Autologous prosthesis for the surgery of two simultaneous hernias in a calf

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SUMMARY
The authors propose a rare case of double hernia in a female, red freisian calf, seventeen months old. Hernia that occurs most frequently in calf is related to hereditary factors or mainly traumatic causes. The clinical examination of the lesion led to detect two similar lesions, round and smooth, not-hot and not-sore, the first localized to the umbilical region, and the second, more caudal and larger, in a paramedian position. Both lesions were palpable in the abdomen through regular continuous and non-communicating solutions. After some basic analysis, the calf received general anaesthesia and underwent standard surgery, but with the application of autologous prosthetic material, seen the location and peculiarity of the lesion. After two months the calf was sound and all her functions restored. Double hernia requires to strengthen the suture with prosthetic material. A flap of the hernial bag wall has been used as prosthetic material, since is strong and well-vascularized, provides excellent tissue compatibility and guarantees that, thanks to constant blood flow, there is always the presence of cellular reaction elements with the formation of a stiff fibrin clot and a healthy healing tissue. After the surgical procedures, the calf was awakened regularly. At a first check the day after the surgical procedure, the animal regularly resumed eating and drinking. After two months, the patient’s follow-up confirmed the complete healing of the lesions, with functional recovery of the herniated organs and the general condition of the subject. The use of an autologous prosthesis comes from a twofold consideration: the great stress that tissues are subjected to an animal with a double hernia, requires the application of a reinforcement that remains stable for at least 15 days in the postoperative. In addition, the autologous prosthesis, made up of well-vascular tissue, has excellent compatibility between tissues. Such features favor the formation of new granulation and fibrin tissues in a short time, thus reducing healing times.

KEY WORDS
Calf, hernia, autologous prosthesis, laparocele.

INTRODUCTION
Hernia that occurs most frequently in calf is related to hereditary factors or mainly traumatic causes. These are mainly external hernias affecting the abdominal region, the inguinal region and the pelvic region. The hernia content may sometimes reach a considerable size, with the loss of the possibility of reduction. In acute cases, as in congenital cases, sometimes reach a considerable size, with decrease in growth and / or milk production. In chronic cases, or ones complicated by consecutive or incommunicating solutions. After some basic analysis, the calf received general anaesthesia and underwent standard surgery, but with the application of autologous prosthetic material, seen the location and peculiarity of the lesion. After two months the calf was sound and all her functions restored. Double hernia requires to strengthen the suture with prosthetic material. A flap of the hernial bag wall has been used as prosthetic material, since is strong and well-vascularized, provides excellent tissue compatibility and guarantees that, thanks to constant blood flow, there is always the presence of cellular reaction elements with the formation of a stiff fibrin clot and a healthy healing tissue. After the surgical procedures, the calf was awakened regularly. At a first check the day after the surgical procedure, the animal regularly resumed eating and drinking. After two months, the patient’s follow-up confirmed the complete healing of the lesions, with functional recovery of the herniated organs and the general condition of the subject. The use of an autologous prosthesis comes from a twofold consideration: the great stress that tissues are subjected to an animal with a double hernia, requires the application of a reinforcement that remains stable for at least 15 days in the postoperative. In addition, the autologous prosthesis, made up of well-vascular tissue, has excellent compatibility between tissues. Such features favor the formation of new granulation and fibrin tissues in a short time, thus reducing healing times.

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the prevention of recurrences, although their costs are high and certainly unrepresentable in the case of income-producing animal surgery, it is thought to replace synthetic prosthetic material with an autologous prosthesis, obtained by creating a vascularized flap from the hernia bag. This surgical method is intended to confer considerable resistance to herniorraphy and to prevent recurrences, without using synthetic prosthetic materials.

MATERIALS AND METHODS

A seventeen months old female calf, of red-headed Italian, was enrolled in this study. It was visited and operated at the same time as a field clinic, carried out in the province of Ragusa (Sicily). The objective examination of the lesion allowed to detect a swelling of size 8x7 cm, of round shape and regular, not hot and not painful, localized to the umbilical region, and a second caudal and larger, of the size of 12x9 cm, in a paramedian position, with the same anatomical characteristics as the first one.

The lesion doors had a diameter of 4 cm and 7 cm respectively (Fig. 1). Both swellings were palpable in the abdomen through regular, round, non-communicating lesion doors (Fig. 2). Upon completion of the clinical trial, a diagnosis of double laparocele was formulated. Therefore, it has been programmed for surgery for a few days. The subject was placed on 24-hour pre-operative fasting, while the water was suspended from the previous evening. Before the operation, the animal was subjected to a further accurate clinical and anesthesiological examination. Haematological and haematocrit analysis have been performed that have given values to the standard.

The patient was anesthetized with xylazine hydrochloride, equal to 0.2 mg/kg, followed by an intravenous ketamine hydrochloride infusion, at a dose of 5 mg/kg, then tramadol 1 mg/kg, administered at the end of the dorsal decubitus. Throughout the duration of the intervention, intravenous access was maintained by NaCl 0.9% perfusion. The surgery site, that is skin, subcutaneous tissue, surrounding tissues and hernial door, has been infiltrated, with full thickness, with lidocaine at 2%.

Once reached an appropriate stage of anesthesia and analgesia, after having prepared the surgical field according to surgical art, the skin was incised and then, with the scissors, bluntly, the surrounding tissues, to isolate the hernia bag. This was incised, thus highlighting the hinged door and its contents.

The dislocated organs were appropriately repositioned through the hinged door. After having gunned the sclerotic edge of the door, traditional herniorraphy was performed, with detachable nodous points and monofilament n. 2 absorbable wire. The remaining hernia bag was shaped and used, by attachment and fixation, to reinforce the suture, with detached nipple stitches, also with resinable monofilament n. 2 (Fig. 3). It was then sutured the subcutaneous plane with detached sutures and the skin.

The interventions carried out on the two lesions overlap as surgical procedures: first, on the omphalocele and then on the other lesion, with two separate operating fields but with the same surgical technique.

RESULTS

Immediately after the surgical procedures, the calf was awakened regularly. At a first check the day after the surgical procedure, the animal regularly resumed eating and
drinking. After two months, the patient's follow-up confirmed the complete healing of the lesions, with functional recovery of the herniated organs and the general condition of the subject.

DISCUSSIONS AND CONCLUSIONS

Although the external appearance led immediately to think of two congenital hernias, intraoperatively, by the evaluation of the rupture's rings, it was suggested that paramedic hernia could be of traumatic nature, occurring during childbirth or immediately postpartum. In fact, this second hinged door was presented with jagged and uneven margins, unlike the umbilical, regular, and fibrous margins.

The idea of using an autologous prosthesis came from a twofold consideration: in the meantime, the great stress to which the tissues are subjected, especially in an animal with a double hernia, which requires the application of a reinforcement that remains stable for at least fifteen days in postoperative; in addition, the hernia bag, strong and well-vascularized, provides excellent tissue compatibility that, thanks to constant blood flow, guarantees the presence of cellular defense and reactive elements with the formation of a stiff fibrin layer.

References