

## Nephrogenic adenoma of the bladder

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### Introduction

Urothelium may undergo proliferative and metaplastic changes to a variety of stimuli, notably chronic inflammation and irritation (1). One such change was called 'Nephrogenic adenoma' by Freidman and Kuchlenbeck who noted the similarity of the lesion to renal tubules and suggested that it resulted from mesodermal potentialities of the urothelium (2). The prevalent view is that nephrogenic adenoma represents a metaplastic transformation of urothelial cells in response to local irritation due to infection or trauma of the urinary tract, surgical or endoscopic procedures, stones, intravesical immunotherapy or radiation treatment (3).

Nephrogenic adenoma also called nephrogenic metaplasia is a rare lesion and more than 300 cases have been reported and 70% of them were located in the bladder and commonly considered to be benign with 37 to 60 relaps rate (3).

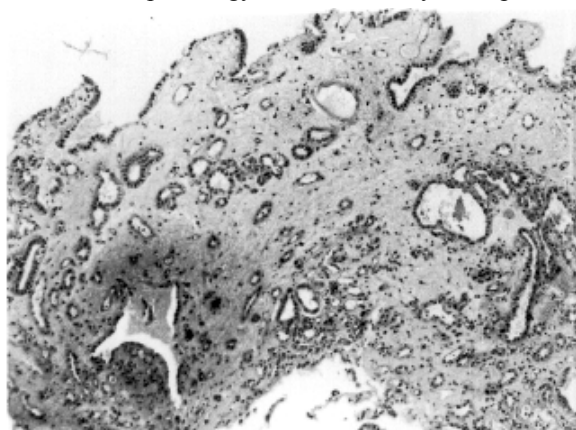
### Case Report

A 45 year old man admitted to our hospital with irritative urinary symptoms and nothing else noticeable in the history. Except from microscopic hematuria in the urinalysis, excretory urography, abdominal ultrasonography and urinary cultures were all normal. At cystoscopic examination a noninvasive papillary lesion at the trigone was noted, transurethral resection was performed, and histologic report was cystitis glandulosa. Despite two tumor-free endoscopic observations which were done in three-month intervals papillary lesions in milimetric-size were observed at the same trigone region in the third control, and biopsy was performed. Pathologic examination was reported as nephrogenic adenoma. Three months later in another control endoscopic observation revealed a papillary erythematous patch, 1 cm in diameter at the same region. Then a wide transurethral resection was performed at the lesion side.

On microscopic examination, the tumor was entirely papillary or polypoid bounded by one layer of cubic or cuboidal-columnar epithelial hobnail cells with clear cytoplasm, a pole projecting into the tubular lumen and large nucleus with prominent nucleolus. Stroma contained inflammatory infiltrate

(Picture 1). With this examination nephrogenic adenoma was confirmed.

The patient was now in one year follow-up and there was no pathology at the control cystoscopies.



Picture 1. Nephrogenic Adenoma; Well formed tubules lined by cuboidal-columnar epithelium with inflammatory cells in interstitium ( H&EX100 )

### Discussion

Although the exact pathogenesis of nephrogenic adenoma is unclear, it is most likely resulted from a metaplastic response to irritation due to infection or trauma of the urinary tract with previous surgical or endoscopic procedures, stones, intravesical immunotherapy or radiation treatment (3). As in our case most other reported cases were associated with previous surgery and trauma (One transurethral surgery for cystitis glandulosa and three control endoscopies for our case). Ford et al. in their study with 70 cases, pointed out that lesions occurred mostly at the side of previous operations (2). We think that the cause of the changing of pathologic outcome from cystitis glandulosa to nephrogenic adenoma is the transurethral surgery and the repeated control endoscopies.

While early theories postulated on embryologic origin involving remnants of the mesonephric duct, recently widespread occurrence within the bladder has been reported suggesting that nephrogenic adenoma is an immature metaplastic reaction to urothelial injury (4). Adenomatous metaplasia may occur as a metaplastic response of the urethelium during repair. The regenerating epithelium appears to form a single layer with tendency to invaginate and proliferate in the subepithelial tissues (2). This process may be analogous to the deep epithelial

hetertopia described in a healing chronic peptic ulcer and is similar to the mesothelial proliferation and sequestration seen in the wall of an infected hydrocele (2).

Nephrogenic adenoma has been reported in renal transplant recipients and the disease occurs only in adult recipients of kidneys and not of other organs and it is always in the bladder. Immunosuppressive treatment has been suspected as a causal agent (3). Nephrogenic adenoma is also noted in an augmented bladder (5).

Although nephrogenic adenoma has been noted in association with vesical carcinoma, there have been no reports of its transformation to a malignant or metastatic lesion (5). So that nephrogenic adenoma appears to represent a nonspecific metaplastic reaction without malignant potential.

### References

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