

Use of a gracilis myocutaneous flap for reconstruction of a perineal defect in a dog: case report

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Abstract: A male Beagle dog was referred with a perineal wound after perineal herniorrhaphy. Open wound management was performed, using wet-to-dry contact dressing with daily debridement and lavage for 7 days. The wound was reconstructed with an island gracilis myocutaneous flap (GMCF). The wound healed without any complications, while limb and pelvic function were uncompromised. Based on the outcome of the present case, it is proposed that transposition of the GMCF can be an effective alternative for reconstruction of soft tissue defects in the perineal area.

Key words: Perineal skin defect, gracilis myocutaneous flap, dog

1. Introduction

The most common complications after perineal hernia repair are wound complications including infection, dehiscence, seroma, and hematoma (1).

Reconstruction of perineal defects can be accomplished using the caudal superficial epigastric axial pattern flap. This flap can be also used to cover defects of the caudal abdomen, flank, perineum, inner thigh, stifle, and preputial area (2). However, this flap is not useful for wide defect closure and has increased risk of necrosis in the dorsal perineal area.

The gracilis myocutaneous flap (GMCF) is widely used for reconstruction of skin defects in human medicine (3). The GMCF has been evaluated for treatment of large composite defects and distant transfer in dogs and cats (4,5). However, to the best of our knowledge, there are no available reports on the use of GMCF for reconstruction of perineal skin defects in veterinary medicine.

The present report describes the use of the gracilis myocutaneous flap for treatment of a perineal defect after perineal herniorrhaphy in a dog.

2. Case history

2.1. Clinical findings

A 5-year-old, 12-kg, male Beagle was referred to the Animal Medical Center of Chonbuk National University with a perineal defect after perineal herniorrhaphy. The

perineal hernia was repaired by performing primary suturing in combination with internal obturator and superficial gluteal muscle transposition in a local animal hospital. Physical examination revealed a perineal wound with extensive skin necrosis and a defect in the gluteal region. The defect was lined with chronic granulation tissue and measured 10 × 5 × 3 cm. The radiographic and ultrasonographic findings were unremarkable. Complete blood count and serum chemistry was performed and only mild neutrophilia was detected. Due to skin necrosis and contamination, immediate reconstruction was considered to be inappropriate. Open wound management was performed, using wet-to-dry contact dressings with daily debridement and lavage for 7 days. Healthy granulation tissue filled in the perineal defect and development of healthy epithelium was noted around the wounded part of the skin (Figure 1).

2.2. Surgical procedure

Preoperatively, cephalexin was administered (20 mg/kg IM, Methilexin Inj[®], Union Korea Pharm., South Korea). The dog was premedicated with atropine sulfate (0.01 mg/kg SC, Atropine Sulfate Daewon[®], Daewon Pharm., South Korea) and anesthesia was induced with propofol (6 mg/kg IV Anepol IN[®], Hana Pharm., South Korea). After intubation, general anesthesia was maintained with isoflurane (1%–2%) in oxygen (1.5 L/min). Epidural anesthesia was performed by administration of 2%

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Figure 1. Appearance of the perineal defect 7 days after treatment using wet-to-dry dressings.

lidocaine (1 mL/5 kg, Lidocaine HCl Dalhan Inj[®], Dai Han Pharm., South Korea) into the lumbosacral space. The dog was positioned in sternal recumbency, and a purse-string suture was placed around the anus. The perineal defect was debrided with sterile gauze and the epithelium at the periphery was excised. Moistened gauze was used to cover and protect the recipient site, while the donor tissue was harvested. The dog was repositioned in the dorsal recumbency position. A proximally based GMCF, as described by Gregory et al. (4,5), was elevated (Figure 2) and transposed to the perineum through a subcutaneous tunnel. The flap was sutured to the wound (Figure 3A and 3B). A Penrose drain was placed in the donor site before closure. The wound was bandaged while dressings were changed every 48 h in order to protect the flap. Based on the results of an antibiotics susceptibility test, amikacin was administered (15 mg/kg IV Samu Amikacin injection[®], Samu Median, South Korea, every 12 h for 7 days), and sutures were removed 14 days postoperatively.

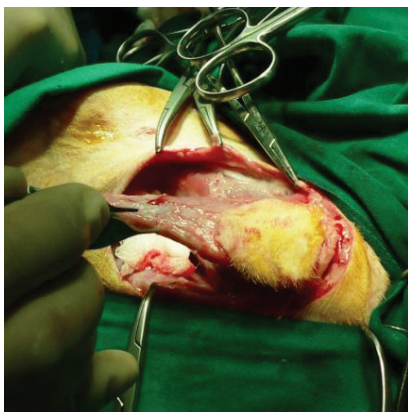


Figure 2. Elevation of the gracilis myocutaneous flap.

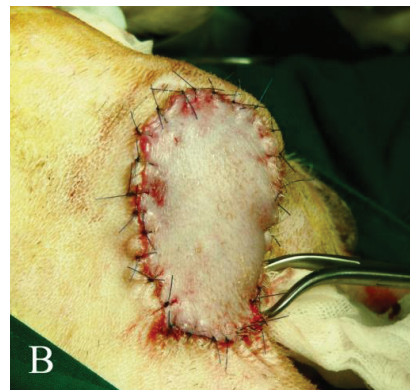
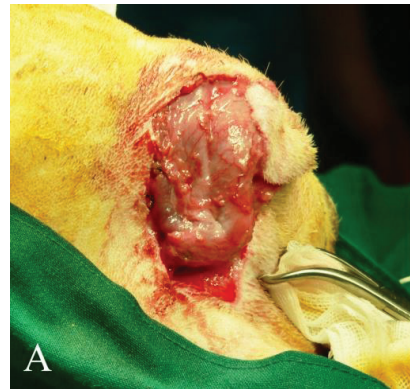


Figure 3. After tunneling, the gracilis myocutaneous flap is positioned in the perineal defect (A) and sutured to the wound (B).

3. Results and discussion

The GMCF healing was uneventful, weight-bearing function was restored, and there was no evidence of complications 6 months postoperatively (Figure 4).

Myocutaneous flaps are pedicle grafts in which a skeletal muscle and the overlying skin are elevated simultaneously (2,6). Myocutaneous flaps have been widely



Figure 4. Appearance of the defect 6 months after surgery.

used in human reconstructive surgery. In contrast, dogs and cats have considerable amounts of loose skin located over the trunk, and a number of direct cutaneous arteries are present for development of axial pattern flaps instead of myocutaneous flaps (2,6). However, reconstruction of large composite defects is difficult using an axial pattern flap, particularly if the defect is located at a long distance from an axial flap. In the present study the perineal defect could be managed by using the internal obturator and the superficial gluteal muscles, but these muscles had already been used during the previous operation.

Perineal wound infection is the most common complication described after perineal herniorrhaphy, ranging from 27% to 45% of cases (7), and mainly results from contamination of the wound by feces and difficulties in the closure of dead space.

The gracilis muscle is a flat, thin accessory adductor of the thigh, which is expendable. It is situated superficially on the medial aspect of the thigh between the semimembranosus, semitendinosus muscle and the caudal border of the pectineus muscle and femur (4). It has a type II vascular supply, with the branch of the femoral artery forming a dominant pedicle (8). It is reported that the gracilis muscle can be used as a pedicle flap and a free microsurgical flap in skin reconstruction of dogs and cats (4,5,8).

In the present case report, the GMCF was used for treatment of a perineal defect. The GMCF resulted in complete wound healing with a good long-term outcome. Therefore, GMCF transposition can be a useful alternative for reconstruction of soft tissue defects in the perineal area.

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