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Iatrogenic Hypospadias: a Rare Complication due to Chronic Placement of Urethral Catheters

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In the near future longer life expectancies will continue to greatly influence society. Patients requiring the adaptation of balloon catheters for long times will increase annually. Although secondary or iatrogenic hypospadias does not appear to be unusual, few cases have been reported in the literature. We report a case of an iatrogenic hypospadias in an extremely old patient harboring spinal cord injury and several complications and discuss the strategies facing patients with iatrogenic hypospadias. A 94 year-old man with permanent vesicorectal dysfunction caused by spinal cord injury during the wartime, was admitted to our University Hospital due to huge blood clot formation in the bladder. His significant vesical dysfunction, which has been worsening since 1985, allowed indwelling and exchanging the urethral catheter regularly by physicians. CT scanning with contrast material demonstrated a vesical stone of 1.5 cm in diameter, which was responsible for macrohematuria, and bilateral common iliac aneurysms with maximum diameter of 7.1 cm. Physical examination showed a longitudinal cleavage of penile urethra caused by chronic placement of urethral catheter. Although cystostomy diversion could resolve the potential problem with his voiding dysfunction, extremely high age and large aneurysms harboring the risk of rupture during the procedure rendered it impossible to apply suprapubic cystostomy. This situation reinforced him to exchange the balloon catheter regularly, but reluctantly. Much emphasis should be placed by the urologists, focusing on the prevention or avoidance of the iatrogenic hypospadias as a complication caused by chronic placement of urethral catheter.

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INTRODUCTION

In the near future longer life expectancies will continue to greatly influence society. Patients requiring the adaptation of balloon catheters for long times will increase annually. Mirroring the frequent indwelling of balloon catheters, complications such as urinary tract infections or calculi formation will probably increase more than expected (1, 2). Although secondary or iatrogenic hypospadias does not appear to be unusual, few cases have been reported in the literature. In this paper we report a case of an iatrogenic hypospadias in an extremely old patient harboring spinal cord injury and several complications and discuss the strategies facing patients with iatrogenic hypospadias on which urologists must place emphasis.

CASE REPORT

A 94-year-old man with a wartime bullet injury in his lumbar spinal cord, and malfunction involving his bladder and rectum has been recognized since 1982. His bladder dysfunction has been worsening since 1985. Due to poor voiding function control, a urethral catheter has been indwelt to his bladder and exchanged regularly. On September 2005, he was admitted to our hospital due to significant macrohematuria and a huge blood clot formation in the bladder. Physical examination revealed a longitudinal cleavage of his penile urethra extending to the scrotum (Fig. 1). CT scanning with contrast material revealed a vesical stone 1.5 cm in diameter and bilateral common iliac aneurysms with a maximum diameter of 7.1 cm (Fig. 2). Although urinary diversion of cystostomy might resolve the potential

Fig. 1. External genitalia
Penile urethra developed longitudinal cleavage to the reach scrotum

