

## CASE REPORT

## Clot Retention and Spontaneous Rupture with Secondary Pneumatosis of Bladder Wall Following Routine Cystoscopy

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**In this article we report an unusual case of spontaneous rupture of bladder wall following office-cystoscopy. It took place in a patient who suffered from low-stage highgrade carcinoma of bladder with the different aggressive behavior. Finally, he underwent**

**radical cystectomy, which showed micropapillary carcinoma and pneumatosis within the bladder wall. The cause of the latter finding is rather puzzling and has been never reported previously.** (Pathology Oncology Research Vol 7, No 4, 301–302, 2001)

**Keywords:** bladder neoplasm, cystoscopy, bladder injury, pneumatosis

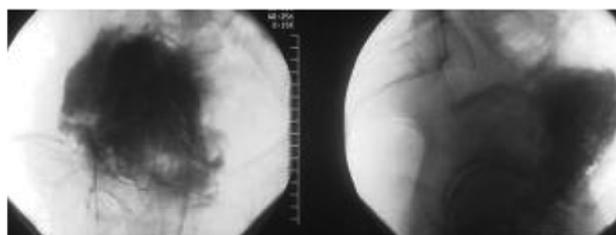
### Introduction

Bladder clot retention following routine office-cystoscopy is a rare complication. To our knowledge there were no publications describing acute renal failure and spontaneous bladder rupture following clot retention in a previously healthy man.<sup>1</sup> This case is surprisingly interesting for its further clinical fate and histologic findings—pneumatosis cystoides.

### Case Report

A 62-year old man presented to the hospital emergency room complaining of low abdominal pain and gross hematuria. He had undergone office-cystoscopy two days previously for investigation of microscopic hematuria. During that procedure a small papillary tumor was discovered on the anterior bladder neck but not biopsied. The attendant urologist confirmed that the procedure was routine, but “due to the slight bleeding from the tumor area mild irrigation was performed”. The patient did not seek immediate medical attention for dysuria and hematuria that began after completion of the procedure. In the interim his diuresis was reduced to less than 150 ml/ 24 hrs.

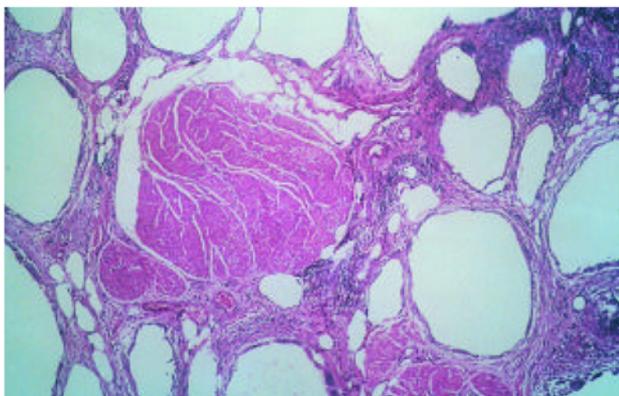
Physical examination revealed tenderness and fullness of the lower abdomen. A blood clot was noted in the penile external meatus. Urea and creatinine were 70 mg/dl and 3.3 mg/dl, respectively, whereas previously measured baseline creatinine was 1.0 mg/dl. Retrograde urethrocytography revealed flame shaped extravasation of contrast material into the soft tissues surrounding the bladder (*Figure 1*) and was interpreted as bladder rupture. Abdominal ultrasound revealed bilateral hydronephrosis. It was decided to perform open exploration. Large clots were evacuated from the bladder and ruptures of anterior and right lateral walls were discovered and repaired. At this procedure no tumor was discovered elsewhere. The postoperative period was unremarkable. Creatinine returned to 1.0 mg/dl. Excretory urography showed normal kidneys and ureters. One month later cystoscopy was repeated which revealed a



**Figure 1.** Cystography showing “flame shaped” areas of extravasation. a) film obtained in anteroposterior; b) lateral projection

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**Figure 2.** Large empty spaces surrounded by reactive giant cells dissecting through muscularis propria. HE x 100

papillary tumor on the anterior bladder wall. This tumor was resected and histological examination showed grade 2 non-invasive urothelial carcinoma. An additional cystoscopy performed after one month revealed multiple tumors encircling the bladder neck. Histological examination now revealed high grade (2-3) urothelial carcinoma with deep lamina propria invasion. Radical cystectomy was performed which showed residual high grade urothelial carcinoma with micropapillary features focally invasive into the muscularis propria. An additional finding within the bladder wall consisted multiple clear spaces surrounded by reactive giant cells (*Figure 2*). This finding is interpreted as infiltration of air into the bladder wall and is analogous to pneumotosis cystoides intestinalis.

### Discussion

This case demonstrates that high-grade urothelial carcinoma with deep lamina propria invasion has an aggressive behavior and should prompt a persistent search for definitive muscle invasion.<sup>2</sup> The presence of micropapillary carcinoma in the final postoperative specimen supports the above.<sup>3</sup> To our knowledge there are no publications describing pneumotosis within the bladder wall. We suggest that its presence could be explained by air trapping caused by high-pressure irrigation during the office-cystoscopy. Air infiltration into the bladder wall could weaken the latter and make this area less resistant to increased intravesical pressure with a consequential wall rupture. The chain of complications following the latter, emphasizes the importance of gentle technique during every endoscopic procedure.

### Acknowledgement

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