

An Almost Completely Vanished Forgotten Ureteral Stent that Led to Huge Renal and Bladder Calculi Eleven Years Later: A Case Report

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Introduction

The utilization of indwelling ureteral stents in urological practice has seen a significant rise, serving diverse purposes such as urine diversion, alleviation of ureteral blockage, and postoperative drainage. The role of the double J (DJ) stent especially in the urgent management of ureteral stones has evolved as a critical component of the urologist's armamentarium. However, instances of these devices being inadvertently left in patients, leading to what is colloquially termed a "forgotten double J stent", presents a challenging and potentially serious complication. We report a challenging case of forgotten double J stent that presented with large simultaneous bladder and kidney stones surrounding an "unnoticed" vanishing stent.

Case Presentation

A 51-year-old otherwise healthy man who suffered from lower urinary tract symptoms was referred to our institute after he had completed a urinary tract ultrasound that showed a vague structure in the urinary bladder in addition to a staghorn stone in the

left kidney. The patient had no pain, physical examination and vital signs were normal, and he was afebrile. Laboratory tests were normal, and the serum creatinine level was 0.7 mg/dl. The urine culture was sterile. A CT scan revealed a 5 cm-calculus in the urinary bladder and a complete 7-cm staghorn stone in the left kidney (Figure 1), an unusual combination of size and location for urinary calculi. Moreover, the attenuation values of both stones were approximately 1500 Hounsfield Units. On further review of the CT scan in "bone window", we noticed a tubular structure in the center of each calculus (Figure 2). Further investigation of medical records revealed an earlier procedure of double J stent insertion for a 5 mm stone in the distal ureter eleven years prior to patient admission. The patient did not follow up for an additional procedure and was not aware that a foreign body was indwelling. The patient was subjected to a two-staged procedure in which the left Staghorn stone was cleared by supine Percutaneous Nephrolithotomy and the bladder calculus by Cystolithotripsy. Under fluoroscopy in the operating room, the large stones as well as the stent remains could be clearly noticed (Figure 3).

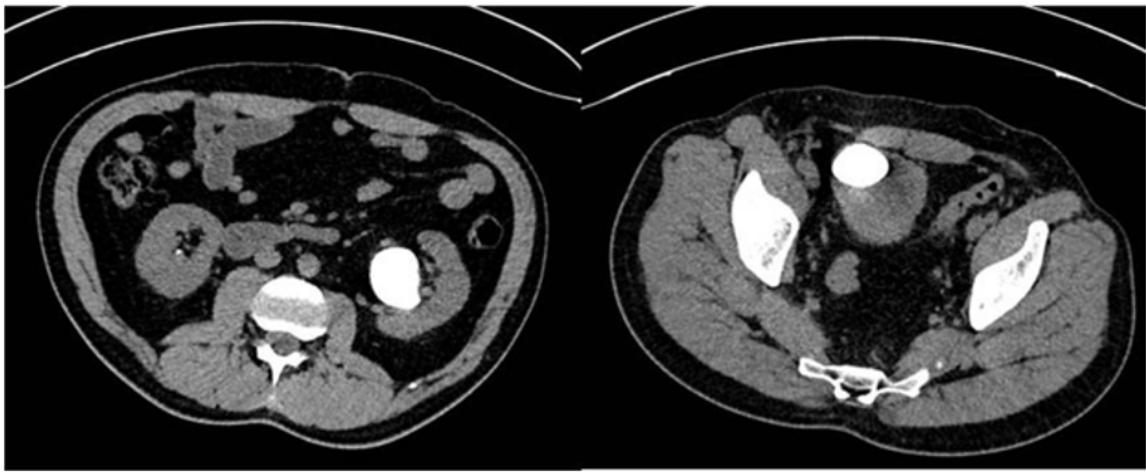


Figure 1: CT scan - Abdomen window.

