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Case Report

Treatment of giant benign fibrous histiocytoma of the forelimb in a Husky cross breed dog

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ABSTRACT

Presented case was an eight-year-old, male husky cross dog. According to the owner's history, several months earlier, a drug had been injected into the left forelimb, after which localized swelling developed and progressed to an open wound. Although the wound was treated conservatively for an extended period, the swelling continued to enlarge. Clinical examination revealed a large-volume mass with a firm to slightly compressible consistency encompassing the entire left forelimb. Following medical therapy to control the underlying tissue infection, the entire mass was surgically excised. The resulting defect was closed using the remaining healthy skin. The dog achieved full recovery within 10 days postoperatively. Histopathological examination of the excised tissue confirmed a diagnosis of benign fibrous histiocytoma (BFH). BFH is a benign neoplasm composed of a mixture of fibroblastic and histiocytic cells. It most commonly occurs in the dermis but can also be found sporadically in soft tissues and parenchymal organs. In this case, a large, infected soft tissue tumor was successfully removed, and the wound healed without complications. To our knowledge, no prior reports have described a benign fibrous histiocytoma of such volume, with concurrent secondary infection and open wound formation, affecting an elderly dog's limb. Therefore, this case is considered to contribute novel information to existing veterinary literature.

Keywords: Benign fibrous histiocytoma, Husky cross, Soft tissue, Tumor, Wound

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Benign tumors of fibrous origin include nodular fasciitis, neurofibroma, schwannoma, fibrous histiocytoma and fibromatosis (9). Fibrous histiocytoma should be differentiated from other benign, low- and intermediate-grade spindle neoplasms such as nodular fasciitis, dermatofibrosarcoma, protuberans low-grade fibrosarcoma, spindle cell malignant melanoma and monophasic synovial sarcoma. Nodular fasciitis can be difficult to distinguish from BFH. However, smears may show the presence of round, polygonal, triangular and ganglioid cells, especially in the proliferative variant of fasciitis (8).

Fibrous histiocytoma (FH) is a benign tumor composed of a mixture of fibroblastic and histiocytic cells. This tumor occurs mostly in the dermis but is also sporadically found in soft tissue and parenchymal organs. While benign FH usually occurs in sun-exposed skin and orbital tissues, the occurrence of this lesion in the deep soft tissues of the head and neck has rarely been reported. The term cutaneous FH is often used to refer to all superficial tumors of the skin, regardless of appearance. Similar lesions involving subcutis or deep structures are simply referred to as FH. These neoplasms should be distinguished from malignant fibrous histiocytoma (MFH), which has a highly aggressive malignant course (14).

Benign FH is usually affecting the extremities and is predominantly encountered in women, it is usually encountered in early and middle adulthood. The lesion usually presents as slow-growing, pink or tan/brown to black, firm, dermal papules (5,7).

MFHs have been reported in small animals and are commonly seen in the subcutis of the trunk or hind limbs in both dogs and cats but are thought to be more common

in the spleen in the dog. MFH cases have also been reported in large animals such as horses, mules and pigs (3,12,13,15).

Depending on the location, FH is usually divided into cutaneous and deep tissue involvement types. These lesions usually occur in the skin, but very rarely in deep soft tissues. This tumor has been associated with previous trauma, sun exposure and chronic infection and is thought to represent a reactive proliferation of benign cells. Few cases of this tumor have been reported in bone compared to those in soft tissues (1, 14).

This case report describes the successful removal of a benign fibrous histiocytoma with a large, open infective wound on the forelimb, which has not been reported in the literature.

The presented case involved an 8-year-old male Husky crossbreed dog. According to the owners, a drug had been administered to the dog's left forelimb a few months prior, after which swelling developed in the area. Over time, the swelling progressed and eventually turned into an open wound. Although no precise information could be obtained from the owner regarding the content of the previous treatments, no clinical improvement was observed despite a prolonged treatment course. Consequently, the patient was brought to our hospital for further evaluation and care.

