ORIGINAL RESEARCH PAPER

Urology

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UNUSUAL MANIFESTATION OF CYSTITIS GLANDULARIS MASQUERADING AS BLADDER TUMOR.

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ABSTRACT

Cystitis glandularis is rare benign condition. It occurrs in only 1% of the general population. Predominantly found in middle-aged women. Due to chronic and recurrent irritation of the bladder wall reactive metaplasia of the bladder's urothelium occurs. It can mimick as bladder tumour and may lead to mismanagement. Patients usually complain of hematuria associated with storage lower urinary tract symptoms. We present a case of a 36 year male with complaints of frequency, urgency and dysuria with bladder mass found on USG and confirmed on CT IVU. Histopathology report confirmed as cystitis glandularis after endoscopic resection of the tumor.

INTRODUCTION:

Cystitis glandularis is characterised by reactive metaplasia of bladder urothelium[1]. It is caused by chronic and recurrent irritation of bladder.[2] Rare condition and incidence is around 1% of general population[3]. It rarely presents as a bladder mass.

CASE REPORT

36 year male complaining of frequency, urgency and straining, dysuria associated with suprapubic pain over 1 year. Physical examination revealed good general condition and no fever. Bilateral testes small for size (10-15cc). Digital rectal examination normal, anal tone normal, firm grade 1 prostate. Labs: Sr. creat 0.9, urine routine normal. Urine cytology : no evidence of malignant cells.

USG KUB (Image 1 a,b) : 14x9 mm sized lobulated heterogeneous hyperechoic polypoidal lesion is seen at left vesicoureteric junction within urinary bladder.

CT IVU(Image 1 c) : Lobulated hypodense polypoidal lesion showing subtle post contrast enhancement and a tiny focus of calcification within is noted along the base of the bladder on left side adjacent to vesicoureteric junction. It measures approximately 11 x 10 mm in size.

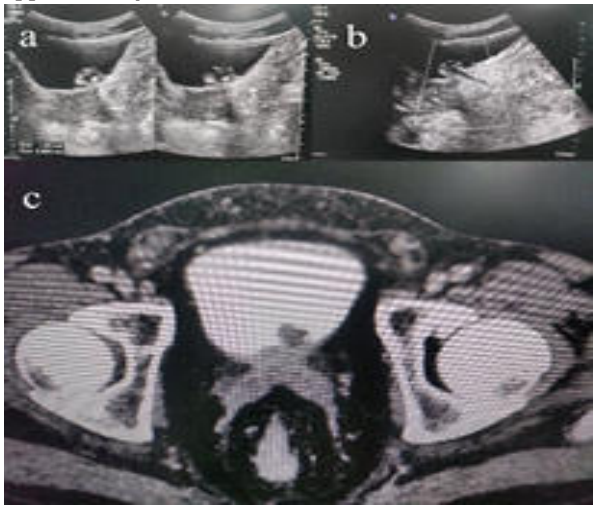

Image 1: *USG(a,b) and CT IVU(c)*

Cystoscopy (Image 2 a,b,c)was performed showing irregular shaggy solid lesion on posterior bladder wall and trigone involving left vesicoureteric junction obliterating left ureteric orifice. Complete endoscopic resection (Image 2 d,e) was done and left DJ stenting done(Image 2 f).

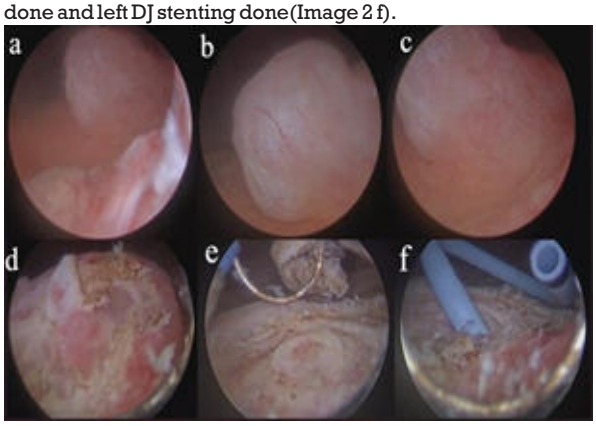

Image 2: *Cystoscopy with endoscopic resection with Left DJ stenting*

Histological examination (Image 3) confirmed cystitis glandularis by revealing abundant urothelial Von Brunn nests presenting glandular aspects, with cuboidal or cylindrical cells lacking atypia or mitosis, without sign of invasion.