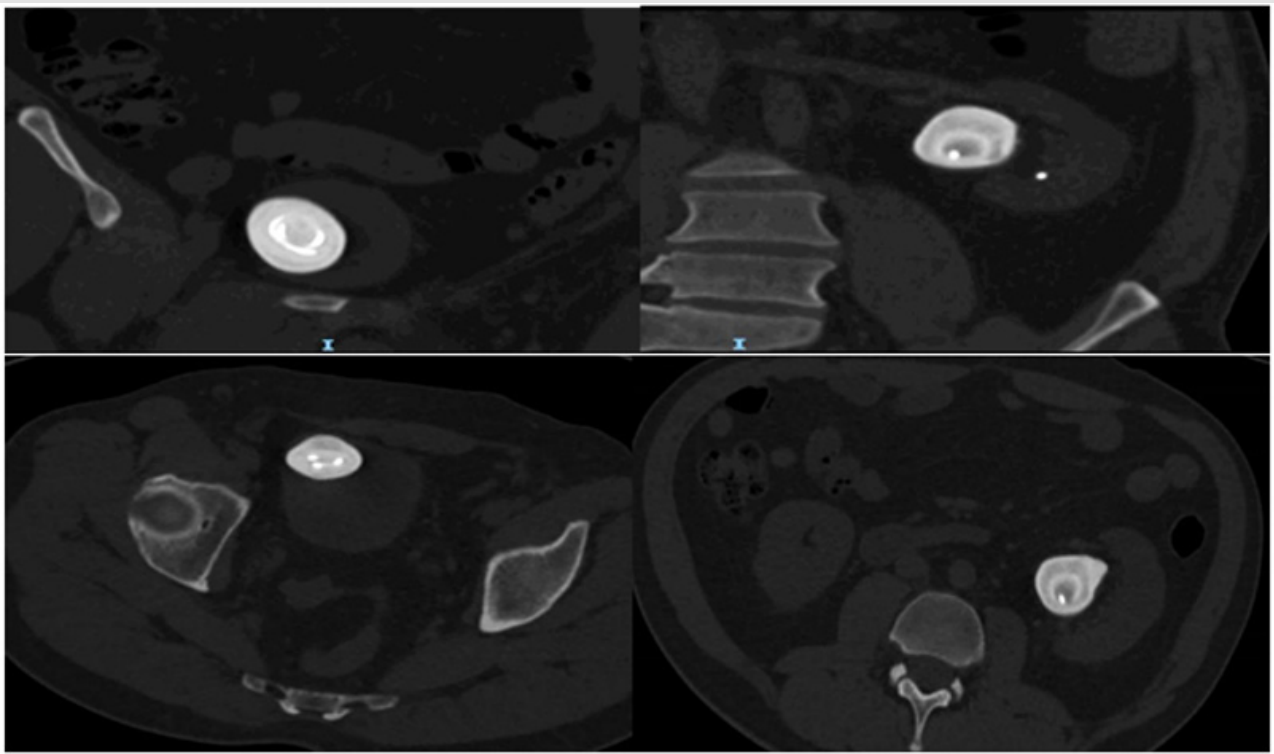


Figure 2: CT scan - Bone window.

