Injection Site Sarcoma in a Dog

Injection site sarcomas are common in cats but not in dogs. This case report describes a fibrosarcoma with features of an injection site sarcoma at the site of a microchip implant in a dog. A 9-year-old French bulldog presented with a subcutaneous 3- x 3-cm mass on the dorsal midline of the neck, just cranial to the shoulders. Fine-needle aspiration showed a single population of large spindle cells in swirling bundles. The cytologic diagnosis was fibrosarcoma. The mass was surgically excised along with the microchip, which was detected attached to the mass. Histologically, the mass was confirmed as a high-grade infiltrative fibrosarcoma with multifocal necrosis and peripheral lymphoid aggregates. Further investigational studies were recommended because certain features of the tumor were remarkably similar to feline postinjection site sarcoma. Immunohistochemical stains for vimentin, smooth muscle actin (SMA), CD3, CD79α, and CD18 were performed. All neoplastic cells were positive for vimentin and cells within the periphery were positive for SMA, suggesting a myofibroblastic phenotype. There was positive staining in the lymphoid cells for CD18 and CD3. A final diagnosis of fibrosarcoma that was morphologically similar to feline postinjection sarcomas was made.

Injection sites in cats (vaccinations most commonly) have been associated with localized inflammation and granuloma formation. Since 1991, epidemiologic evidence has shown that the incidence of sarcomas in the skin of cats at injection sites is increasing and that these sarcomas are frequently associated with inflammation similar to what is usually seen with vaccine reactions. These sarcomas are typically surrounded by, and infiltrated with, lymphocytes and macrophages. The phenomenon of sarcoma formation at injection sites appeared to be unique to cats; however, there is now evidence that these postinjection sarcomas have been observed in dogs and ferrets. Neoplastic growth at the site of a microchip implant in another dog and laboratory rodents has also been described. In this case, the authors were unable to establish the primary cause of the neoplastic growth because the dog had received several rabies vaccines in that area and because the microchip was detected close to, but not within, the mass.

COMMENTARY: This case study identifies further evidence that there are distinct similarities between canine fibrosarcomas from presumed injection sites and feline vaccine–associated fibrosarcomas, suggesting the possibility of development of postinjection sarcomas in dogs. As veterinarians, it is our responsibility to report any adverse reactions to vaccination, microchips, or other injections. Each additional information report will enhance our knowledge of possible tumorigenesis.—*Valerie MacDonald Dickinson, DVM, Diplomate ACVIM (Oncology)*

Case report: Fibrosarcoma with typical features of postinjection sarcoma at site of microchip implant in a dog: Histologic and immunohistochemical study. Vascellari M, Melchiotti E, Mutinelli F. ***VET PATHOL*** 43:545-548, 2006.