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Taksa Vasaruchapong

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Surgical Removal of Foreign Bodies in the Gastrointestinal Tract of Monocellate Cobra, *Naja kaouthia*

Taksa Vasaruchapong* Lawan Chanhome

Abstract

A wild-captured female monocellate cobra (*Naja kaouthia*) had abnormal posture and move with difficulty as consequences of swelling at the middle third of the body. The swelling area was firm on palpation with average size of 10x4 cm. The shape of the swelling area was similar to a small bottle which was obviously recognized on the dorsal recumbency. Therefore, the foreign body obstruction in gastrointestinal tract was diagnosed without radiographic examination. Digital manipulation was performed, but could not move the foreign bodies. Therefore, gastrotomy was considered. The foreign bodies were a plastic bottle and a piece of cloth which were removed. Feeding was withdrawn for one week with parenteral supportive treatment with fluid. The snake fully recovered 1 month after surgery.

Keywords: foreign body, gastrotomy, GI obstruction, *Naja kaouthia*

Snake Farm, Queen Saovabha Memorial Institute, The Thai Red Cross Society 1871 Rama 4 Rd. Patumwan Bangkok, 10330, Thailand

*Correspondence author E-mail: taksa.v@gmail.com, taksa.v@redcross.or.th

บทคัดย่อ

การผ่าตัดแก้ไขภาวะสิ่งแปลกปลอมอุดตันในกระเพาะอาหารงูเห่าไทย (*Naja kaouthia*)

ทักษิณ เวสวัชรพงษ์ * ลาวัญญ์ จันทโรสม

งูเห่าไทยเพศเมียถูกจับจากแหล่งอาศัยในธรรมชาติ ไม่ทราบอายุ มีอาการบวมบริเวณกลางลำตัว ทำให้ไม่สามารถเคลื่อนไหวได้ตามปกติ เมื่อคลำตรวจบริเวณที่บวมพบว่ามีลักษณะแน่นเป็นก้อนขนาดประมาณ 10x4 เซนติเมตร เมื่อจับงูนอนหงายพบว่าบริเวณที่บวมมีลักษณะรูปทรงเหมือนขวด จึงวินิจฉัยเบื้องต้นว่ามีสิ่งแปลกปลอมอุดตันในทางเดินอาหารโดยไม่ได้ทำการถ่ายภาพรังสี การบีบไล่ด้วยมือไม่สามารถดันให้สิ่งแปลกปลอมนดังกล่าวเคลื่อนออกมา จึงพิจารณาผ่าตัดเปิดทางเดินอาหารเพื่อเอาสิ่งแปลกปลอมออก จากการผ่าพบว่า มีขวดนมเปรี้ยวหนึ่งขวดและเศษผ้าหนึ่งชิ้นภายในกระเพาะอาหาร ภายหลังจากการผ่าตัดได้งดให้อาหารและรักษาแบบประคองอาการด้วยการฉีดสารน้ำเข้าชั้นใต้ผิวหนังเป็นเวลาหนึ่งสัปดาห์ จากนั้นจึงเริ่มให้กินของเหลว อาหารขนาดเล็ก และอาหารขนาดปกติ ตามลำดับ งูหายเป็นปกติภายหลังการผ่าตัดหนึ่งเดือน

คำสำคัญ: สิ่งแปลกปลอม การผ่าเปิดกระเพาะอาหาร ทางเดินอาหารอุดตัน งูเห่าไทย

สวนงู สถานเสาวภา สภากาชาดไทย 1871 ถ.พระราม 4 แขวงปทุมวัน เขตปทุมวัน กรุงเทพฯ 10330 ประเทศไทย

*ผู้รับผิดชอบบทความ E-mail: taksa.v@gmail.com, taksa.v@redcross.or.th

Introduction

Snake is a carnivorous animal which swallows whole body of the prey without chewing or tearing into small pieces. Mistaken swallow of a variety of foreign bodies such as stone, golf ball, heating pad and artificial chicken egg have been reported in snakes (Smith, 1953; Jacobson et al., 1980; Zwart et al., 1986, Souza et al., 2004). These foreign bodies cause obstruction in the gastrointestinal tract. If the snake cannot pass the foreign bodies via feces or regurgitation, total obstruction and death are the consequences. In Thailand, surgery in reptile and native snake is rare and there is lack of its basic knowledge. Therefore, the aim of this case report was to describe the surgical removal of unmovable foreign bodies in the gastrointestinal tract of a snake.

Materials and Methods

Case history: A wild-captured female monocellate cobra (*Naja kaouthia*) of unknown age was caught and donated to Snake Farm, Queen Saovabha Memorial Institute (QSMI), The Thai Red Cross Society. The snake had a 145-cm snout to vent and weighed one kg. Upon arrival, the snake was presented with abnormal posture and difficulty in moving as consequences of swelling at the middle third of the body.