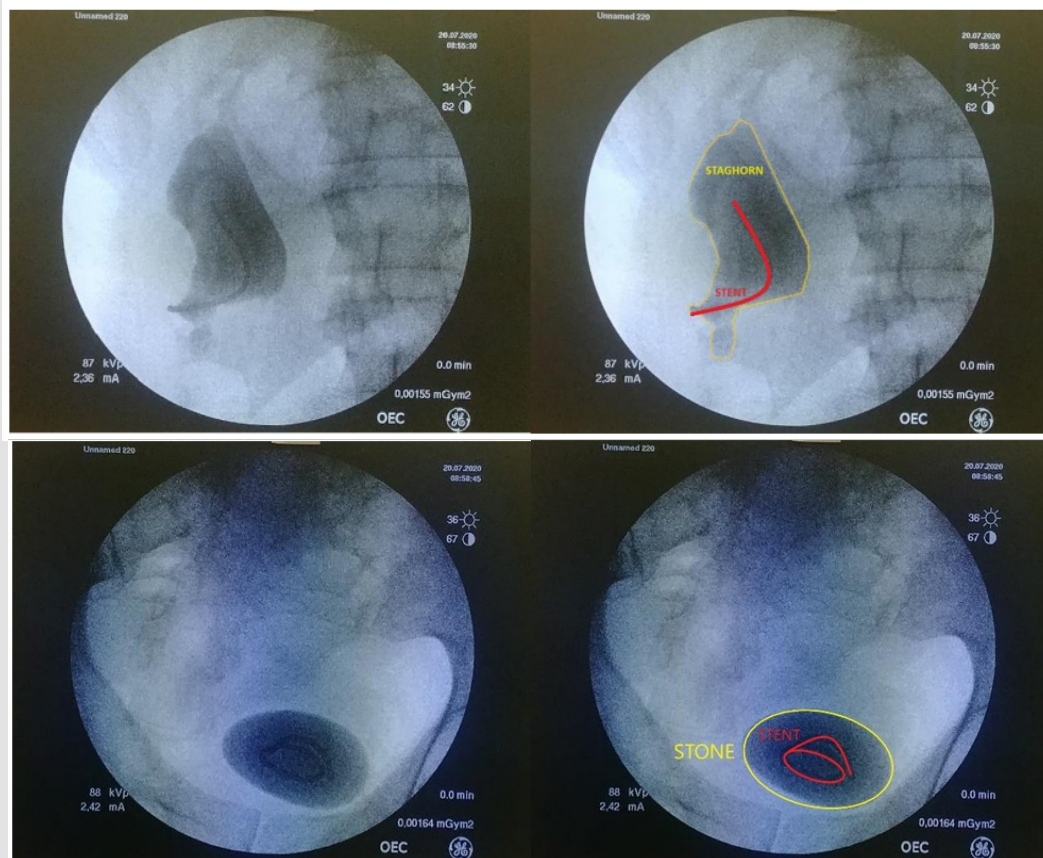


Figure 3:

- Kidney Stone.
- Bladder Stone.

Both stones were treated by the Shock pulse SE lithotripter (Olympus®) using the 3.76-mm probe in combination with a 60w Holmium laser with a 550-micron fiber (Figures 4 & 5). The old Double J stent remains were completely removed by grasper (Figure 6). By the end of both procedures, a nephrostomy tube was left for 24 hours and a new double J stent for 2 weeks. KUB done by discharge confirmed the correct position of the new stent while showing no gross stone residuals (Figure 7). It is to be noticed that 5 days after discharge the patient presented with febrile urinary tract infection and had to be readmitted. Urinary cultures showed a significant growth of pan

sensitive *Klebsiella Pneumoniae*, which was successfully treated by intravenous antibiotic and the patient discharged 3 days later, having the Double J stent removed after an extra week of oral antimicrobial therapy. By 3 weeks, stone analysis was completed, showing a combination of 40% Struvite, 30% Carbonate Apatite and 30% Calcium Oxalate Monohydrate. After a 2-month follow up, a CT scan confirmed the stone-free status. Unfortunately, a new obstructing contralateral ureteral stone was identified, however, this time successfully treated by medical expulsive treatment.



Figure 4: Supine Percutaneous Nephrolithotomy with Shock pulse SE.

