A 40-year-old man visited the urology department of our hospital with dysuria. He underwent a radiological examination. Computed tomography and magnetic resonance imaging demonstrated a large cystic mass with a stone on the right lateral wall of the bladder.

**Imaging Findings:**

On non-contrast enhanced CT a cystic mass was noted on the right lateral wall of the bladder. The density of the cystic mass was equal to that of water.

After intravenous contrast administration (fig. 1), initially only the bladder was filled by contrast agent. Inside the cystic mass was a large stone (fig. 1, fig. 2, fig. 3).

After a few minutes (figs. 2 and 3) the density in the cystic mass gradually increased because of the presence of contrast agent.

On magnetic resonance imaging (MRI) a large cystic lesion in the right side of the urinary bladder was noted. In figure 4 the neck of the diverticulum is seen. The density of the cystic mass and the bladder was the same. Inside the cystic mass, a dense round mass, which was a stone, was visualized (figure 5).

**Discussion:**

Bladder diverticula is the herniation of bladder mucosa through the muscular wall. Bladder diverticula are not uncommon in the paediatric population. Bladder diverticula can be classified into four different categories:

1. those with associated bladder outlet obstruction - posterior urethral valves, neurogenic bladder, urethral strictures
2. postsurgical
3. those with associated syndromes like prune belly, Menkes and Ehlers-Danlos
4. congenital or primary diverticula [1, 2].

One classification categorizes them into congenital and acquired diverticula [3]. Acquired bladder diverticula are more common, small, multiple, have bladder trabeculation, are secondary to infravesical obstruction or neurogenic dysfuction [4] and show no gender dominance.

Acquired bladder diverticulum often results from intrinsic or extrinsic lower urinary tract obstruction, such as prostate hypertrophy, lower urinary tract stenosis, tumours, calculus etc. When diverticulum increases, the ureteral orifice will occupy the diverticulum and then reflux occurs. This disease can occur at any age and more often in older men.

The most common presentation is with urinary tract infection secondary to residual urine stasis. Patients might
present with vesico-ureteral reflux, stone formation, hematuria, abdominal pain, abdominal mass and incontinence [3] or only show a two phase urination, a rare characteristic.

Carcinoma in bladder diverticulum is a rare condition [7, 8], 2-7% of patients with bladder diverticula develop neoplasms within the diverticulum which may be missed on cystoscopy. Radiological examination plays an important role in its diagnosis. Histological types: transitional cell carcinoma 78%, squamous carcinoma 17%, adenocarcinoma 2%.

The useful diagnostic procedures for bladder diverticula are reported to be ultrasonography, urethrocystography, enhanced CT, cystoscopy and magnetic resonance imaging. CT examination [5, 6] can accurately diagnose bladder diverticulum, clearly show the size, location, shape and opening of bladder diverticulum and provide accurate and detailed information for clinical practice. MRI is a useful diagnostic modality because more section images can be obtained compared to CT.

CT is a simple, effective and economical method of the diagnosis of bladder diverticulum.

Differential Diagnosis List: Giant Bladder diverticulum with stone ., Pelvic cystic tumors, Ovarian cysts in women

Final Diagnosis: Giant Bladder diverticulum with stone .

References:

**Figure 1**

**Description:** CT imaging: cystic mass in the right side of the urinary bladder on contrast enhanced CT, with a stone. **Origin:** Radiology Department of General Hospital of Chalkida
Figure 2

Description: MRI: cystic mass on the right side of the bladder. The neck of the diverticulum is seen. Origin: Radiology department
Figure 3

Description: MRI: cystic mass on the right side of the bladder with a large stone in it. Origin: radiology department
**Figure 4**

**Description:** CT imaging: the same cystic mass with the stone. There is a little contrast agent in it.

**Origin:** Radiology Department of general Hospital of Chalkida
Description: CT imaging: the same cystic mass as in figure 1 and 2 with more contrast agent in it, and a large stone. Origin: Radiology Department of general Hospital of Chalkida