

Infiltrative Lipoma - Atypical Presentation in a Bitch

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ABSTRACT

Background: Primary pelvic tumors have a less favorable prognosis when compared to long bone tumors. Infiltrative lipomas are benign neoplasms of mesenchymal origin, but with an invasive nature, in which highly differentiated adipocytes infiltrate tissues such as muscles, connective tissues, bones, peripheral nerves and spinal cord. Reports of infiltrative lipoma causing bone and joint damage are rare, so the objective of this report is to present clinical-surgical aspects and particularities involved in the treatment of a bitch, with an extensive tumoral mass in the left pelvic limb and coxofemoral and femoro-tibio-patellar joint destruction. The treatment used in search of a cure for the patient is highlighted.

Case: One bitch, 1 and a half years old, not neutered, Australian Cattle, 13 kg body weight, with a history of increased volume in the left pelvic limb for approximately 1 year, was admitted at the Veterinary Hospital. The radiographic examination showed loss of delimitation of the coxofemoral joint, irregularity, and the presence of a proliferative and lytic process in the femoro-tibio-patellar portion, in addition to an increase in volume in adjacent soft tissue. A thoracic radiographic study was also carried out to search for metastases and cytological examination by fine-needle aspiration in several points of the limb, including the popliteal lymph node. Aggressive surgical treatment was based on evidence of bone destruction and existing damage to the joints. A mid-to-caudal partial hemipelvectomy was chosen, accompanied by limb amputation. To perform the surgery, a tumor-free area was identified and osteotomy was performed at three points, in the body of the proximal ilium, ischium plate, and pubic body. Due to the removal of the limb and the tumor, there was no muscle to close the pelvic wall, requiring the use of polypropylene mesh to correct the defect. The patient was discharged from the hospital after 24 h. The histopathological analysis of the limb revealed that it was an infiltrative lipoma, which showed infiltration of superficial and deep muscle tissue and marked degenerative lesions in the hip and femoro-tibio-patellar joints. In the macroscopy, the extension of the neoplastic mass was evident and when cutting, the loss of bone architecture. Radiographic images were also compatible with invasion and destruction of the bone delimitation. The patient was evaluated 10, 30, and 120 days post-operatively, and the animal presented a quick recovery. However, 161 days after surgery it was necessary to remove the polypropylene mesh due to its contamination.

Discussion: Invasion of infiltrative lipoma into bones has been reported in only 3 dogs. Furthermore, due to the difficult macroscopic differentiation between infiltrative lipoma and normal tissue, the reported recurrence rate after surgical resection varies between 36 and 50%. Hemipelvectomy is a radical surgical procedure indicated for the management of tumors and functional abnormalities involving the pelvis or adjacent soft tissue. In canine patients diagnosed with infiltrative lipoma, surgery is reported to increase life expectancy. In studies, median survival time of 4 patients was 940 days and 13 dogs treated with cobalt radiation 60, of which 10 also underwent cytoreductive surgery, survived from 6 to 94 months. The patient in the current report survived for 21 months after the postoperative period, which is in agreement with the researches. A case of atypical infiltrative lipoma and consequent joint destruction was highlighted in this work. However, partial hemipelvectomy was effective in the treatment, curing the alteration, despite contamination of the mesh which led to the need for surgical intervention.

Keywords: surgery, complications, hemipelvectomy, polypropylene mesh.

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INTRODUCTION

Primary pelvic tumors have a less favorable prognosis when compared to long bone tumors [2]. Due to the anatomical complexity and adequate resection treatment is a surgical challenge [11], often requiring a broad approach in search of margins free from alterations [1].

Infiltrative lipomas are benign neoplasms of mesenchymal origin, but with an invasive nature, in which highly differentiated adipocytes infiltrate tissues such as muscles, connective tissues, bones, peripheral nerves and spinal cord [6]. This neoplasm causes little discomfort, until it interferes with physiological movement or triggers pain due to compression of nerve endings [8].