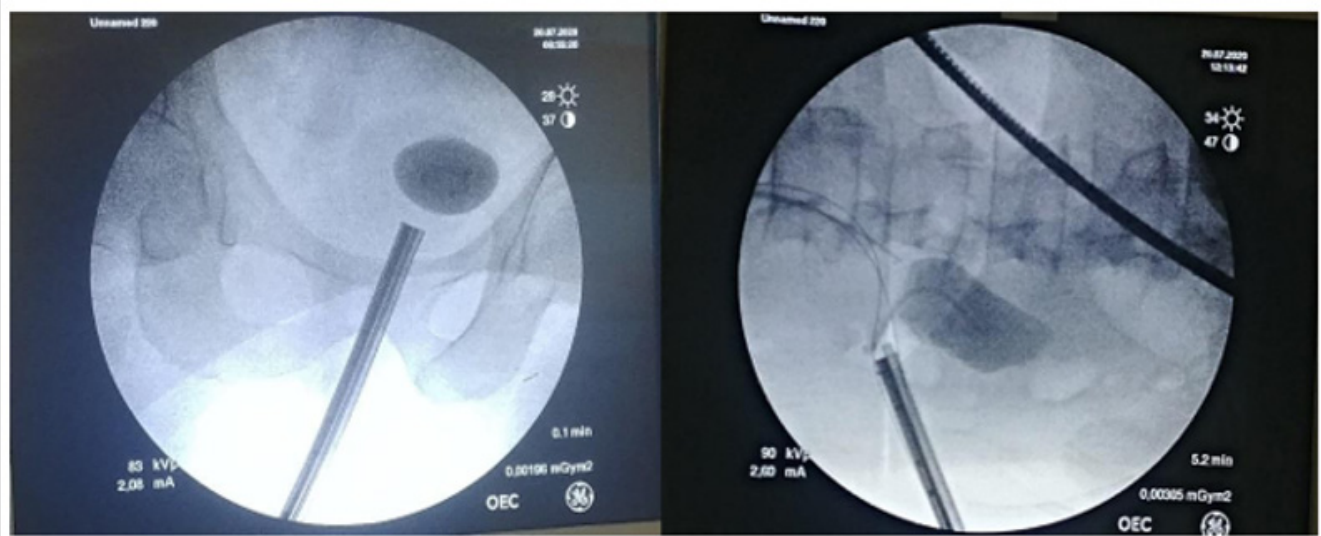


Figure 5: Lithotripsy with Shock pulse SE.

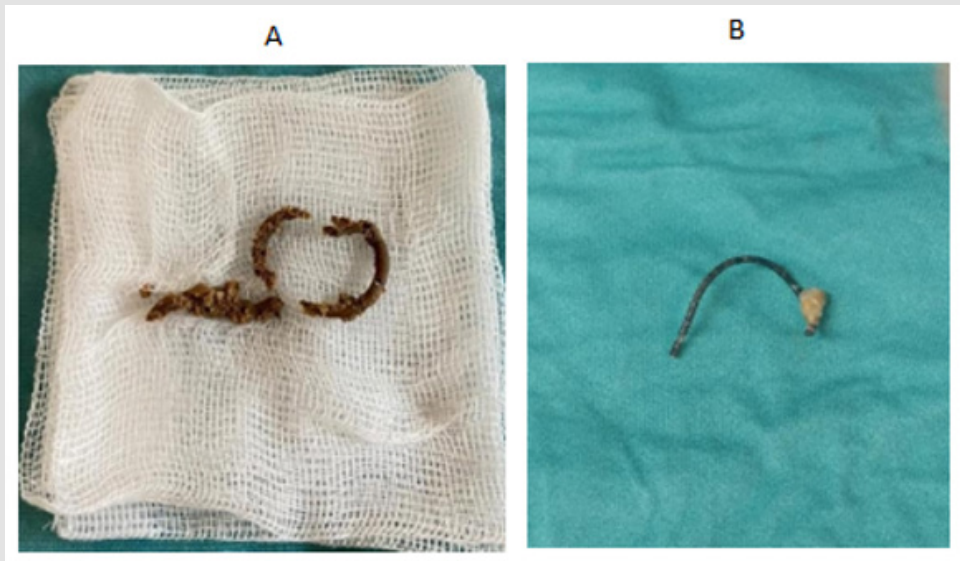


Figure 6: Stent rests removed by grasper.

- a. Bladder end
- b. Renal end.