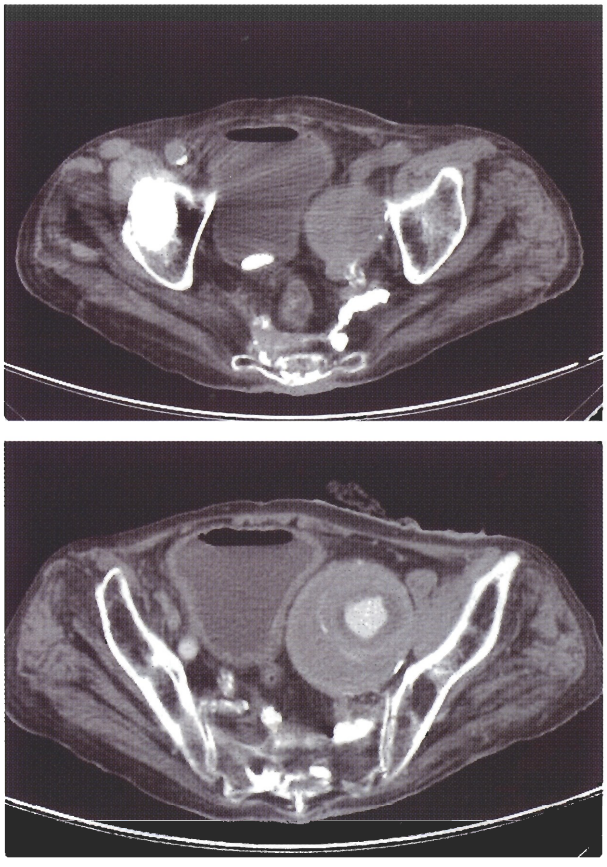

Fig. 2. Pelvic enhanced CT
CT showed 1.5 cm vesical stone (A) and aortic aneurysms whose greatest dimension was 7.1 cm (B)

problem caused by his poor control of elimination, suprapubic cystostomy diversion could not be applied due to his extreme age and the large aneurysms with a high risk of rupture during the procedure. Based on this situation, the necessity of regularly exchanging his balloon catheter was expressed, but we felt reluctance.

DISCUSSION

The iatrogenic hypospadias caused by the catheter indwelt through the urethra was first reported in a patient with senile dementia in 1985 (3). The next case reported in the literature was Larsen's case (4) in 1989 in which he described it as a "longitudinal cleavage of the penis". Andrews *et al.* (5) reviewed 16 patients with iatrogenic hypospadias among 800 patients with spinal cord injury that allowed placement of a urethral catheter for longer periods.

Several mechanisms underlying the occurrence of iatrogenic hypospadias are assumed to include: (i) ventral ischemia of the urethra due to forced traction by the urine collection device; (ii) inadequate, large caliber of the catheter indwelt; and (iii) urethral infection caused by long-term indwelling of the catheter (6). Interestingly, a majority of patients with sensory disturbance around the sacral region might be likely to develop iatrogenic hypospadias. We believe that emphasis must be placed on prevention rather than treatment of the iatrogenic hypospadias itself. Based on these assumed mechanisms, the catheter should be placed for as short a period as possible and fixed properly to the abdominal wall to prevent inadequate traction by extrinsic factors. Otherwise, a quick decision to apply cystostomy diversion might be ideal instead of placing a urethral catheter for a longer period.

We reviewed 23 patients with iatrogenic hypospadias (22 reported in the literature (1-6) and the current case) and summarized the details in Table 1. The most frequent laceration site was the coronary sulcus, followed by the penile scrotum. Management of patients with iatrogenic hypospadias included urinary diversion of cystostomy and reluctant indwelling of urethral catheters. Surgical repair itself appeared to be a less frequent approach. The current case with extremely advanced age showed longitudinal laceration of the urethra to the peno-scrotal junction due to chronic catheter placement. He also suffered from both bladder stones from a urinary tract infection and huge aneurysms around the bilateral common iliac arteries. Considering that the patient is 94-years old and his iatrogenic hypospadias itself is not life-threatening, his urethral catheter is now regularly changed instead of cystostomy diversion.

Table 1. Reported cases of iatrogenic hypospadias

Total	23 cases	
Median age	53 yrs. (range: 19 – 100)	
Median time*	30 mths. (range: 1mths. – 24yrs.)	
Location of hypospadias	Coronary sulcus	9
	Penile scrotam	7
	Mid-penile	5
	External meatus	2
Management option	Cystostomy	9
	Urethral catheter	7
	Repair	6
	Condom	1

* Median time between urethral catheter to occurence with hypospadias

Placing a urethral catheter is an easy approach to treat patients with neurogenic vesical dysfunction, but the procedure is delicate and might induce several complications, even if performed properly. Inappropriate placing and fixing the urethral catheter can result in such significant complications as iatrogenic hypospadias. Facing imminent increases in the population of the senior citizens, medical problems related to lower urinary tract malfunction will become a major concern to both patients and physicians. Urologists will encounter more opportunities to manage or treat patients by chronic urethral catheter placement. Cystostomy diversion is the most appropriate path in such cases; however, in patients with reluctant indwelling of the urethral catheter, great emphasis must be placed on the prevention of any critical complications related to chronic placement of urethral catheters. Urologists can play a central role by providing the best strategy for resolution of the medical problem associated with uncontrolled urination, targeting the prevention of critical urological complications.

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