In the physical examination, the patient's mucosa was found to be normal, capillary refill time (CRT) was 1 s and lymph nodes were of normal size. On palpation, the mass had a solid-flexible texture covering the left forelimb (Figure 1). Mediolateral (ML) and anteroposterior (AP) radiographs revealed a soft tissue structure extending from the distal humerus to the distal antebrachium, without evidence of bone disruption (Figure 2). Due to elevated white blood cell (WBC) levels observed in the hemogram, the affected area was treated with wet-to-dry dressings using Rivanol powder (Ethacridine lactate monohydrate,1 g, local, Galenik, Türkiye) and antibiotic therapy was initiated. Follow-up tests performed one week later revealed no contraindications for surgery, and the patient was subsequently prepared for mass excision.

Xylazinbio 2% (Xylazine, 1 mg/kg, IM, İntermed Pharmaceutical, Türkiye) was administered intramuscularly for premedication and Keta-Control (Ketamine, 10 mg/kg, IM, Doğa Veterinary Services-Drug Production, Türkiye) for induction of anaesthesia. After the patient was intubated, maintenance was provided with Isoflurane USP (Isoflurane, Adeka Fharmaceuticals Industry and Trade Inc., Türkiye) in 100% oxygen.

The patient was positioned in right lateral recumbency. After performing aseptic and antiseptic preparation of the left forelimb, sterile drapes were applied, and a tourniquet was placed just above the elbow to control bleeding during surgery.

An incision was made proximally over the lesion. The mass was meticulously excised by blunt and sharp dissection from the adjacent dermal and subcutaneous tissues. Hemorrhagic vessels were identified and ligated. Devitalized or necrotic skin margins were debrided. The mass, which extended over a broad area and exhibited focal ulceration, was completely excised. The defect was closed primarily using the remaining viable skin. (Figure 3).

Figure 1. (A) Posterior and (B) anterior views of the mass.

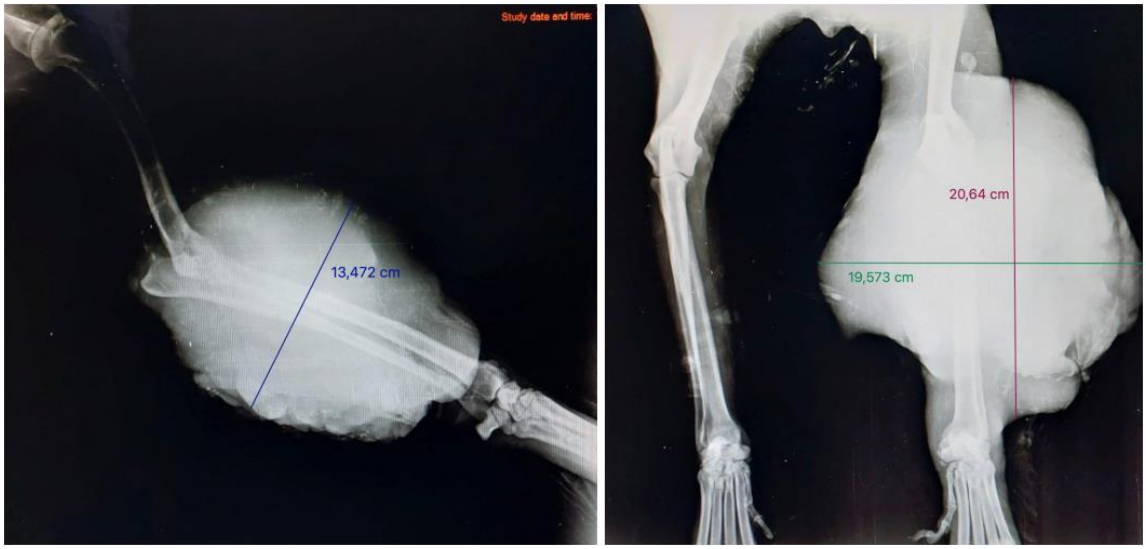

Figure 2. X-ray image of the left forelimb in (A) ML and (B) AP position. Measurements made on X-ray images of the mass. Depth: 13.472 cm, length: 20.64 cm and width: 19.573 cm.