Reports of infiltrative lipoma causing bone and joint damage are rare, so the objective of this report is to present clinical-surgical aspects and particularities involved in the treatment of a bitch, with an extensive tumoral mass in the left pelvic limb and coxofemoral and femoro-tibio-patellar joint destruction. The treatment used in search of a cure for the patient is highlighted.

CASE

One bitch, 1 and a half years old, not neutered, Australian Cattle Dog, 13 kg body weight, with a history of increased volume in the left pelvic limb for approximately 1 year, was admitted at the Veterinary Hospital. There was no pain on palpation, with a marked increase in volume in the pelvic limb, from the digits to the coxofemoral joint. The patient supported the limb, but did not flex it. The dimensions of the mass were not possible to delimit, it had different consistencies according to the region and projected medially towards the midline of the abdomen.

The radiographic examination showed loss of delimitation of the coxofemoral joint (Figure 1 A & B), irregularity, and the presence of a proliferative and lytic process in the femoro-tibio-patellar portion (Figure 1 C & D), in addition to an increase in volume in adjacent soft tissues. A thoracic radiographic study was also carried out to search for metastases and cytological examination by fine-needle aspiration in several points of the limb, including the popliteal lymph node.

Aggressive surgical treatment was based on evidence of bone destruction and existing damage to the joints. A mid-to-caudal partial hemipelvectomy was chosen, accompanied by limb amputation. To

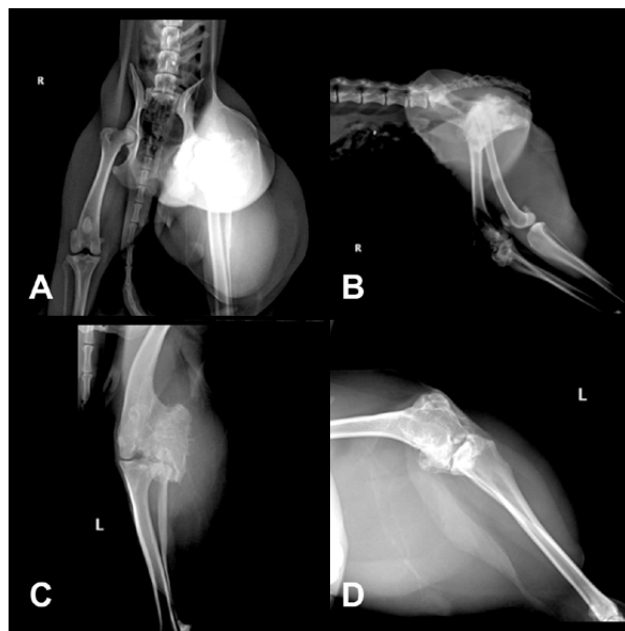


Figure 1. A- Ventrodorsal incidence of the pelvic region. B- Latero-lateral view of the pelvic region. Images A and B show the acetabular fossa, left femoral head and neck with irregular contours, increased in size and with an intense proliferative and lytic process. Adjacent soft tissue with swelling and presence of 3 different opacities. C- Craniocaudal view of the knee. D- Mediolateral view of the knee. Images C and D of the left knee demonstrate the presence of a lytic and proliferative process in femoro-tibio-patellar region.

perform the surgery, a tumor-free area was identified and osteotomy was performed at 3 points, in the body of the proximal ilium, ischium plate, and pubic body. Due to the removal of the limb and the tumor, there was no muscle to close the pelvic wall, requiring the use of polypropylene mesh¹ to correct the defect (Figure 2 A, B & C). The patient was discharged from the hospital after 24 h, with a prescription of meloxicam² [Flamavet[®] - 0.1 mg/kg, each 24 h, for 3 days], tramadol hydrochloride² [Cronidor[®] - 4 mg/kg, each 8 h, for 5 days], sodium dipyron³ [Dipirona Sódica Genérico - 25 mg/kg, each 8 h, for 5 days] and cephalexin⁴ [Rilexine[®] - 30 mg/kg, each 12 h, for 7 days].

