

Surgical Correction of a Congenital or Acquired Phimosis in Two Cats

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Abstract : A 3-month-old male domestic shorthair cat was presented for evaluation of stranguria and hematuria and a 4-year-old male domestic shorthair cat was presented for evaluation of stranguria. For cat 1, a swollen prepuce, erythematous preputial orifice, and urine pooling from the preputial orifice were noted. The preputial orifice was a pinpoint opening and penis was not extruded from the prepuce. For cat 2, a necrotic skin around the preputial orifice, small preputial orifice, and severe urine pooling from the preputial orifice were noted. The round-shaped resection of the tip of the prepuce was performed to increase the diameter of the preputial orifice and remove erythematous fragile skin or a necrotic skin around the preputial orifice and the edematous, redundant preputial mucosa in these 2 cats. The preputial mucosa was then apposed to the ipsilateral incised skin edge. There was no recurrence of clinical signs over 22- and 24-month follow-up period, respectively. The round-shaped resection technique provided adequate enlargement of the preputial orifice to allow extrusion of penis in these 2 cats with a phimosis. This technique could be helpful in cases with skin and mucosa necrosis around the preputial orifice that require round-shaped resection.

Key words : phimosis, round-shaped resection, cat.

Introduction

Phimosis, characterized by an absence of an opening or an abnormally small orifice and entrapment of the penis inside the prepuce, has been rarely reported in cats (2,5,6). This condition can be congenital or acquired (3,7). The most common causes of acquired phimosis are neoplasia, inflammation, edema, or scarring from laceration following trauma, sucking by littermates, or licking by the dam (8,9). The cause of congenital phimosis is not known. Clinical signs can vary from asymptomatic to life-threatening if the preputial orifice is not large enough to allow urination and it is left untreated (10,11). Several surgical methods have been described to treat phimosis in dogs and cats (1,6,12).

A round-shaped resection technique in which the tip of the prepuce is resected has been described in a commonly referenced textbook, but the results of such a technique have not been reported (5). Further, to date, to the author's knowledge, feline phimosis has only been reported in few reports (2,6). The purpose of this case report is to describe the clinical presentation and successful surgical correction of a congenital or acquired phimosis by use of a round-shaped resection along the preputial orifice in two cats.

This case report describes the successful correction of phimosis by use of the round-shaped resection of the tip of the prepuce in two cats.

Case 1

A 3-month-old male domestic shorthair cat, was presented for evaluation of stranguria and hematuria. The owner reported that the cat showed difficulty in passing urine and prolonged sitting in the litter tray since birth. On physical examination, a swollen prepuce, erythematous preputial orifice, and urine pooling in the preputial cavity were noted (Fig 1a). The preputial orifice was a pinpoint opening (approximately 0.5 mm diameter) (Fig 1a). The penis could not be extruded from the prepuce. A 3-french Tomcat catheter with stylet (Buster Cat Catheters, Buster, England) was not passed through the preputial and urethral openings due to the decreased size of the preputial opening. A urine sample was obtained by cystocentesis. Urinalysis, serum chemistry profile, and complete blood count were normal.

The patient was premedicated for surgery with glycopyrrolate (0.01 mg/kg, IM; Tabinul inj, Hana Pharm, Korea) and acepromazine (0.05 mg/kg, IM; Sedaject inj, Samu Median, Korea), followed by anaesthetic induction with propofol (6 mg/kg, IV; Proville inj, Claris Lifesciences, India). The patient received cefazolin (20 mg/kg, IV; Cefazoline inj, Chongkundang Pharm, Korea) at the time of anaesthetic induction. The patient was intubated and anaesthesia was maintained with isoflurane (Ifran, Hana Pharm, Korea) and oxygen. Normal saline was administered intravenously at a rate of 10 mL/kg/h until completion of the surgical procedure. A preputioplasty was performed to increase the diameter of the preputial orifice and remove erythematous fragile skin around