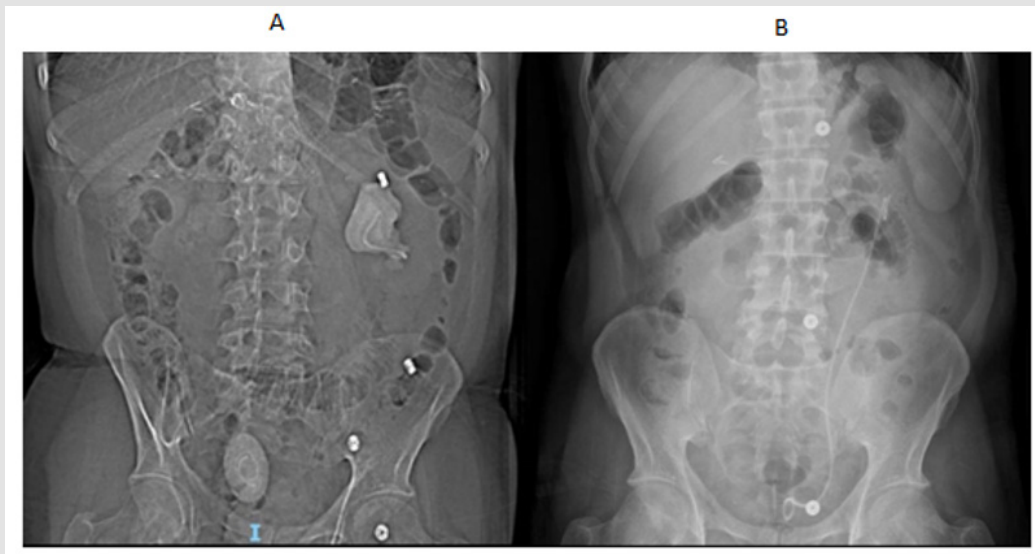


Figure 7: KUB.

- a. Before treatment
- b. After treatment.

Discussion

The case presented here underscores the importance of prudence in postoperative care, particularly in the context of urological procedures involving double J stent insertion. The inadvertent retention of double J stents, colloquially known as “forgotten double J stents”, represents a rare yet clinically significant complication that may pose challenges in diagnosis and management [1-2]. The extended time frame of eleven years between the initial double J stent insertion and its eventual discovery is a notable aspect of this case. The patient’s lack of follow-up after the initial procedure highlights the need for robust systems to ensure adequate patient education and compliance with postoperative care instructions. This case emphasizes the importance of establishing effective communication channels between healthcare providers and patients to prevent such occurrences [3]. The concurrent presence of a staghorn stone in the left kidney and a large calculus in the urinary bladder, as revealed by the CT scan, adds a layer of complexity to the case. The unusual combination of size and location of these calculi raises questions about the potential contributions that led to the formation and progression of these stones. While the literature recognizes the role of stents in stone formation, the specific influence of a forgotten double J stent over such an extended period warrants further investigation [4]. This case prompts a reevaluation of postoperative care protocols, especially in scenarios where patients may not adhere to follow-up recommendations.

It also highlights the need for imaging studies with a thorough review, such as using a “bone window” in CT scans, to detect subtle structures like forgotten double J stents that may otherwise go unnoticed [5]. Interestingly, the middle part of the double J stent has vanished as shown in multiple figures. In a study by Patil et al. [6], the complications of forgotten double J stent were stent encrustation (24.5%), stent migration (9.5%), and stent breakage (1.3%). Making

the complication of a vanishing or dissolving double J stent as we have reported in our case, fairly rare.

Conclusion

The discovery of a forgotten double J stent eleven years post-insertion serves as a poignant reminder of the importance of meticulous follow-up care and the potential consequences of non-compliance. This unique case contributes to the existing body of literature on forgotten double J stents, emphasizing the need for ongoing research to refine postoperative protocols and enhance patient outcomes as well as the importance of meticulous review of patient history and available diagnostic imaging.

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