The cytology suggested lipoma, while the histopathological analysis of the limb revealed that it was an infiltrative lipoma, which showed infiltration of superficial and deep muscle tissue and marked degenerative lesions in the hip and femoro-tibio-patellar joints. In the macroscopy, the extension of the neoplastic mass was evident (Figure 3 A, B & D) and when cutting, the loss of bone architecture (Figure 3C). Radiographic images were also compatible with invasion and destruction of the bone delimitation.

The patient was evaluated 10, 30, and 120 days post-operatively, and the animal presented a quick

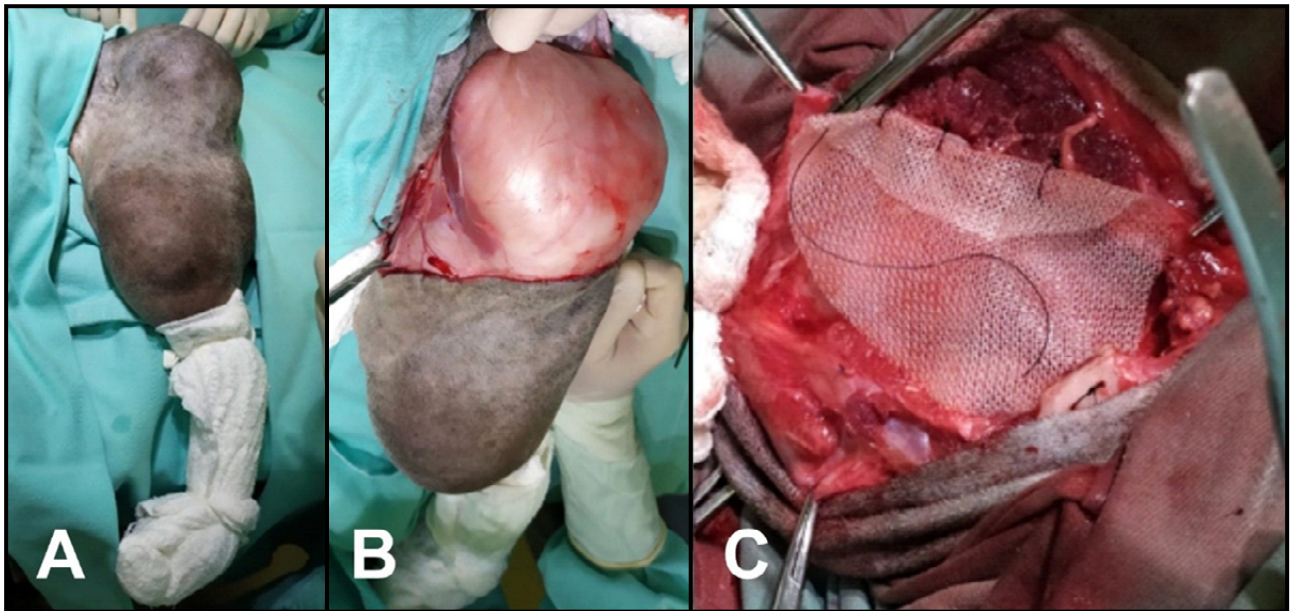


Figure 2. A- Left pelvic limb after placement of surgical drapes. B- Elliptical incision around the limb. C- Fixation of the polypropylene mesh on the three remaining bone ends, after perforations created with 1.5 mm pins. The fixation of the rest of the mesh in the adjacent musculature occurred in an isolated pattern.

