Clinical Commentary

Lipoma and infiltrative lipoma: A diagnostic dilemma

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The case report of an external infiltrating lipoma in a 2-week-old foal and its assessment using Computed tomography (CT) (Rebsamen et al. 2010) illustrates the growing use of advanced diagnostic modalities as well as a rare tumour type in horses compared to small animals. Lipoma and infiltrative lipomas are masses that are locally invasive and generally nonpainful. The difference between the 2 tumour types is that infiltrative lipomas can involve muscle, bone and even vessels and nerves (McChesney et al. 1980). Lipomas are characterised by well differentiated adipocytes clearly defined from the surrounding tissue. Although infiltrative lipomas are most commonly diagnosed in man and dogs (McChesney et al. 1980) and occasionally in cats, it has been previously reported in horses (Lepage et al. 1993) and calves (Di et al. 2002; Sickinger et al. 2009). More commonly, mesenteric lipomas are described in older horses (Edwards and Proudman 1994), generally causing strangulating small or large intestinal lesions (Edwards and Proudman 1994). Unlike mesenteric lipomas, cutaneous lipomas are more commonly seen in horses less than 2 years of age (Bristol and Fubini 1984). Lipomas are locally extensive and generally easily resectable with a minimal chance of recurrence (<2%) (McEntee and Thrall 2001), whereas infiltrative lipomas have a local recurrence rate up to 50% in dogs (McChesney et al. 1980). The average time to recurrence is approximately 8 months (Bergman et al. 1994) and this increases to a mean of 46.4 months when combined with radiation therapy in dogs (McEntee et al. 1980). If the sample is taken at the time of surgery, then clean margins were not obtained and an increased risk of recurrence is considered high. For this reason, preoperative differentiation between lipomas and infiltrative lipomas is needed, due to the difference in prognosis and chance of recurrence (McChesney et al. 1980; Bristol and Fubini 1984; Bergman et al. 1994; Thomson et al. 1999; McEntee et al. 2000).

Diagnostically, differentiation between infiltrative lipomas and noninfiltrative lipomas is difficult. Histopathology is considered the gold standard; however, the tumour type will determine the margin needed during surgical resection. Ultrasound has been used to identify cutaneous lipomas in dogs (Volta et al. 2006) and was used to aid in the diagnosis in one horse (Lepage et al. 1993). Computed tomography has been described to separate lipomas from infiltrative lipomas in dogs (McEntee and Thrall 2001) (Fig 1) and now horses (Rebsamen et al. 2010). Using CT, the interdigitation of the fat attenuation of the mass compared to the soft tissue attenuation of muscle and the extension of the lesion through fascial planes are strong indicators of an infiltrative lipoma (McEntee and Thrall 2001). The use of contrast medium enhancement was not seen to aid in tumour differentiation but did help to identify scar tissue from previous attempts at surgical resection (McEntee and Thrall 2001). However, contrast medium administration may also cause enhancement of the muscles to help provide more contrast with the low attenuating fat to allow for clearer identification of the presence of infiltration by the mass (Fig 2). Ultrasound has described an infiltrative lipoma in a Quarter Horse as being hypoechoic with an ill-defined margin (Lepage et al. 1993). This appearance is contrary to the ultrasound appearance of a lipoma as a well encapsulated mass with a hyperechoic margin and is hypoechoic compared to the surrounding fat (Volta et al. 2006). Since ultrasound is readily available to the equine practitioner and does not require general anaesthesia, further investigation of this modality compared to CT should be explored.

At present, due to the lack of superimposition and superior contrast resolution of computed tomography compared to radiographs, CT is considered the modality of choice to help with preoperative planning of a lesion diagnosed as a lipoma on cytology or histopathology in horses. Computed tomography provides the ability to see the fat attenuating mass as well as the interdigitation of the invaded muscle indicating that the lipoma has infiltrated the surrounding tissues and a wider surgical margin is required. In addition, CT can provide information with
3-dimensional reconstructions and can exquisitely show bone landmarks to help the surgeon plan surgical margins. Although recurrence has not been described in horses (Bristol and Fubini 1984; Lepage et al. 1993; Rebsamen et al. 2010), this is likely due to the low numbers of cases in the literature, the large area that is able to be resected on horses or perhaps the fact that the tumour has different characteristics of malignancy compared to what is seen in small animals.

References


