

Stones Formation Associated with Neobladder Urinary Diversion

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BRIEF HISTORY

A 50 year-old male had undergone radical a cystoprostatectomy using a studer ileal neobladder for bladder urothelial carcinoma in 2004 and was transferred to our outpatient department for follow up. Then he had been lost to follow up for 1 year and 9 months. On his return to the hospital, he was suffering from dysuria with lower abdomen discomfort and visited our urology clinic for help. Urine analysis revealed pyuria with microscopic hematuria (WBC 3-5/HPF, RBC 5-10/HPF) and slightly alkalosis (pH 7).

IMAGING STUDY

Renal sonography revealed no upper tract urolithiasis nor hydronephrosis. KUB (Fig. 1) was noted in the form of three huge neobladder stones (size about: 41 mm × 43 mm, 30 mm × 32 mm, 24 mm × 34 mm) and this was confirmed by cystoscopy examination.



Fig. 1. KUB showing three huge neobladder stones.

MANAGEMENT

He was treated by endoscopic cystolithotripsy with an uneventful result. KUB (Fig. 2) follow up noted that there was complete stone clearance. The stones weighted about 95 gram and stone analysis showed that they consisted of calcium phosphate $\text{Ca}_3(\text{PO}_4)_2$.

COMMENTS

Neobladder stones are relatively uncommon (0.5%) as late complications of bladder replacement. Stone risk factors in neobladders, ileal conduits and continent urinary pouch consist of mucus production, urinary infection and foreign bodies, especially metallic staples [1]. Bedeir et al reported 18 stone cases among 192 women who had undergone orthotopic ileal neobladder with a mean follow up time of 54 months [2]. Mostly, metabolic hyperchloreaemic acidosis with a hypocitraturia would be found to have occurred.



Fig. 2. KUB follow up showing completely stone clearance.

Clinical pearls — Genitourinary tract image

Brushite (calcium phosphate) stones are associated with increased urine saturation and a slightly higher urinary pH [3]. Our patient had showed more alkaline urine that ranged from pH 8 to pH 7 based on a series of urine tests. Moreover, much mucus formation with frequent pyuria may have contributed to his stone formation. Ahmed et al reported the median interval between diversion and upper tract stone management was 1.5 years (range 4 months to 10.6 years) in various continent and incontinent reservoirs [4]. Marcin et al reported what is probably the largest ileal neobladder stone, namely a stone weighing 940 gram, which was extracted by open exploration [1]. Usually neobladder stones are asymptomatic or are associated with only mild symptoms and these can be treated by endoscopic extraction, extracorporeal shock wave lithotripsy or open surgery.

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