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the preputial orifice under inhalant anesthesia. A 5-mm full-thickness incision was made dorsally and ventrally along the midline of the prepuce. A round-shaped area to be resected was decided by a connection of the distal ends of incisions 5-mm away from the preputial orifice. Then, the tip of the prepuce was resected along the predetermined area, which allowed the normal sized but erythematous penis to be extruded, and catheterization of the urethra was performed. The preputial mucosa was apposed to the ipsilateral incised skin edge using simple interrupted sutures of 5-0 poly-

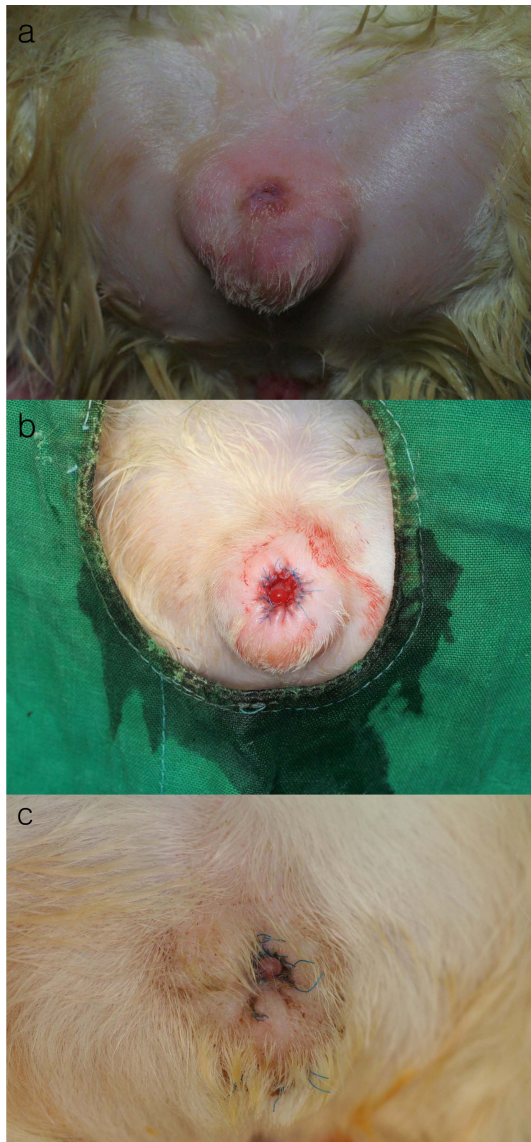


Fig 1. A swollen prepuce and erythematous preputial orifice are noted in Case 1. (a) The preputial orifice is a pinpoint opening. The penis is not extruded from the prepuce. (b) The preputial mucosa is apposed to the ipsilateral incised skin edge using simple interrupted sutures after round-shaped resection of the tip of the prepuce, which allows the tip of penis to be extruded normally. (c) No evidence of small preputial orifice and urine pooling is noted 14 days postoperatively.

dioxanone (PDS II, Johnson and Johnson, USA) (Fig 1b). Postoperative care included cefazolin (30 mg/kg, IV, tid) and tramadol (2 mg/kg, PO; Tridol, Yuhan, Korea). Two days following surgery no evidence of stranguria and hematuria was noted. No evidence of small preputial orifice and urine pooling was noted 14 days postoperatively (Fig 1c). Patient follow-up performed at 22 months after surgery revealed that the patient was clinically normal, physically active, and exhibited no evidence of stranguria and hematuria.

Case 2

A 4-year-old male domestic shorthair cat, was presented for evaluation of stranguria. The owner reported that the cat showed excessive licking the prepuce and had 3 preputioplasties in the past year. On physical examination, necrotic skin around the preputial orifice, small preputial orifice, and severe urine pooling in the preputial cavity were noted (Fig 2a). A 3-french Tomcat catheter was passed through the small preputial and urethral openings. A urine sample was obtained by cystocentesis. Urinalysis, serum chemistry profile, and complete blood count were unremarkable.

