

When he presented this time, urinalysis revealed 10–15 red blood cells/hpf and 50–99 white blood cells/hpf, while culture of urine showed the growth of proteus species. He

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Fig. 1 Plain film of pelvis radiography (KUB) revealed two radiopaque vesical stones and a large number of metal clips in the pelvis

received treatment for urinary tract infection, but his symptoms persisted. Radiography (KUB) revealed two radiopaque vesical stones and a large number of metal clips in the pelvis (Fig. 1). The patient was continent and had a bladder capacity of 130 ml, with postvoiding residual urine of less than 5 ml. Cystoscopy revealed two yellow-white stones that were both 1.5 cm in diameter. The bladder neck was fibrotic, but not constricted.

As treatment for the two vesical stones, transurethral holmium laser lithotripsy was performed. The stones were easily broken up and it was found that one of the stones had formed around a metal clip, which had presumably migrated into the bladder (Fig. 2). After removal of the stones, the patient was able to void freely. The stone fragments were found to consist of 88% calcium oxalate and 12% calcium phosphate. Review of the operative report



Fig. 2 Gross appearance of fragment of vesical stone. The vesical stone was formed around a metal clip that had possibly migrated into the urinary bladder

revealed that metal clips had been used on the prostate prior to its removal, on the vasa, and on Denonvillier's fascia. There was no mention of any loose metal clips during the operation. The patient's postoperative course was uneventful. After removal of the two vesical stones, the patient was reviewed periodically and continued luteinizing hormone-releasing hormone therapy for 3 years. During that period, there were no signs of the recurrence of vesical stones or prostate carcinoma.

Discussion

The mechanism underlying the migration of a metal clip into the urinary tract is unclear. In the surgical literature, there are several reports about metal clips migrating into the common bile duct after laparoscopic cholecystectomy and acting as a nidus for stone formation [5, 6]. Two hypotheses have been suggested to account for the mechanism of metal clip migration into the common bile duct [5]. The first possibility is that a biloma caused by incomplete closure of the cystic duct undergoes drainage into the common bile duct with the clip being drawn into the common duct via the cystic duct at that time. The other hypothesis suggests that the metal clip is involved by the inflammation around the common bile duct and finally penetrates the duct wall. In the present patient, we considered the following mechanism to be most plausible because of the long period between surgery and discovery of the clip. It is possible that inflammation occurred around the urinary bladder and/or vesicourethral anastomosis, and also involved the metal clip, which then eroded the bladder wall and eventually migrated into the bladder. Radiation therapy might have been a contributing factor.

To prevent the migration of metal clips after retropubic radical prostatectomy, it is important to remember that such clips should be used sparingly around the vesicourethral anastomosis [2]. In addition, when a patient presents with vesical stones after retropubic radical prostatectomy employing metal clips, the possibility of migration of a clip should always be kept in mind.

Conclusion

We reported a case of a vesical stone forming around a metal clip, which had presumably migrated into the urinary bladder after retropubic radical prostatectomy. It is important to remember that metal clips may migrate and cause secondary complications after surgery. Therefore, these clips should be used sparingly at the vesicourethral anastomosis when performing retropubic radical prostatectomy.

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