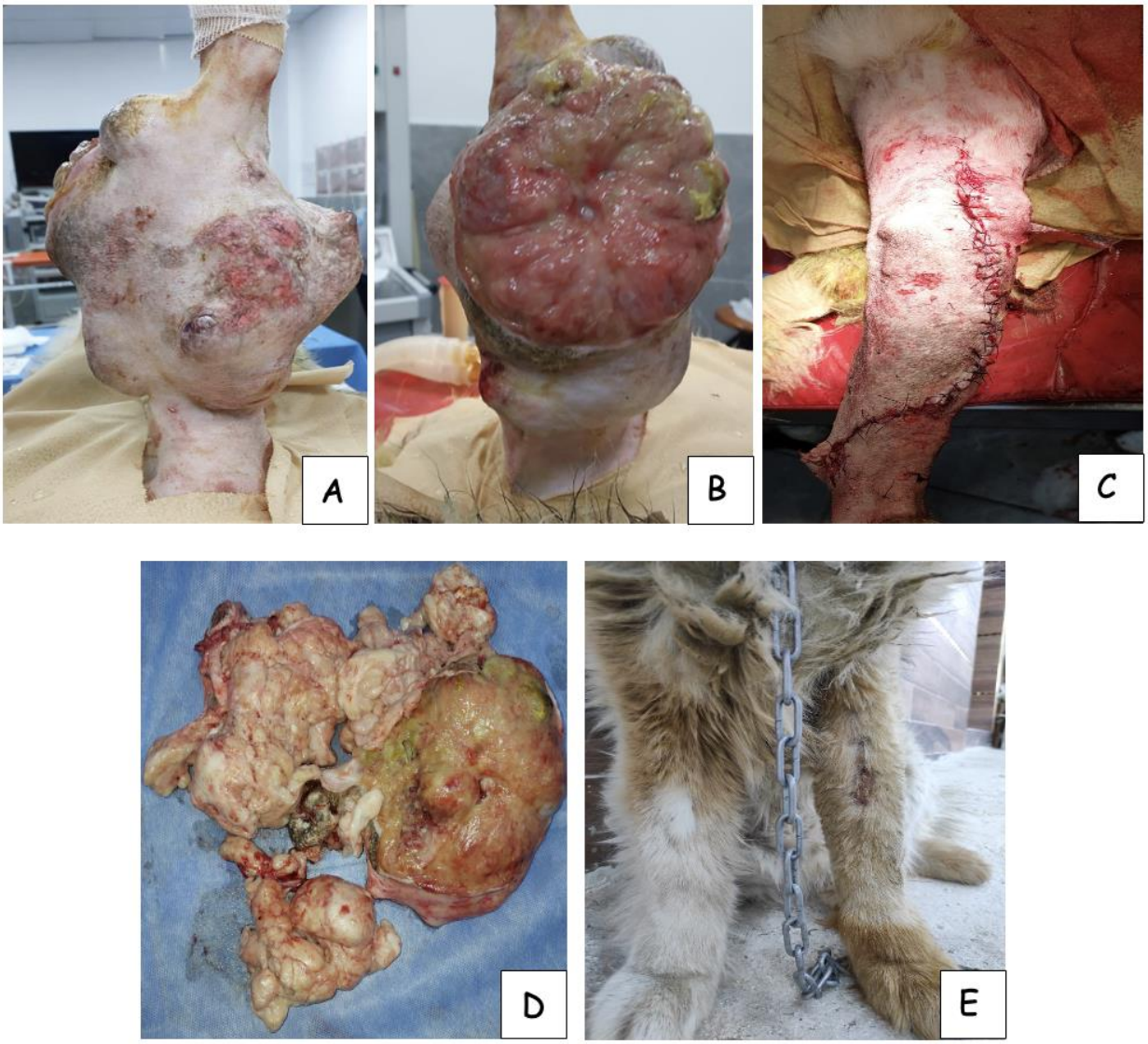

Figure 3. (A) Anterior and (B) posterior view of the operation site. (C) Postoperative view of the forelimb. (D) The removed mass. (E) Postoperative image of the forelimb 1.5 months postoperatively.