The patient was premedicated for a preputioplasty with glycopyrrolate (0.01 mg/kg, IM) and acepromazine (0.05 mg/kg, IM), followed by anaesthetic induction with propofol (6 mg/kg, IV). The patient received cefazolin (20 mg/kg, IV) at the time of anaesthetic induction. The patient was intubated and anaesthesia was maintained with isoflurane and oxygen. Normal saline was administered intravenously at a rate of 10 mL/kg/h until completion of the surgical procedure. Aforementioned surgical procedures were performed to increase the diameter of the preputial orifice and remove a necrotic skin around the preputial orifice (Fig 2b). The edematous and redundant preputial mucosa was identified. Two stay sutures were bilaterally placed on the redundant mucosa. The redundant mucosa was bluntly dissected down to the base of the penis and then resected (Fig 2b). The edges of the resected preputial mucosa were apposed to the ipsilateral incised skin edges using simple interrupted sutures of 4-0 polyglecaprone 25 (Monocryl, Ethicon Inc, USA) (Fig 2c). Postoperative care included cefazolin (30 mg/kg, IV, tid) and tramadol (2 mg/kg, PO). Four days following surgery no evidence of stranguria was noted. Patient follow-up performed at 24 months after surgery revealed that the patient was clinically normal, physically active, and exhibited no evidence of stranguria.

Discussion

The prepuce is a fold of skin covering the glans of the penis in the retracted state (4). It consists of an external lamina and an internal lamina (4). The preputial orifice is developed at the junctional mucocutaneous tissue which marks the boundary between an internal lamina (mucosa) and an external lamina (skin) (4). Causes of phimosis that is a condition in which the

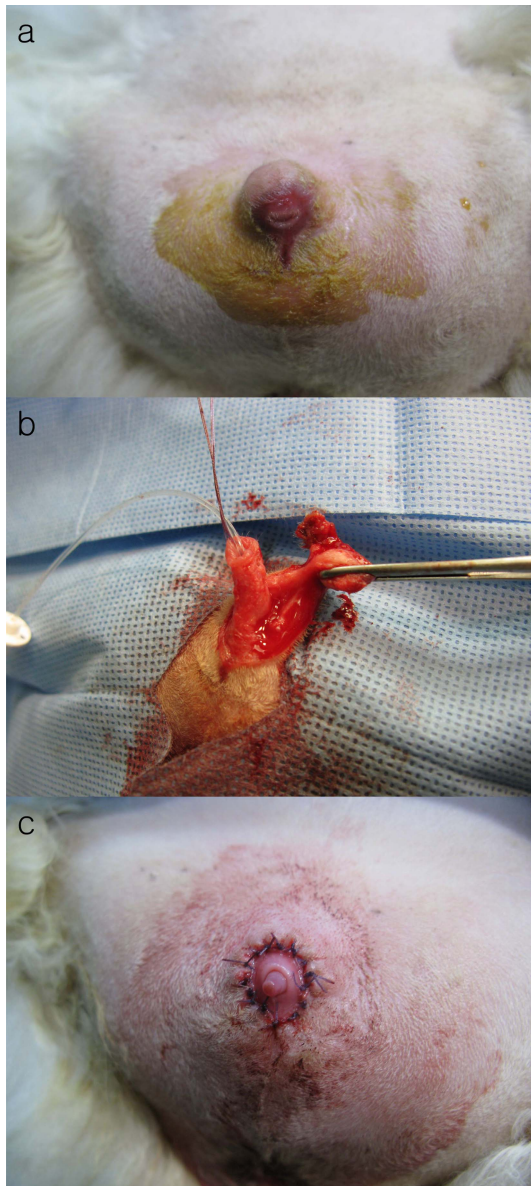


Fig 2. A necrotic skin around the preputial orifice, small preputial orifice, and severe urine pooling from the preputial orifice are noted in Case 2. (a) The penis is not extruded from the prepuce. (b) A necrotic skin around the preputial orifice and the edematous and redundant preputial mucosa are removed. (c) The preputial mucosa is apposed to the ipsilateral incised skin edge using simple interrupted sutures after round-shaped resection of the tip of the prepuce, which allows the tip of penis to be extruded normally.

preputial orifice is absent or abnormally small includes heredity, preputial neoplasia, inflammation, or scarring secondary to trauma (9). In case 1 of the present case report, cause of phimosis is congenital; however, case 2 showed a history of self-licking the prepuce and 3 preputioplasty to remove inflammatory tissues. In case 2, self-licking the prepuce could be primary cause of phimosis; however, 3 preputioplasties that were performed in the past year might exacerbate the

condition of urine retention and secondary infections.

