Feline Fibrosarcoma: Perioperative Management

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ABSTRACT: Aggressive and complete surgical excision is the treatment of choice for fibrosarcomas in cats. Thorough preoperative planning and meticulous surgical technique are necessary for optimal cosmetic, functional, and oncologic outcome. Perioperative pain management with an emphasis on preemptive analgesia and multimodal analgesia is essential to minimize patient morbidity.

Feline fibrosarcoma (FSA) is one of the most common subcutaneous neoplasms in cats. Typically, it is a locally aggressive tumor with a moderate metastatic rate of up to 22.5% and recurrence rates as high as 67%. Aggressive surgical excision is the treatment of choice.

Techniques for surgical management of FSA have been reported in the literature, particularly in the past two decades with the emergence of vaccine-associated sarcomas. Wide, complete, en bloc surgical excision combined with adjuvant chemotherapy and preoperative radiation therapy has dramatically improved median disease-free intervals in cats with FSA. Despite the advances in improving long-term postsurgical outcome, there has been little discussion of the effects of various aspects of perioperative support on early postoperative outcome in cats undergoing extensive reconstructive surgeries. This article presents and discusses current techniques in the perioperative management of feline FSA.

PREOPERATIVE CONSIDERATIONS

Patient Assessment

A complete physical examination, complete blood count, serum chemistry panel, and urinalysis are completed before extensive reconstructive surgery. Some cats receiving preoperative radiation therapy may be anemic, which does not delay surgery but may necessitate planning for a transfusion. Cats often lose weight due to the stress of preoperative adjunctive therapy or the presence of the tumor. Occasionally, a feeding tube has already been placed to treat cachexia associated with radiation therapy. In all cases, plans for the provision of adequate nutrition after surgery are discussed with the owner and

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time limits are established for the placement of a feeding tube if the cat does not eat.10

The surgical site should be examined with great care. The extent of gross tumor and any change in tumor appearance or extent since the previous examination should be noted. If the tumor has changed, reimaging of the mass before surgery may be indicated. The extent of surgical resection required should be carefully marked out on the cat by using a permanent marker while the cat is conscious and sedated or anesthetized. Particular attention should be paid to the normal anatomic relationship between structures because this can be readily altered in cats by positioning. Cat skin is very mobile, and when the patient is anesthetized, the muscular tone in the cutaneous trunci is absent, potentially creating an inaccurate representation of which soft tissues overlie the mass and should be resected. Repeated evaluation allows optimal decision making regarding the extent of resection required.

Imaging

Because the pulmonary parenchyma is the most common site of FSA metastasis, three-view thoracic radiographs should be obtained before surgery or preoperative radiation therapy.1,4,7,8 Metastatic disease significantly reduces survival, and surgery is generally not recommended if metastasis is present.5 However, surgery may be indicated in a patient with metastatic disease to palliate pain from or infection of the primary mass if it is significantly compromising the patient’s quality of life. In these cases, the intent is to improve quality of life while accepting a truncated survival time.

Contrast-enhanced computed tomography (CT) may provide additional information for surgical planning. CT is especially useful in helping characterize tumor size and investigating the possibility of bony invasion (Figure 1). A CT image may also be needed for preoperative radiation planning. Magnetic resonance imaging (MRI) may aid in further characterization of FSAs. MRI is especially useful for investigating the soft tissues surrounding the tumor. It is used frequently in human medicine for preoperative planning and margin evaluation of some tumors.11,12 In a canine study comparing radiologic assessment of margins of appendicular osteosarcoma with histologic findings, MRI was more accurate than CT and orthogonal radiographs in estimating tumor margins.13 To our knowledge, a similar study has not been done in cats with FSA. However, cost and availability may limit the usefulness of MRI.

**SURGICAL CONSIDERATIONS**

Presurgical Planning

Aggressive and complete surgical excision is the treatment of choice for cats with FSA.3,6-8 Complete excision has been shown to improve survival and decrease the tumor recurrence rate.6-8 If the tumor is large or invading vital structures, surgical excision can be challenging. Before anesthesia, the desired surgical margins should be decided, and it should be determined whether the tumor can be resected while adhering to these margins. We recommend drawing an outline of the required resection on the animal during the assessment process. This also allows owners to be fully aware of the extent of resection. Physical manipulation of the mass and...