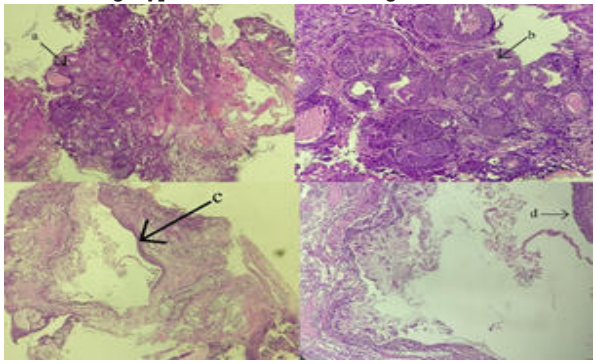

Image 3: *Histopathology :: a.* Abundant urothelial Von Brunn nests presenting glandular aspects. b. Magnified view showing Von Brunn nests. c. Cystitis Glandularis. d. Magnified view showing cystitis glandularis

Antibiotic therapy given for 7 days resulting in improvements of symptoms.

After 3 weeks check cystoureteroscopy with DJ stent removal done(Image 4). Well healed scar of previous biopsy with patent ureteric orifice noted with normal ureter.

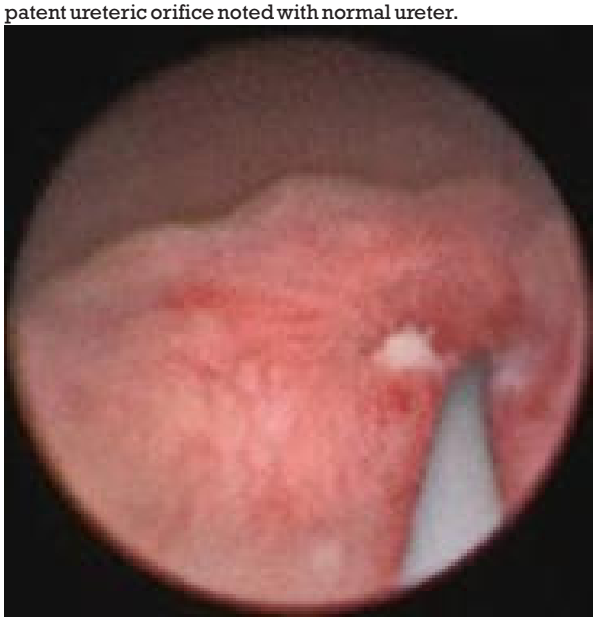

Image 4: *DJ stent removal*

DISCUSSION:

Cystitis glandularis and cystitis cystica occur mainly in response to chronic irritation or inflammation and may occur together. Cystitis glandularis can develop at any age but predominantly found in middle-aged women. Localized frequently in the trigone and neck of the bladder. [4] Clinically most cases of cystitis glandularis are asymptomatic, although individuals may occasionally exhibit signs of increased frequency, dysuria, or urinary urgency. However, hematuria remains the most common revealing sign [5]

Etiopathogenesis of cystitis glandularis is poorly understood. Embryonic theory: Intestinal germ cells abnormally migrate towards bladder during its separation from rectum at fifth week of embryonic development, leading to cystitis glndulris[6]

Metaplastic theory: Urothelium undergoes metaplasia in response to irritating agents such as lithiasis, prolonged urinary stasis, urinary infection, or tumors[7]

Potential Causes Include The Following:

- Bladder exstrophy, chronic bladder outlet obstruction, chronic urinary tract infections, indwelling catheters, mechanical irritation , neurogenic bladders[8], radiotherapy and chemotherapy[9]
- Immune mechanism. Abnormal presence of IgA on the surface of transitional cells of the bladder has been observed in cases of cystitis glandularis [10]