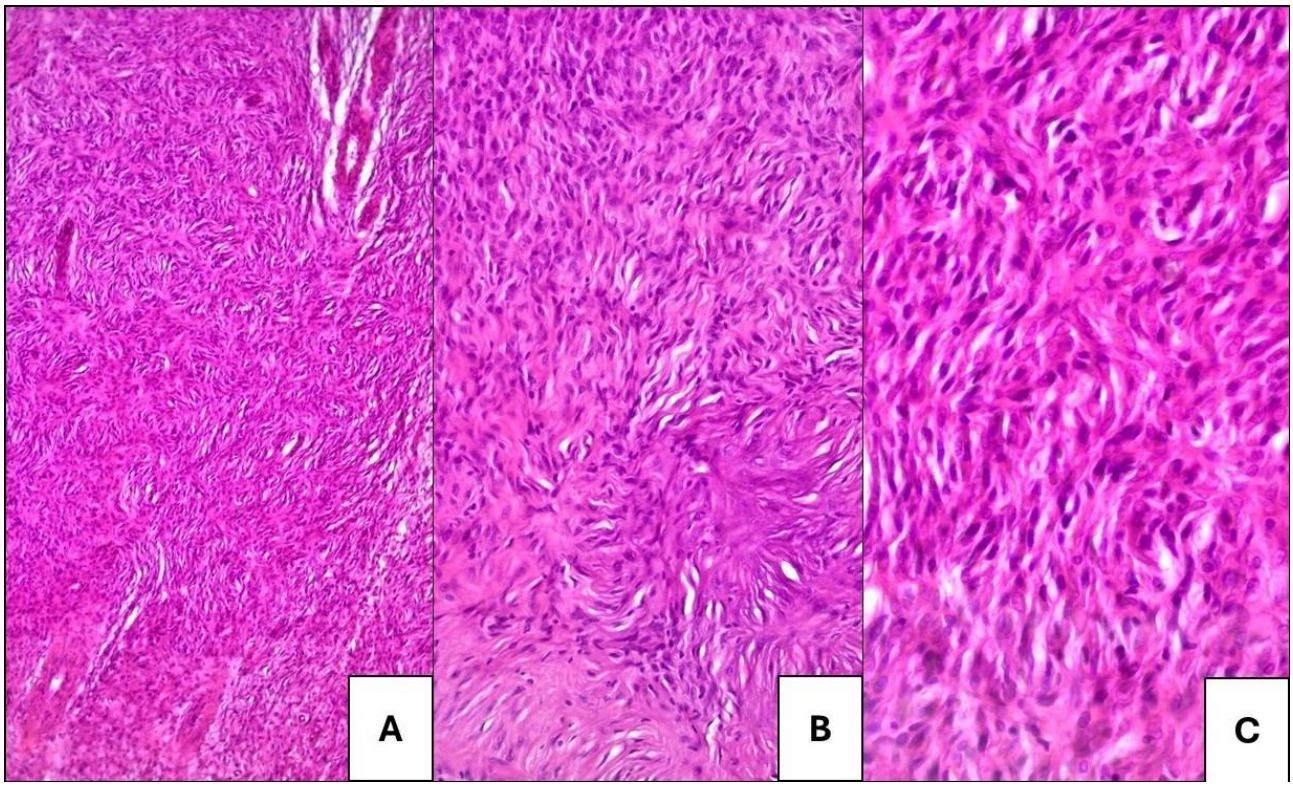

Figure 4. Tumor. (A) Fibrous tissue forming bands and anaphores, H.E.x100. (B) Fibrous tissue and histiocytic proliferation, H.E.x200. (C) Tumor islets with a predominance of histiocytic cells, H.E.x400.

Prescribed to administer Iespor (Cefazolin, 15 mg/kg, IM, İ.E. Ulagay, Türkiye) 2 times a day for 7 days, Bavet Meloxicam (Meloxicam, 0,2 mg/kg, SC, Bavet, Türkiye) 1 time a day for 3 days and Famodin 40 mg (Famotidine, 1 mg/kg, PO, Sandoz, Turkey) 2 times a day for 3 days. Additionally, povidone-iodine (Betadine) was applied regularly to the incision site. The dog exhibited complete recovery within 10 days postoperatively.

The excised mass was submitted for histopathological evaluation. Microscopic examination revealed a neoplasm composed of spindle-shaped fibroblasts and clusters of histiocytic cells with large, round nuclei arranged in interlacing bundles and a storiform or densely packed pattern. No evidence of pleomorphism, nuclear or cellular atypia, or mitotic activity was observed (Figure 4). The lesion was diagnosed as a benign fibrous histiocytoma. Follow-up was recommended to monitor for potential local recurrence. Given the benign nature of the tumor, no further medical treatment was administered. Throughout the 1-year postoperative follow-up period, the owners reported no signs of recurrence.

