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PERFORATION OF THE URINARY BLADDER WALL BY FOLEY CATHETER

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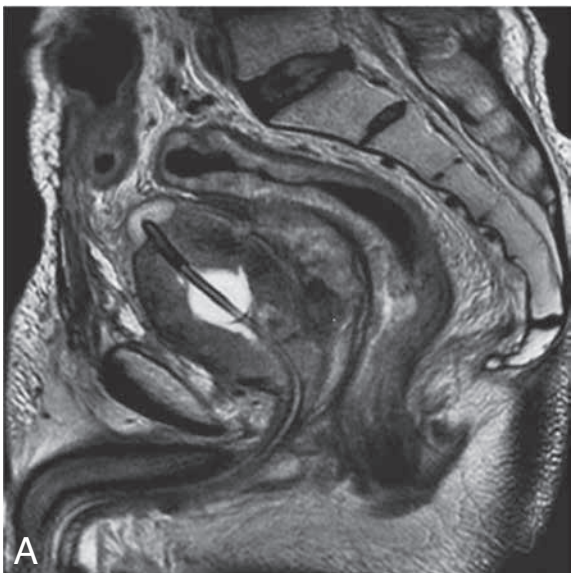
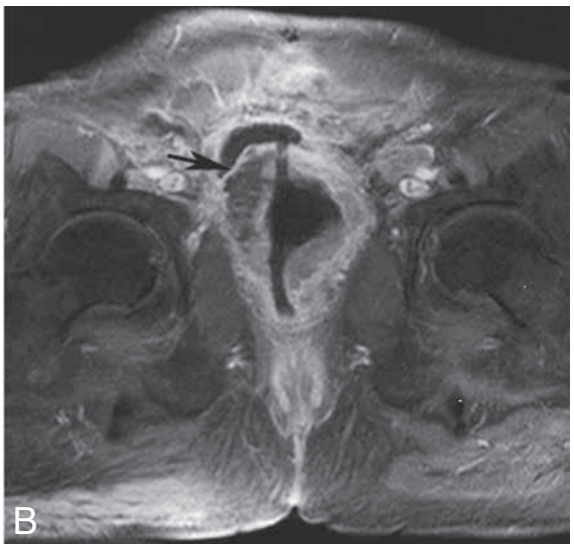
Key-word: Catheters and catheterization, complications

Background: A 45-year-old male patient was admitted to the urology department with hematuria.
Patient was known with bladder cancer and refused surgery four years ago.
Two years ago patient was admitted also with hematuria.
Presence of an intravesical mass, with invasion of right ureter, right seminal vesicle, and infiltration of perivesical fat was diagnosed. Based on these findings the condition was considered as inoperable and the patient underwent four-cure chemotherapy.
In addition, ten-day radiotherapy was given on the pelvic region one year ago.
At the occasion of the most recent admission MRI was performed for further diagnostic work-up.





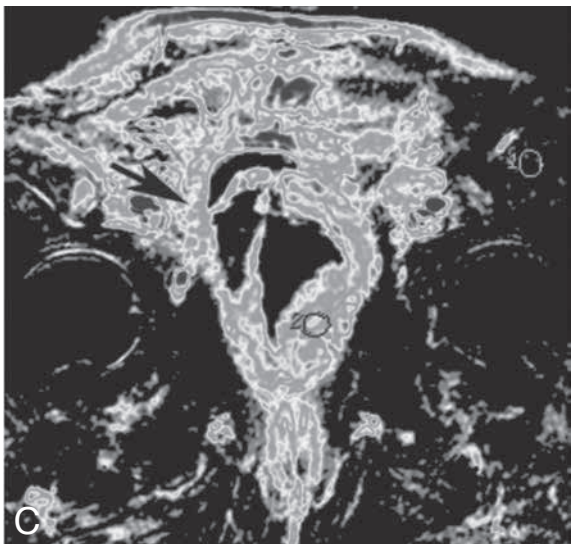


Fig. 1A / 1B | 1C

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Work-up

MRI of the pelvis (Fig. 1) shows on sagittal T2-weighted image (A) perforation on anterior-superior wall of the bladder. Foley catheter extends to outside of bladder lumen. There is also a focal subserosal fl uid collection around the tip of the Foley catheter. Gadolinium-enhanced axial T1-weighted image (B) demonstrates diffuse homogeneous enhancement, except for the perforation area and right anterior wall of the bladder (arrow). Perfusion weighted image (C) shows a perfusion defect at a ruptured segment of the bladder wall and decreased perfusion on right anterior bladder wall (arrow).

Radiological diagnosis

MRI images of the pelvis clearly demonstrate perforation of the urinary bladder wall by Foley catheter.

Discussion

Perforation of the urinary bladder is a lethal condition when early diagnosis is not made and subsequent treatment is not installed.

An important cause of bladder perforation is spontaneous rupture. Fujikawa et al evaluated 143 patients with carcinoma of the cervix following radiation therapy, of which 6 patients out of them developed spontaneous rupture of urinary bladder. Therefore, one must consider the possibility of urinary bladder perforation after pelvic radiation therapy for gynecological and urological malignancies.

It is presumed that radiation therapy induces structural weakness in all layers of the bladder, which may facilitate spontaneous perforation. Urinary bladder carcinoma may, however, spontaneously result in bladder rupture.

A few cases are reported on Foley catheter induced bladder perforation. Most of these reports are related to incorrect positioning of the catheter. Bladder perforation related to Foley catheter positioning was reported due to balloon inflation in a bladder diverticulum.

In the presented case, MRI clearly showed the level and extent of perforation by the Foley catheter with perivesical fluid collection. MRI may be used alternatively instead of cystography as a non-invasive method for demonstration of bladder perforation and associated perivesical fluid collection.

In the presented case, it remained unclear certain whether the perforation was related to the placement of Foley catheter or occurred spontaneously. But the location of the tip of the catheter outside the bladder lumen at the site of the perforation may suggest perforation related to placement of the Foley catheter. Weakness of bladder wall due to radiotherapy may have contributed to this perforation.

In conclusion the risk of bladder perforation should be considered in bladder cancer patients, especially if patient underwent radiotherapy. Catheter position should be monitored radiologically in these patients, since they are prone to perforation. MRI may be used as an alternative to detect bladder rupture in high-risk patients.

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