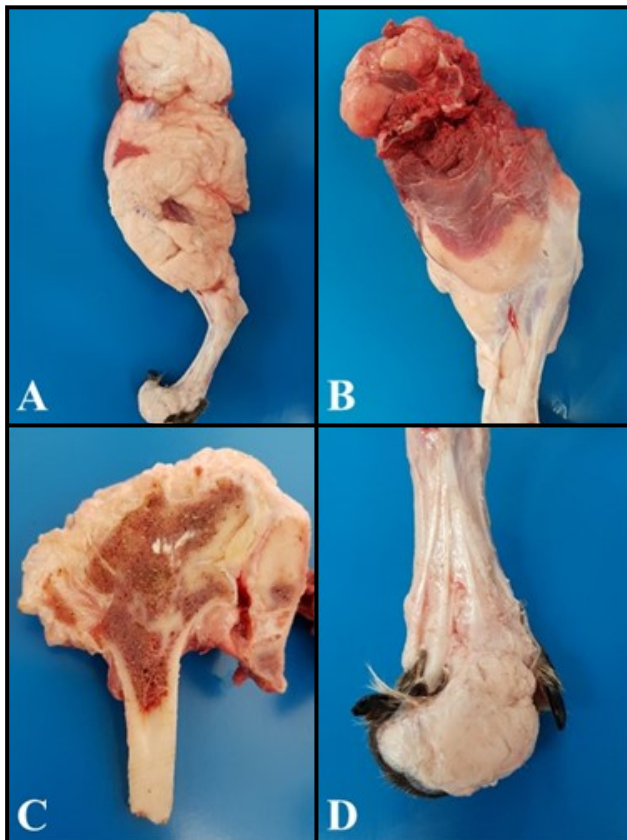


Figure 3. A- Lateral view, a whitish-yellow increase in volume, located from the body of the ilium and ischium to the calcaneus and between the pads in the left pelvic limb. B- Medial view, note neoplastic infiltration in the removed portion of the ilium, ischium, pubis, and proximal femur. C- In the longitudinal section, neoplastic infiltration is identified along with bone irregularity in the hip joint. D- Lateral view, a homogeneous white mass occupying a pad on the left pelvic limb can be observed.

recovery. However, 161 days after surgery it was necessary to remove the polypropylene mesh due to its contamination (Figure 4A). For this, surgical curettage of the site was performed (Figure 4 B), exhaustive washing of the region, and an axial pattern flap was developed, using the superficial caudal epigastric artery, to rotate the caudal mammary chain (Figure 4 C, D & E). The closure of the wound was effective and the patient showed full recovery after the intervention (Figure 4 F).

DISCUSSION

In a study with 22 cases of infiltrative lipoma in dogs, 20 there was only contact between the tumor and the bone [9]. Invasion of infiltrative lipoma into bones has been reported in only 3 dogs [6]. Furthermore, due to the difficult macroscopic differentiation between infiltrative lipoma and normal tissue, the reported recurrence rate after surgical resection varies between 36 and 50% [6,9].

Extensive histological sample is crucial to reveal the infiltrative character, as well as to rule out liposarcoma. In humans the mass can be delineated by radiography and is usually found separate from the bone. Furthermore, dystrophic calcification can occur secondary to tumor hemorrhage, but this finding is infrequent [5] and wasn't found in the case described.

Polypropylene surgical mesh is the most commonly used in medicine, due to its flexibility, ability to stimulate cell growth, satisfactory inflammatory

