Scientific Report

Severe wound of stifle region, treated by a thoracic-based body flap in a dog: a case report

Oloumi, M. M.

Department of Surgery, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran

Correspondence: M.M. Oloumi, Department of Surgery, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran. E-mail: oloumi@yahoo.com

Summary

A dog with a severe wound of the left cranial stifle region was presented. The joint was exposed and the animal showed signs of systemic infection. Local and systemic treatments were performed and the wound was covered by a thoracic-based body flap, during a two-staged operation, in two weeks intervals. The animal recovered with no complications.

Key words: Stifle wound, Thoracic-based flap, Dog

Introduction

For reconstruction of large skin deficits or where the skin is not freely mobile, the use of a skin flap or free skin graft may be considered. The former may range from a simple local flap created to manage tension during closure of a wound to a complex flap designed and planned prior to surgery. The latter is a piece of skin lifted free from its original blood supply and placed onto the wound bed, from which it must derive its nutritional support (Anderson, 1997). Here is a case of severe stifle wound, treated by a thoracic-based body flap.

Case History

A three-year-old male German shepherd dog with severe laceration of the left stifle region was referred to the Veterinary Clinic of the Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman. The wound was deep with approximate dimensions of 10×20 cm, severely infected with a wide range of skin loss and the joint surfaces were exposed (Fig. 1). The animal was non-weight-bearing and depressed with body temperature of 39.5°C, which showed systemic infection.

Materials and Methods

The wound was thoroughly debrided under general inhalation anesthesia and the wound surface was rinsed several times with 1% povidone-iodine solution in normal saline and a dry-to-dry dressing was applied on the wound. Penicillin and streptomycin (Nasr Co., Fariman, Iran) was administered intramuscularly, every 12 hours (25000 IU penicillin/kg) for 5 successive days. Daily washing and bandaging of the wound was continued until a healthy granulation tissue formed on the wound surface. A thoracic-based body flap was designed to close the wound. For this purpose, under general inhalation anesthesia and after surgical preparation of left caudal thoracic and paralumbar regions, a crescent skin incision with the same longitudinal diameter of the wound was made on caudal thorax and the skin was released from subcutaneous tissue by blunt dissection. The lateral wound edge was dissected free from the underlying tissue and sutured to the flap edge by 0 nylon suture material and simple interrupted pattern. To avoid tearing of the suture line, the limb was secured to the collar of the animal by a strip. Two weeks later, a second operation was performed and the base of the flap was
incised and sutured to the medial border of the wound. A penrose drain was inserted under the skin for 24 hours and the wound was bandaged. Caudal thoracic skin defect was closed by advancement flaps. The limb was immobilized in a cast splint until the time of suture removal (12 days later).

Results

One week after the second operation, the skin over the wound was mainly viable and hair growth began, but the craniomedial portion of the skin was cyanotic and necrotic dermatitis was observed (Fig. 2). The necrotic parts were removed and the remaining wound was treated as an open wound. The wound healed uneventfully. The sutures were removed 12 days later. Six months later, when the animal was referred for regular vaccination, the hairs of the skin over the wound were longer and in different direction compared with the adjacent skin. That part of the wound healed by contraction, was hairless. The animal was quite active and was sound on walking and running.

Fig. 1: The wound on left stifle region. The joint surface is exposed (a)
Fig. 2: One week after second operation: A necrotic zone can be seen in craniomedial border of the flap (a), while the main part of the flap is viable and hair growth begins (b)

Discussion

Skin defects of the distal limbs have long been challenging because of the paucity of loose skin nearby, which makes conventional local flaps quite difficult (Yeh and Lin, 1994). Although different methods of free skin grafting have been described (Lees et al., 1989; Pope, 1990; Swaim, 1990; Fossum et al., 1997), they are not usually taken by the recipient bed containing abundant tendinous and bony tissues, or with irregular surfaces as in this case. So a distant skin flap based on caudal thoracic skin was designed. In using a flap, the base or pedicle of the flap contains the blood supply essential for flap survival. Pedicle flaps often allow immediate coverage of a wound bed and avoid prolonged healing, excessive scarring and contracture associated with second intention wound healing (Fossum et al., 1997). The only drawback of this technique, is the hair growth pattern which is usually different from adjacent skin, which can be solved to some extend by regular trimming of the hair to the length of other parts of the skin.

References