Choosing an appropriate technique to treat cats with phimosis can be important. Presently available options include a wedge-shaped resection technique, releasing incision with sutures placed or no sutures placed, or a round-shaped resection technique (2,5,6). A wedge-shaped resection technique has been described for the management of a cat with pollakiuria caused by congenital phimosis (2). In this technique, a wedge of prepuce with the base at the preputial orifice is excised to increase the diameter of the preputial orifice, and the preputial mucosa is apposed to the ipsilateral incised skin edge. Releasing incision with sutures placed or no sutures placed has been described for the management of cats with pollakiuria, stranguria, dysuria, or hematuria caused by congenital or acquired phimosis (6). In this technique, a full-thickness skin incision on the ventral aspect of the prepuce and apposing the preputial mucosa to the ipsilateral skin edge with sutures placement or a full-thickness skin incision on the ventral aspect of the prepuce with no sutures placement is performed; however, no tissue is excised. However, these techniques provide restricted increase area in the diameter of the preputial orifice, allowing increase of the diameter only in the ventral aspect of the prepuce. In the cases reported here, a round-shaped resection technique was performed to increase the diameter of the preputial orifice, and remove necrotic skin around the preputial orifice and the edematous and redundant preputial mucosa by resecting the tip of the prepuce and suturing the preputial mucosa to the skin. This technique provided the postoperative preputial orifice of adequate size to allow extrusion of the penis and can also be helpful in cases where small preputial orifice and severe urine pooling from the preputial orifice are noted. Our findings suggest that this technique could be helpful in cases with skin and mucosa necrosis around the preputial orifice that require round-shaped resection.

Some surgical considerations may increase the likelihood of a successful surgery. The edematous and redundant preputial mucosa might not allow extrusion of the penis, which can cause urine retention and urine pooling leading to inflammation and stricture of the preputial orifice. The edematous and redundant preputial mucosa should be removed to prevent recurrence of small preputial orifice if noted during surgery.

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두 마리 고양이에서 선천적 또는 후천적 포피 폐쇄증의 외과적 치료 증례

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요 약 : 수컷, 4개월령 단모종 고양이가 배뇨곤란 및 혈뇨 증상으로 수컷, 4년령 단모종 고양이가 배뇨곤란 증상으로 각각 내원하였다. 고양이 1에서 포피 부종, 포피 구멍 주위 발적, 포피 구멍 내 소변 저류를 확인하였고 작은 포피 구멍으로 인해 음경이 포피 밖으로 배출되지 않음을 확인하였다. 고양이 2에서는 포피 구멍 주위 피부 괴사, 작은 포피 구멍, 포피 구멍 내 소변 저류를 확인하였다. 작은 포피 구멍의 확장과 발적 또는 괴사된 포피 구멍 주위 피부의 제거 그리고 과도하게 부어 오른 포피 점막 제거를 위해 포피 구멍 주위 피부의 둥근 모양 절제를 실시하였다. 절제된 포피 점막과 같은 쪽 피부 가장 자리를 봉합하였다. 수술 후 정기 검진은 신체 검사를 통해 각각 22개월 및 24개월 동안 실시되었으며 배뇨 곤란 및 혈뇨 증상이 관찰되지 않음을 확인하였다. 포피 구멍 주위 피부의 둥근 모양 절제술은 포피 폐쇄증을 보이는 두 마리 고양이에서 포피 구멍 확장을 통한 음경의 포피 밖 배출을 가능하게 하였으며 포피 주위 피부 및 점막이 괴사되어 둥근 모양 절제가 필요한 경우에 더욱 유용할 것으로 사료된다.

주요어 : 포피 폐쇄증, 둥근 모양 절제술, 고양이