



E-ISSN: 2616-3470

P-ISSN: 2616-3462

© Surgery Science

www.surgeryscience.com

2021; 5(1): 88-89

Received: 22-11-2020

Accepted: 26-12-2020

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Vesicourachal diverticulum with calculus in a recurrent stone former: A rare entity

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DOI: <https://doi.org/10.33545/surgery.2021.v5.i1b.594>

Abstract

The urachus is a tubular embryonic structure connecting the allantois at the umbilicus to the bladder. It gets obliterated and remains as median umbilical ligament. Partial or complete failure of this process results in urachal anomalies. We are reporting a rare case of 54 year male patient presenting with obstructive lower urinary tract symptoms and history of spontaneous passage of stones in urine and on evaluation found to have vesicourachal diverticulum with calculus in it.

Keywords: Urachus, vesicourachal diverticulum, urachal anomalies, calculus

Introduction

54 year old male patient presented with symptoms of poor stream, frequent urination every second hourly of 6 months duration. Uroflowmetry revealed maximum flow rate of 9ml/sec. Urine analysis was normal. His serum creatinine was 1.3mg/dl, serum calcium 8.9mg/dl, his uric acid was 4.5mg/dl. Patient had history of spontaneous passage stones in urine thrice in 2 years. NCCT KUB (Non contrast CT scan of kidney ureter and bladder) revealed bilateral tiny renal calculi of 2-3mm and there was a blind ending tubular structure seen along the dome of bladder anteriorly, with no communication with the anterior abdominal wall (vesicourachal diverticulum), and a 3.2mm calculus within it (Figure 1). Patient denied treatment for the vesicourachal diverticulum and calculus in it. Patient was explained about the risk of recurrent stone formation, infections and development of adenocarcinoma and is under follow up since 8 months. Patient is on alpha blocker and improved symptomatically.

Discussion

The urachus is an embryonic structure that connects the umbilicus to the anterior superior bladder, usually involutes and remains as median umbilical ligament. Persistence of a segment or whole of urachus lead to various urachal anomalies like patent urachus (50%), urachal cyst (30%) umbilical urachal sinus (15%), and vesicourachal diverticulum (5%) (Figure 2). In vesicourachal diverticulum there will be complete obliteration of the urachus at the umbilicus and incomplete closure at the bladder level will be seen. Vesicourachal diverticulum is a rare entity detected incidentally on MDCT(multidetector CT scan) and appear as appears as a midline tubular structure, just above the anteroposterior segment of the dome of the urinary bladder^[1-2]. Presence of calculus in vesicourachal diverticulum is rarely found^[3].

Proper identification of urachal diverticulum and with stone is important as bladder stones in prone films, urachal carcinoma with calcification may also appear similar^[4]. They tend to found in patients with bladder outlet obstruction and warrants close follow up and management.

Conclusion

Vesicourachal diverticulum with stone is a rare entity and close follow up is warranted. Surgical intervention is required in cases with recurrent stone formation, recurrent infection, and suspicion for urachal adenocarcinoma.