Pathology: Grossly, cystitis glandularis appear as a cobblestone or irregular mucosal pattern or as a polypoidal mass.[11] Microscopically, cystitis glandularis will appear the same as cystitis cystica except for the more glandular pattern and columnar or cuboidal cells and mucin-producing goblet cells. The condition may be associated with either glandular or intestinal-type metaplasia. Histological finding of dysplasia in cystitis glandularis intestinal-type warrant periodic cystoscopic evaluations due to the association with malignant transformations.[12]

No histological differences are apparent between cases causing ureteral obstruction and hydronephrosis compared to those that do not.[13]

Cystitis glandularis is associated with pelvic lipomatosis and bladder dystrophy in 75% of cases. These conditions pose a risk for malignant transformation into adenocarcinoma [14]

In advanced stages there is intramural compression of the distal ureteral segments, leading to the development of upstream hydroureteronephrosis which can be further complicated by late chronic renal failure [15]

Radiologically,

Ultrasound often reveals focal polypoid wall thickenings in the trigone region. [16]

CT scan can show lithiasis and pelvic lipomatosis, and often exhibits a simulated resemblance to vesical carcinoma through tissue thickening and infiltration of the bladder's base. Lesions present with a smoother appearance than cancer and display uniform interior density. Density enhancement can occur during contrast-enhanced scanning but effect is subtle. It primarily originate from the submucosal layer without infiltrating the muscular layer or adventitia [17]

Magnetic resonance imaging (MRI) is generally not recommended. It shows polyploid wall thickening with low signal intensity on T1 and T2 weighted sequences, accompanied by a central branching high-signal-intensity pattern in T2 which enhances after injection of contrast product, corresponding to vascular ramifications [18]

Cystoscopy enables visualization of the lesion, its macroscopic appearance, its precise location, and facilitates the collection of samples for diagnostic confirmation [16]

Once diagnosis is established patients with cystitis glandularis should be maintained on follow-up visits every 6 months for 2 years and then annually. The follow-up assessments typically involve a cystoscopy and may include a clinical examination, history, urinalysis, cytology, ultrasound KUB.

Prognosis:

The malignant potential of cystitis cystica remains controversial. Some cases have been reported of cystitis glandularis and nephrogenic adenoma turning into adenocarcinoma.[19]

Complications include: Recurrent UTIs (most common), bladder outlet obstruction, urinary retention, ureterovesical junction obstruction, renal failure from bilateral ureteral obstruction, bladder pain syndrome, vesicoureteral reflux, malignant transformation in intestinal-type with dysplasia.

Summary Of Treatment

Initial treatment for symptomatic cases includes NSAIDs, pelvic floor exercises, bladder training and/or overactive bladder medications.

Oral D-mannose therapy or Intravesical gentamicin can be considered in selected cases of recurrent urinary tract infections. Intravesical sodium hyaluronate appears to be an effective therapy in otherwise intractable cases.

Surgical therapy typically involves transurethral resection, but partial and total cystectomies may be required in few cases with severe and intractable symptoms.

CONCLUSION:

Cystitis glandularis affects the bladder wall and can cause storage lower urinary tract symptoms or even obstructive urinary symptoms. It may have clinical or radiological appearance of bladder malignancies or ureteral

pseudotumors hence it should be considered in the differential diagnosis of urinary malignancies. The histological examination confirms the final diagnosis and facilitates correct differentiation from bladder malignancies.