Diagnosis and treatment: Physical examination revealed moderate dehydration and pale mucous membrane. The swollen area was firm on palpation with average size of 10x4 cm. The shape of the swollen area is similar to a small bottle which was obviously recognized on the dorsal recumbency (Fig 1). Therefore, foreign body obstruction in the

gastrointestinal tract was diagnosed without radiographic examination. Digital manipulation was performed, but the bottle was unmovable. Therefore, surgical removal was considered. Preoperative packed cell volume, uric acid, alkaline phosphatase and aspartate aminotransferase were in normal range (Diethelm and Stein, 2006). The snake received subcutaneously acetate ringer solution (Acetar, Otsuka, Thailand) at the dose of 20 ml/kg (Carpenter, 2005) for 2 hours before anesthesia.

The snake was anesthetized with ketamine at the dose of 40 mg/kg (Calypsol, Gedeon Richter Ltd., Budapest, Hungary) and xylazine at the dose of 2 mg/kg (Rompun, Bayer Korea Ltd., Seoul, South Korea) by intramuscular injection. The incision line was made between the first and the second dorsal scale rows on the left lateral side of the body above the midpoint of the mass. The foreign body was found in the stomach, therefore gastrotomy was performed through a longitudinal stab incision at the cranial part of the stomach. The foreign bodies were a



Figure 1 Swelling of the middle third of the snake. A foreign body with a shape of bottle was diagnosed.

plastic bottle and a piece of cloth which were gently removed from the stomach (Fig 2 and 3). The stomach was flushed with normal saline and sutured with 4-0 polyglyconate (Connek, Novatec Healthcare, Thailand) in Lambert and Cushing suture patterns, respectively (Fig 4). Normal saline was injected into stomach lumen to test leakage at the suture line. The skin was sutured with 2-0 nylon (Nylon, UNIK, Taipei Hsien, R.O.C., Taiwan) in an everting horizontal mattress pattern. Ceftazidime was given at the dose of 20 mg/kg (Cef-4, Siam Bheasach, Thailand) by intramuscular injection every 72 hours for 5 treatments (Carpenter, 2005).

Feeding was withdrawn for one week after surgery with parenteral supportive treatment with 20 ml/kg acetate ringer solution by subcutaneous injection, vitamin B complex (Biocatalin, Fatro, Bologna, Italy) at the dose of 10 mg/kg and vitamin C (Vitamin C, T.P. Drug Laboratories, Thailand) at the dose of 20 mg/kg given once by intramuscular injection (Carpenter, 2005). After one week, 20 ml of acetate ringer solution was given per oral for 2 days. On days 10 and 15, the snake received force feeding with 12 gram pre-killed mouse. Followed by 20 gram pre-killed mice on day 22.

Results and Discussion

The suture was removed after shedding of the skin, the incision line was completely healed (Fig 5). The snake was fully recovered within 1 month after surgery. Defecation was normal which indicated normal function of the gastrointestinal tract. The snake was active and had a good appetite and no abnormal clinical signs.

Snake uses sense of smell and taste to choose its prey (McKeown, 1996). Therefore, there could be some kind of smell that contaminates the foreign body and cause the snake to mistakenly swallow.

Radiographic examination could provide better information for diagnosis. In this case, even though the obstruction was diagnosed correctly, a piece of cloth was missed out. If there had been any foreign bodies remaining in other parts of the gastrointestinal tract, they would have been left unnoticed. Therefore, the radiographic examination of the gastrointestinal tract should be performed for better diagnosis.



Figure 2 Removal of a plastic bottle from the stomach.



Figure 3 Removal of a piece of cloth from the stomach.



Figure 4 Suturing of the stomach.



Figure 5 Complete healing of the incision line at one month after surgery.

Basic principle of reptile gastrointestinal surgery is similar to mammals. However some consideration should be concerned in reptile surgery. Reptile skin, especially of snake and lizard, is the primary holding layer for wound closure and likely to invert after incision. Therefore, mattress suture gives strong eversion of skin which is advantageous to wound healing. Nylon and polypropylene are the preferred non-absorbable sutures used for skin suture (Mader et al., 2006) while polyglyconate and poliglecaprone 25 are the preferred absorbable sutures with the least tissue reaction (Govett et al., 2004). Wound healing in reptiles has the same process as in mammals but slower. Optimum temperature can promote wound healing (Mader et al., 2006).

Therefore, the suture is generally removed 4-6 weeks after surgery or after shedding of the skin (Mader et al., 2006). There is no report on snake gastrointestinal surgery in Thailand and Thai native snakes. Although, reptiles have become more popular in Thailand, there is still lack of veterinary practice on reptile medicine and surgery. This report could encourage reptile study in Thailand and gather the information on surgery in Thai native snake.

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