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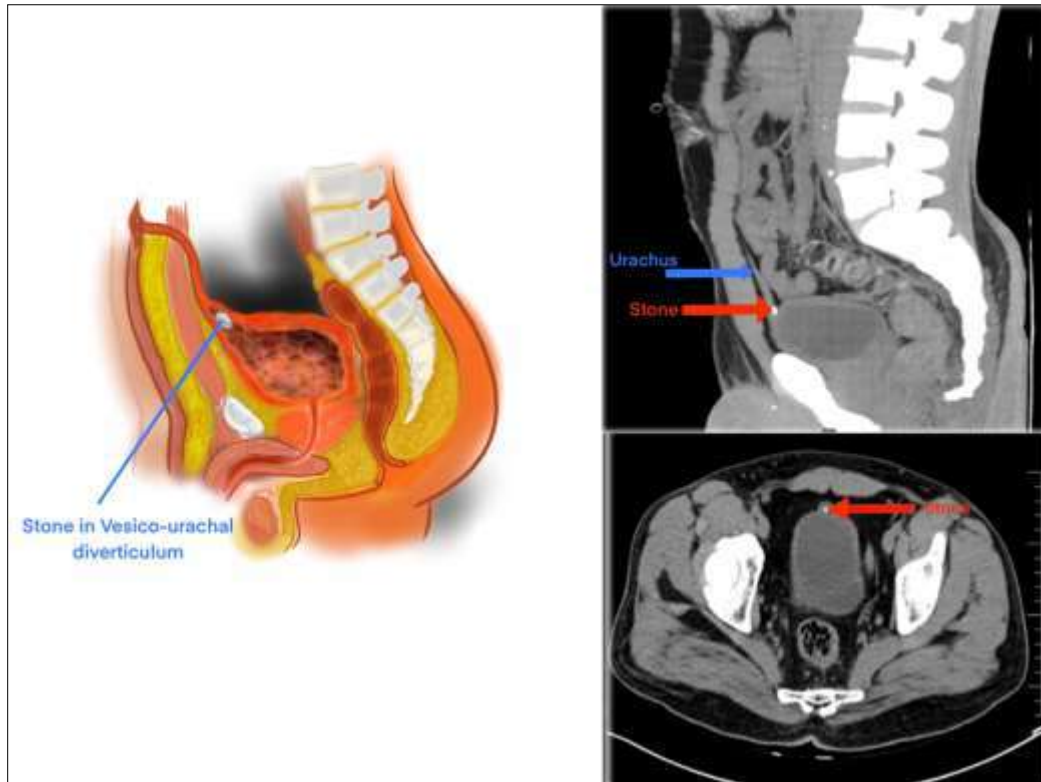


Fig 1: NCCT KUB and artistic image showing vesicourachal diverticulum with calculus

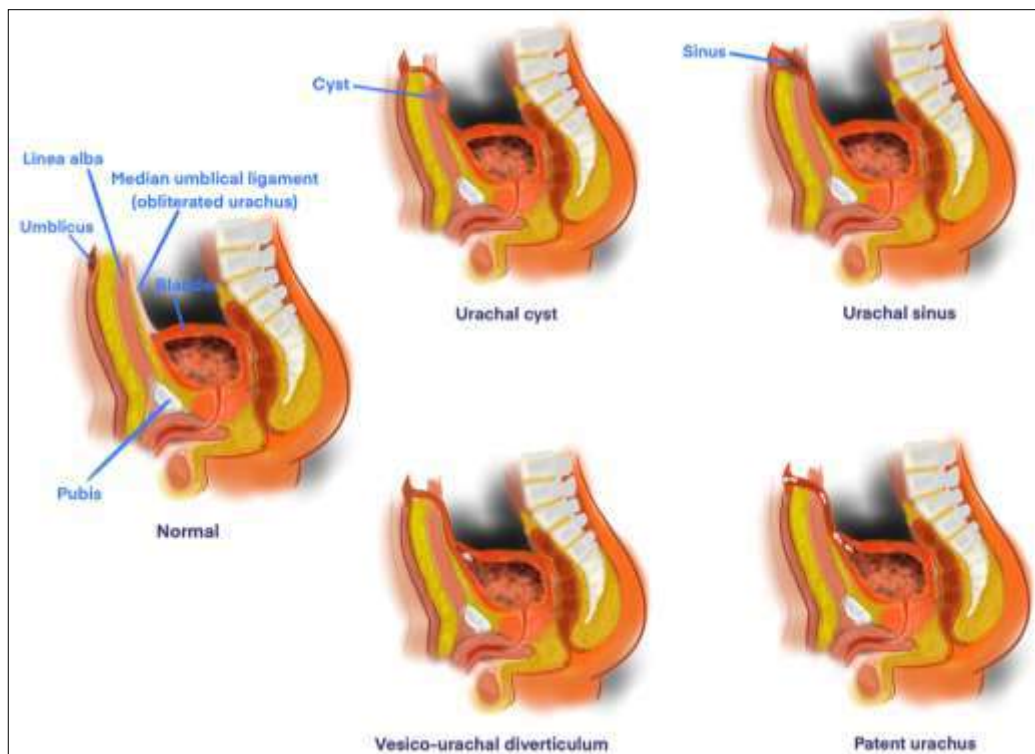


Fig 2: Artistic image showing median umbilical ligament, urachal cyst, umbilical sinus, and vesicourachal diverticulum and patent urachus

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