REFERENCES:

1. Jacobs L.B., Brooks J.D., Epstein J.I. (1997). Differentiation of colonic metaplasia from adenocarcinoma of the urinary bladder. Human Pathology, 28,1152–1157.https://doi.org/10.1016/S0046-8177(97)90253-7.
2. Mast P., Casselman J.(1994) La cystite glandulaire: cause rare de masse vésicale. Cas clinique et revue de la littérature. Acta Urologica Belgica,62, 71–76.
3. Cabanne F., Pages A., Billeret C., Opperman A., Carbillet J.P. (1993) Métaplasie glandulaire de la muqueuse urothéliale. Pathologie Génitale Masculine(pp.300-301).Masson.
4. Filipas D., Fichtner J., Fisch M., Hohenfellner R. (1997). Pseudotumoral cystitis cystica of the urethra in a boy. British Journal of Urology,79, 656–657. https://doi.org/10.1046/j.1464-410x.1997.00166.x.
5. Davies G., Osborn D.E., Castro E.J.(1978) Pelvic lipomatosis with associated cystitis glandularis. Urology.11(5), 494. https://doi.org/10.1016/0090-4295(78)90167-x.
6. Billerey C., Sibony M. (2001). Anatomie pathologique des tumeurs superficielles de la vessie. Progrès En Urologie, 11(5),805–863.
7. Borda A., Decaussin Petrucci M., Berger Nicole.(2004). Lésions bénignes diverses de la vessie et de la voie excréto urinaire. Annales de Pathologie, 24, 18-30.https://doi.org/10.1016/s0242-6498(04)93894-1.
8. Bannoura S, Putra J. (2022). Bladder Exstrophy Polyp: An Uncommon Entity in Surgical Pathology. Fetal Pediatric Pathology,41(3):523-525.
9. Chan T.Y., Epstein J.I.(2004). Radiation or chemotherapy cystitis with pseudocarcinomatous features. The journal of Urology,172, 909–913. https://doi.org/10.1097/00000478-200407000-00010.
10. Uehling D.T.(1973).Secretory immunoglobulin: a excretion in cystitis cystica. Urology, 1(4),305–306.https://doi.org/10.1016/0090-4295(73)90275-6.
11. Williamson SR, Lopez-Beltran A, Montironi R, Cheng L. (2011).Glandular lesions of the urinary bladder:clinical significance and differential diagnosis. Histopathology,58(6),811-34.
12. Xin Z, Zhao C, Huang T, Zhang Z, Chu C, Lu C, Wu M, Zhou W.(2016) Intestinal metaplasia of the bladder in 89 patients: a study with emphasis on long-term outcome.BMC Urology,16(1),24.
13. Li A, Zhou J, Lu H, Zuo X, Liu S, Zhang F, Li W, Fang W, Zhang B.(2014) Pathological feature and immunoprofile of cystitis glandularis accompanied with upper urinary tract obstruction. Biomedical Research International, 2014,872170.
14. Fariña L.A.(1992) Re: pelvic lipomatosis associated with cystitis glandularis and adenocarcinoma of the bladder. The Journal of Urology, 147(5), 1380. https//doi.org/10.1016/s0022-5347(17)37576-6.
15. Darouichi M.(2020) Glandular and cystic bladder cystitis: Case report and review of the literature. Journal of Digestive Disorders and Diagnosis, 2(1), 17–23.
16. Wong-You–Cheong J.J., Woodward P.J., Manning M.A., Davis C.J.(2006), Inflammatory and non-neoplastic bladder masses: radiologic-pathologic correlation.Radiographics,26(6),1847–1868. https//doi.org/10.1148/rg.266065126.
17. Hua H., Gao Y., Lin J., Hou F., Wang J.W., Zhang Y., et al. (2020). Quantitative analysis of enhanced computed tomography in differentiating cystitis glandularis and bladder cancer. Biomedical Research International,2020,4930621.https//doi.org/10.1155/2020/4930621.
18. Kim S.H., Yang D.M., Kim N.R. (2004). Polypoid and papillary cystitis mimicking a large transitional carcinoma in a patient without a history of catheterization: Computed tomography and magnetic resonance findings. Journal of Computer Assisted Tomography,28,485–487. https//doi.org/10.1097/00004728-200407000-00008.
19. Popov H, Stoyanov GS, Ghenev P.(2023). Intestinal-Type Adenocarcinoma of the Urinary Bladder With Coexisting Cystitis Cystica et Glandularis and Intestinal Metaplasia: A Histopathological Case Report. Cureus,15(3),e36554.