Benign fibrous histiocytoma (BFH) is a rare cutaneous disorder in dogs, with no recognized sex predilection. The most commonly affected breeds include the Collie and Golden Retriever, and it typically presents in dogs between 2 and 4 years of age. Although BFH can develop in various anatomical locations, including visceral organs, the skeletal system, and paranasal sinuses, the majority of lesions are reported on sun-exposed areas, particularly the skin of the extremities. When BFH involves the dermis, the resulting lesions are referred to as dermatofibromas (2, 6, 11). The case presented here involved an 8-year-old Husky crossbreed dog diagnosed with BFH affecting the forelimb.

Benign fibrous histiocytoma (BFH) typically presents as a painless, ulcerative mass. Cutaneous BFH generally manifests as solitary or multiple nodules and is most frequently located on the face, limbs, and scrotum. Lesions are usually firm, well-demarcated, dermally localized, and range from 0.5 to 7 cm in diameter. The overlying skin may appear normal or exhibit alopecia (4, 10). In the present case, the patient exhibited disrupted skin integrity and open, infected wounds over the mass. Although there was no observed lameness, intermittent difficulty in limb use was noted, likely due to the considerable size of the mass. Radiographic measurements indicated dimensions of 13.472 cm in depth, 20.640 cm in length, and 19.573 cm in width, which significantly exceed the sizes reported in existing literature (Figure 2).

Due to its nonspecific clinical appearance, benign fibrous histiocytoma (BFH) cannot be definitively diagnosed through physical examination alone or reliably

differentiated from other cutaneous or subcutaneous nodular lesions. Histopathological evaluation is essential and remains the only definitive method to confirm the benign nature of the lesion (11, 17). In this case, radiographic imaging demonstrated that the mass did not involve or compromise the underlying bone structures. In this case, a definitive diagnosis of BFH was established following histological analysis of the surgically excised mass. One of the limitations of the present case report is that no study was conducted to identify more specific markers for the diagnosis of BFH; however, this does not invalidate the diagnosis.

Complete surgical excision is the treatment of choice for benign fibrous histiocytoma (BFH) (4, 6). Excision of cutaneous tumors should be performed under strict aseptic conditions using sterile surgical instruments. Key surgical principles include gentle tissue handling, minimizing dead space and tension at the incision site, and preserving adequate blood supply (16). In this case, following systemic infection control, wound debridement, and efforts to restore skin integrity, complete excision of the mass was successfully achieved. The defect was closed using the remaining healthy skin and soft tissues. Throughout the 1-year postoperative follow-up period, no evidence of recurrence was observed.

In this case, a soft tissue tumor that had progressed to an open, infected wound was successfully excised, and the affected tissue healed without complications. Benign fibrous histiocytoma remains poorly documented in veterinary literature. To the best of our knowledge, this is the first reported case of such a large-volume benign fibrous histiocytoma affecting the forelimb of an older Husky crossbreed, presenting with secondary infection and ulceration.

It was considered that presenting the diagnostic and therapeutic approach to this exceptionally large benign fibrous histiocytoma -a rare and often underreported tumor in routine veterinary practice- would provide valuable clinical insight and contribute meaningfully to the existing veterinary literature.

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Ethical Statement

This study is not subject to the permission of HADYEK in accordance with the “Regulation on Working Procedures and Principles of Animal Experiments Ethics Committees” 8 (k). The data, information and documents presented in this article were obtained within the framework of academic and ethical rules.

Conflict of Interest

The authors declared that there is no conflict of interest.

Author Contributions

Concept: ZBÜ, ESA, Design: ZBÜ, ESA, data collection or processing: ZBÜ, ESA, analysis: ZBÜ, ESA, SSB, literature search: ZBÜ, ESA, SSB, writing: ZBÜ, ESA, SSB. All authors provided significant contributions by giving feedback and help shape the manuscript.

Data Availability Statement

The data supporting this study's findings are available from the corresponding author upon reasonable request.

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