PREPUTIAL CALCULI : A CASE REPORT

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The patient was a 92-year-old male whose chief complaint was urinary retention. The X-ray film showed multiple overlapping calcification shadows in the penile region. Renal insufficiency was speculated to be due to post-renal obstruction. Under the diagnoses of closure of the preputial orifice by balanoposthitis followed by urinary retention and preputial calculi, an urgent dorsal incision of the prepuce was made. Then, stone removal and indwelling catheter placement were performed. Renal function recovered soon after the operation, and the patient could urinate freely without catheterization. This case reminds us of the significance of surgical treatment for phimosis in elderly patients.

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Key words : Preputial calculi, Phimosis, Urinary retention

INTRODUCTION

Currently preputial calculus is a rare disease in Japan. Urinary retention due to closure of the prepuce is also infrequently encountered. We here report a patient with chronic difficulty in urination due to preputial stricture resulting in stasis of urine in the preputial sac and subsequently in the formation of calculi.

CASE REPORT

A 92-year-old man presented with urinary retention beneath the foreskin and severe penile swelling. His phimosed preputial orifice had adhered and almost completely closed (Fig. 1). A pelvic X-ray demonstrated multiple calcifications in the preputial region (Fig. 2). Bilateral hydronephrosis on ultrasonography and an elevated serum creatinine level (3.0 mg/dl) indicated a post-renal type of acute renal failure. Under the diagnoses of closure of the preputial orifice by balanoposthitis followed by urinary retention and preputial calculi, an urgent dorsal incision of the prepuce was made (Fig. 3). Then, stone removal (total weight: 100 g) and

Fig. 2. Pelvic X-ray demonstrating multiple calcification shadows in the preputial region.

Fig. 1. Initial presentation of phimosed and swollen penis.

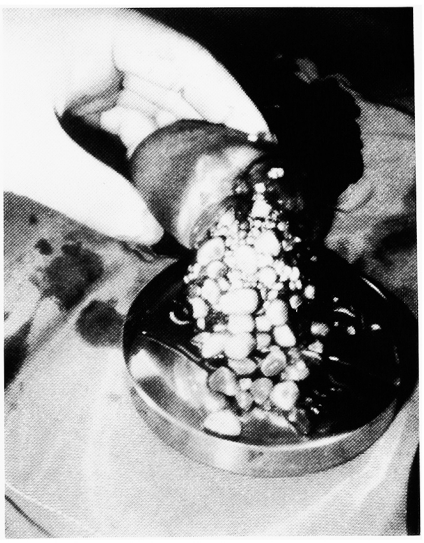

Fig. 3. Exposure of the preputial calculi at surgery.

placement of an indwelling catheter were performed. Analysis of the stones showed them to be composed of 50% ammonium magnesium phosphate and 50% magnesium acid urate. Following the procedure, the patient's voiding quickly improved and renal function was restored within the normal range (serum creatinine 1.2 mg/dl). Preoperative urine culture revealed the existence of *Escherichia coli, Enterococcus sp.* and *Citrobactor sp.* The patient did not complain further of difficulty in urination, and pyuria was not noted, although he died of pneumonia a year later. He had no history of urolithiasis except for this episode, and upper urinary tract calculi were ruled out.

DISCUSSION

It is commonly understood that phimosis should be treated, and knowledge of the importance of personal hygiene is currently widespread. Therefore, preputial calculi are now rare. In Japan, there are only a few reports of preputial calculi[1,2]. These calculi can be classified into three groups according to their pathogenesis[3]. The first group includes calculi that originate in inspissated smegma with lime salts. The second type is formed in stagnant urine retained in the preputial sac. They are composed of either magnesium ammonium phosphate or calcium phosphate. The third derives from the upper urinary tract and migrates into the preputial sac.

In our case, the calculi were composed of magnesium ammonium phosphate (struvite) and magnesium acid urate, indicating the second type of calculi. Since the subpreputial space had acted as a urinary reservoir and bacterial infection had been ongoing there, the calculi had been formed over a long period. Although it is known that struvite is characteristic of calculus related to infection by urease-producing bacteria[4], such typical organisms were not detected in this case. We reconfirmed the necessity of surgical management for senior patients with phimosis. The total weight of our patient's multiple preputial calculi may be the greatest ever reported.

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和文抄録

包皮結石の1例

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92歳，男性．主訴は尿閉．X線検査で，陰茎部に一致した多発性の石灰化像があった．腎不全は腎後性閉塞が原因ではないかと推測された．亀頭包皮炎による包皮口の閉鎖，それに引き続く尿閉および包皮結石の診断にて，緊急に包皮背面切開術，結石除去が行われ，尿道カテーテルが留置された．術後，腎機能は速やかに回復し，スムーズな自尿が可能になった．この症例により，高齢者の包茎に対する手術治療の必要性を再認識させられた．

（泌尿紀要 **47**：513-515，2001）