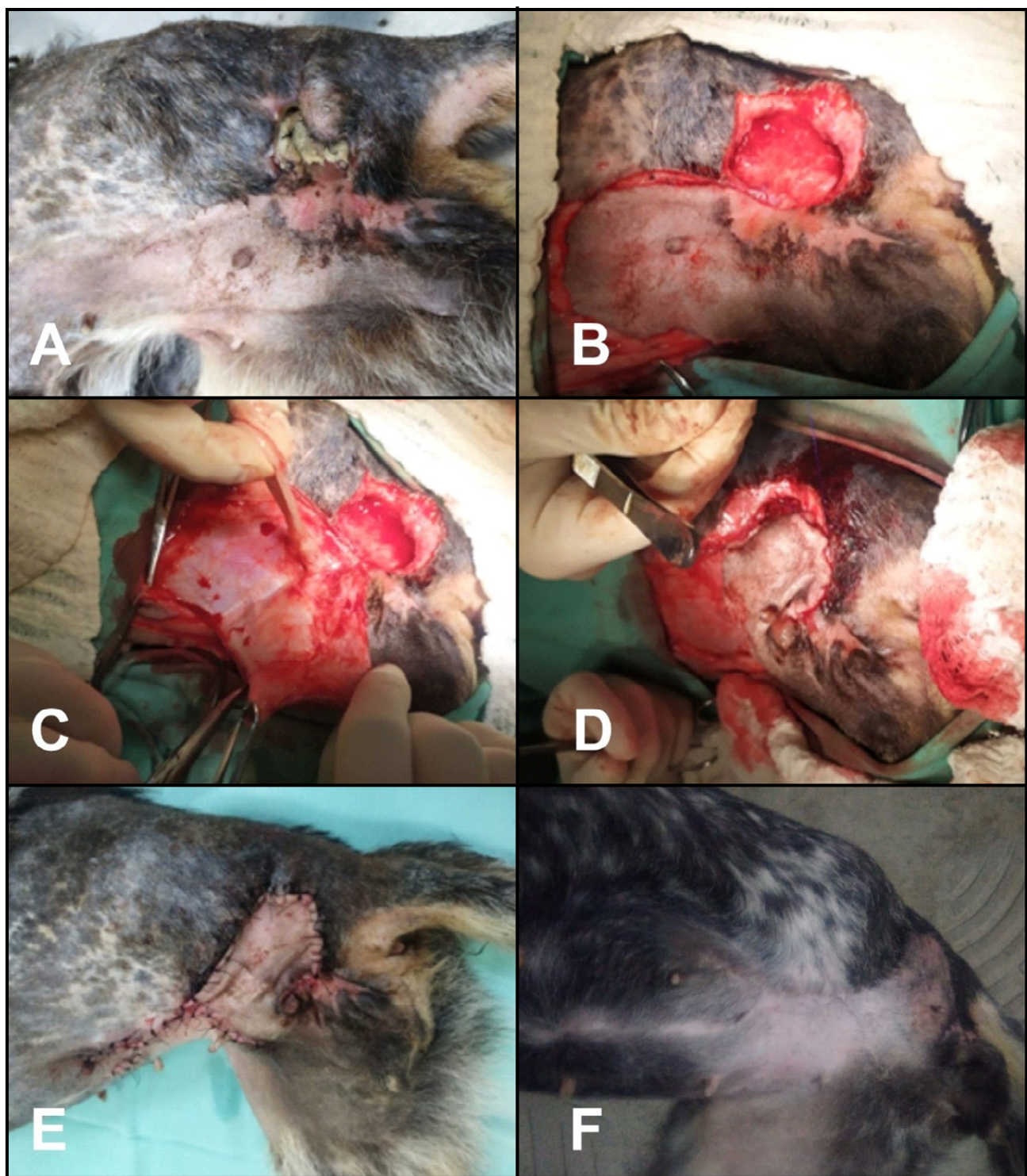


Figure 4. A- Exposure and contamination of polypropylene mesh. B- Preparation of the donor bed. C- Traction of the greater omentum through the inguinal ring. D- Rotation of the caudal mammary chain. E- Immediate postoperative period. F- 15 days after surgery.

response, easy handling, and reduced cost [3]. However, when in contact with viscera it can cause adhesion, infection, rejection, mesh deformation, seroma, and carcinogenesis [10].

Hemipelvectomy is a radical surgical procedure indicated for the management of tumors and

functional abnormalities involving the pelvis or adjacent soft tissue [4]. There are basically four surgical techniques of hemipelvectomy, total, mid-to-cranial partial, mid-to-caudal partial, and caudal partial hemipelvectomy. However, the assessment and planning are specific to each patient, and variations may occur [7].

In 31 human patients undergoing hemipelvectomy, it was observed that 61% of the patients presented complications. Infection was the most common complication, with deep infection in 29% of all patients [2].

In canine patients diagnosed with infiltrative lipoma, surgery is reported to increase life expectancy [12]. Median survival time of four patients was 940 days [4]. In another study, 13 dogs treated with cobalt radiation 60, of which 10 also underwent cytoreductive surgery, survived from 6 to 94 months [9]. The patient in the current report survived for 21 months after the postoperative period, which is in agreement with the aforementioned research.

A case of atypical infiltrative lipoma and consequent joint destruction was highlighted in this work. However, partial hemipelvectomy was effective in the treatment, curing the alteration, despite contamination of the mesh which led to the need for surgical intervention.

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