

# Squamous cell carcinoma of the bladder in a patient on intermittent self-catheterization

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■ Squamous cell carcinoma of the bladder has been associated with exstrophy, defunctionalized bladders, chronic infection, cystolithiasis, and chronic indwelling catheters. We report a case of squamous cell carcinoma of the bladder in a woman performing intermittent self-catheterization for the previous 14 years.

□ INDEX TERMS: CARCINOMA, SQUAMOUS CELL; BLADDER NEOPLASMS; URINARY CATHETERIZATION □ CLEVE CLIN J MED 1992; 59:645-646

**C**LEAN INTERMITTENT self-catheterization (ISC) has been increasingly used in the management of lower urinary tract dysfunction since the technique was popularized by Lapides et al in 1972.<sup>1</sup> The association between chronic indwelling catheter bladder drainage and squamous cell carcinoma or metaplasia is well known<sup>2-4</sup>; however, only a single case of papillary adenoma in conjunction with ISC has been reported in the literature.<sup>5</sup> We report a case of a malignant bladder neoplasm following ISC.

## CASE REPORT

An 80-year-old white woman presented to the Cleveland Clinic in September 1988 with gross hematuria, which had occurred once before, in November 1983. She had no history of smoking. She was treated in 1941 with a radium implant for carcinoma of the cervix, and there was no evidence of recurrent disease. In 1974, during an evaluation for chronic pyelonephritis and vesicoureteral reflux, she was found to have neurogenic bladder dysfunction.

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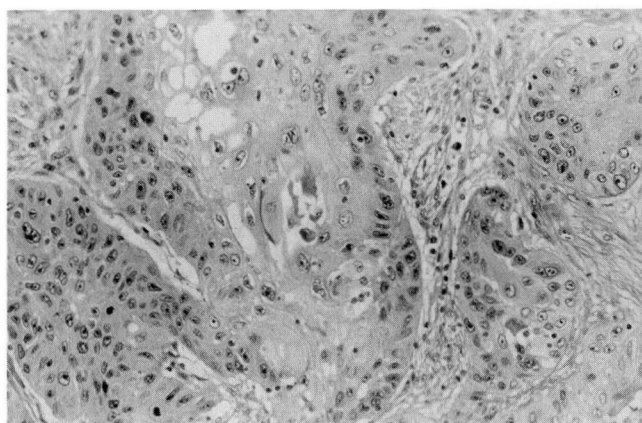
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Subsequent management included ISC four to five times daily, anticholinergic medication, and suppressive antibiotic therapy. The patient was followed on a yearly basis; asymptomatic bacteriuria was frequently noted. Urine cultures were often positive for *Klebsiella pneumoniae*. In November 1983, she experienced an episode of gross hematuria; the intravenous pyelogram was unchanged, and cystoscopy was negative. Routine follow-up was continued.

When she presented in September 1988, her intravenous pyelogram was still unchanged; however, urine cytology revealed malignant cells. Cystoscopic examination revealed a sessile tumor on the left posterolateral bladder wall. Transurethral resection was performed, and microscopic sections revealed an invasive, keratinizing squamous cell carcinoma.

Random biopsies of the bladder mucosa were negative. Because of the location of the lesion and the patient's age, a partial cystectomy was performed, without complications.

Histologic examination of the surgical specimen revealed that the tumor extended through the muscularis and was near but not at the serosal surface (Figure). Margins of the surgical specimen and biopsies of the right and left pelvic lymph nodes were negative for tumor (T3A-N0-M0). No definite radiation changes were present in either the biopsy specimen or the surgical specimen.



**FIGURE.** Cystectomy specimen (hematoxylin and eosin stain,  $\times 62$ ) shows nests of invasive keratinizing squamous cell carcinoma within the bladder wall.

#### COMMENT

In the United States, between 1973 and 1977, only 2.7% of newly diagnosed bladder cancers were squamous cell carcinomas.<sup>6</sup> The incidence of squamous cell carcinoma of the bladder is higher in males than in females and is relatively higher in the black population.<sup>7</sup> Risk factors for the development of squamous cell bladder carcinoma include cigarette smoking, industrial exposures to arylamines, chronic catheter bladder drainage, and a history of recurrent urinary tract infection.

Our patient's only risk factor was chronic

asymptomatic bacteriuria associated with a 14-year history of clean ISC.<sup>8</sup> She is white and has no smoking history or significant industrial exposure, having been a housewife since age 20.

External beam radiation in the treatment of cervical carcinoma has been implicated in metachronous malignancies; however, studies both support and dispute an increased incidence of bladder tumors following pelvic irradiation.<sup>9-13</sup> Our patient underwent radium therapy for cervical carcinoma in 1941. There was no history of external radiotherapy, and none of the skin changes typical of the orthovoltage radiation used at that time were present on the patient's abdominal wall. Examination under anesthesia revealed a mobile pelvis.

Case reports linking external irradiation to bladder tumors show a mean time interval of 9 years after therapy, with a range of 6 months to 20 years.<sup>9-13</sup> Our patient presented 40 years after internal radium therapy of the cervix with a lesion located away from the trigone, the region that would theoretically be susceptible to incidental radiation effect.

Despite the widespread use of clean ISC in the management of lower urinary tract dysfunction, bladder malignancy has not been previously reported, to the best of our knowledge. Our patient's tumor appeared on the posterolateral bladder wall, an area that might have sustained repeated trauma owing to ISC. What screening should be performed on patients performing ISC and at what intervals is not clear; however, all ISC patients should undergo evaluation including cystoscopy for episodes of hematuria.

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