



A “dumbbell” vesicourethral stone

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A weight-lifter’s dumbbell (Fig. 1) has been used as a metaphor to describe the shape of an unusual vesicourethral stone that forms across the internal urethral sphincter, partly within the urinary bladder and partly within the prostatic urethra [1]. The constriction by the internal sphincter gives the stone its classic “dumbbell” shape (Fig. 2a, b). Urethral calculi are uncommon and are broadly classified into migratory and native types [2]. Migratory calculi form within the kidneys or the bladder and migrate through the urethra [3]. Native calculi are often larger in size and affect older men [4]. These stones are frequently trapped within an abnormally enlarged prostatic urethra proximal to the external sphincter following intervention such as TURP, in patients with urethral dilatation as a result of stricture or following prostatectomy [1, 4]. Poor bladder emptying, urinary stasis, and infection likely contribute to development of these unusually configured stones. Symptoms attributed to urethral calculi include penile/perineal pain, urinary urgency/frequency, urinary retention, dribbling, and/or hematuria [3]. The classic dumbbell-shaped stone is usually identified on standard abdominal radiographs, although non-contrast computed tomography of the abdomen and pelvis remain the gold standard imaging modality.

Noninvasive measures are often first employed for small urethral calculi. Larger urethral stones are commonly managed by retrograde manipulation of the stone into the urinary

bladder followed by lithotripsy or litholopaxy. Very large (“giant”) urethral stones often require open surgical resection [4, 5].



Fig. 1 A weight-lifter’s dumbbell

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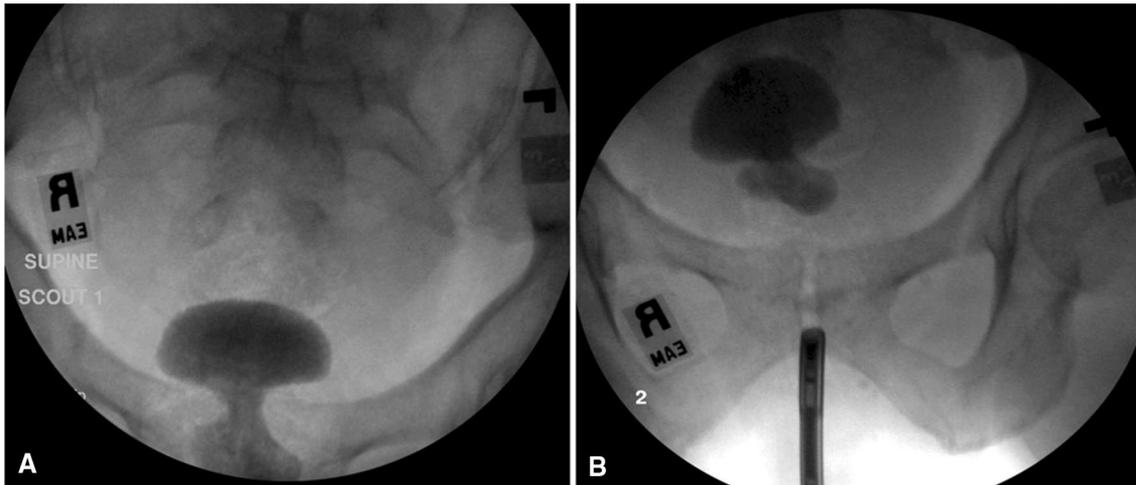


Fig. 2 a Intraoperative bladder radiograph demonstrating a large “dumbbell” bladder stone in a 70-year-old man with prior history of cryosurgical ablation for prostate cancer. Note the stone extension into the prostatic fossa overlying the symphysis pubis. **b** A second

radiograph demonstrating successful displacement of the stone into the urinary bladder during cystourethroscopy showing the dumbbell configuration of the stone to better advantage. Subsequently, open cystolitholapaxy was performed due to the large stone size

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Research involving human and animal rights This article does not contain any studies with human participants or animals performed by any of the authors.

References

1. Melone F, Lardani T, Azzaroli G, Olmastroni M, Aquilini M, Scapicchi G (1996) Dumbbell stone of prostatic fossa after prostatectomy. A combined ESWL and suprapubic percutaneous treatment. *Acta Urol Belg* 64 (4):27-31.

2. Chauhan AKR, Gupta M, Mongia AK, Gupta P, Bhatnagar A (2017) A giant dumbbell shaped vesico-prostatic urethral calculi. *IOSR Journal of Dental and Medical Sciences* 16 (02):01-03. <https://doi.org/10.9790/0853-1602080103>.
3. Young H (1934) Prostatic urethral calculi. *Journal of Urology* [https://doi.org/10.1016/S0022-5347\(17\)72386-5](https://doi.org/10.1016/S0022-5347(17)72386-5).
4. Prabhuswamy VK, Tiwari R, Krishnamoorthy R (2013) A giant dumbbell shaped vesico-prostatic urethral calculus: a case report and review of literature. *Case Reports in Urology* <https://doi.org/10.1155/2013/167635>.
5. Gonzalez CM (2012) Obstructing calculi within the male urethra. *British Journal of Urology International*, <http://doi.org/10.1002/BJUIw-2012-068-web>.

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