

Occurrence of infiltrative lipoma with remarkable abomasal ulcers in a lamb - a case report

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ABSTRACT

Infiltrating lipoma is an uncommon mesenchymal neoplasm that characteristically infiltrates adjacent tissues. This type of lipoma is extremely rare in the stomach. Infiltrative lipomas have been reported in dogs, cats, horses, calves and humans. The present study describes the occurrence of an infiltrating lipoma with ulceration in the abomasum of a 6-month old lamb that was exposed accidentally. To the authors' knowledge, this is the first report of an infiltrative lipoma with ulceration in the pyloric region of this species. The mass was intramural and unmovable on palpation. Histopathologic examination revealed well differentiated adipocytes in submucosal layer of abomasums. Invasion of adipocytes had occurred in tunica muscularis. An infiltrative lipoma was diagnosed based on microscopic findings.

Key words: infiltrative lipoma, sheep, abomasum, histopathology

Introduction

Gastric tumors with mesenchymal or epithelial origin have been rarely documented in domestic animals. They have been reported more in dogs and rarely in other species (HEAD et al., 2007). A lipoma is a benign tumor that arises from mesenchymal tissue. It is clearly demarcated from the normal surrounding tissues and occurs in a great variety of sites, especially subcutaneously as a solitary mass and sometimes multiple. Lipomas may occur anywhere in the gastrointestinal tract, but the incidence of gastric lipomas is rare. An infiltrative lipoma is a rare variant of lipoma characterized by sheets of well-differentiated adipocytes and it has the capacity to infiltrate muscles, facial structures, articular capsules,

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tendons, vessels, nerves, and even bones (FRAZIER et al., 1993; MORGAN et al., 2007). The occurrence of infiltrative lipomas is less than lipomas. They have been described in dogs (KIM et al., 2005), horses (BAKER and KREEGER, 1987; OLLE et al., 2002), calves (DI et al., 2002; SICKINGER et al., 2009), zebu Bull (REED and EVANS, 2010), cats (ESPLIN, 1984) and humans (SALVATORE et al., 2003; ÇALIŞANELLER et al., 2009).

No data are available on the incidence of infiltrative lipoma in lamb. The present study describes the pathological characteristics of an infiltrative lipoma in the abomasum of a lamb. It is a unique report in veterinary literature.

Case history

A 6-month-old female, mixed-breed lamb belonging to a herd was admitted to the Pathology Department, Veterinary Medicine School, Islamic Azad University, Shahrekord branch, Iran, for evaluation of postmortem lesions. In accordance to gross findings, it was concluded that significant findings in the lamb were related to flock problems and showed evidence of clostridial infection.

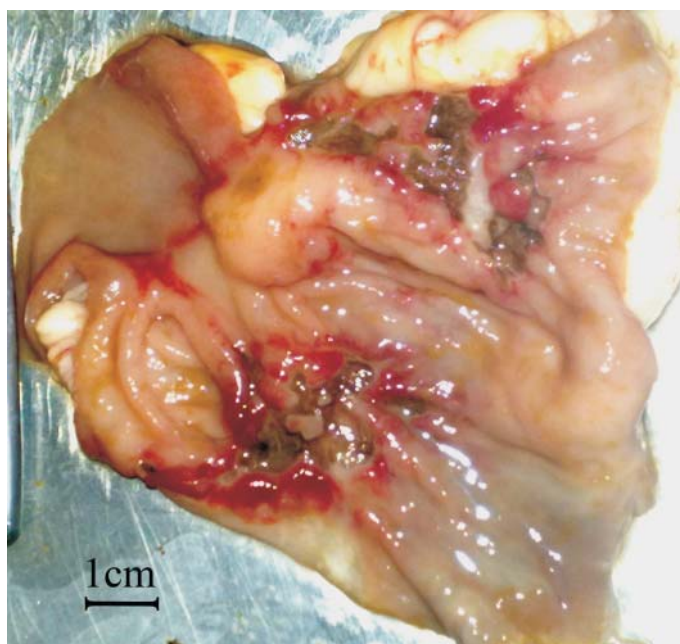


Fig. 1. Gross appearance of infiltrative lipoma in a lamb shows a protruding mass in pyloric region of abomasum with two irregular ulcers

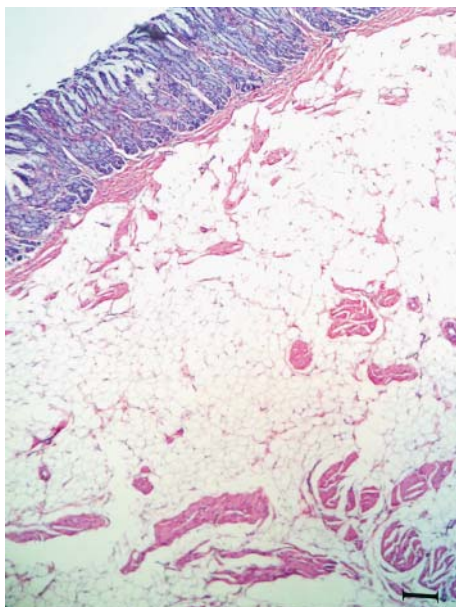


Fig. 2. Histopathologic feature of infiltrative lipoma in a lamb. The mass composed of well-differentiated adipocytes in submucosal layer of abomasum of a lamb. Bundles of smooth muscles are scattered between neoplastic cells. Scale bar = 100 μ m.

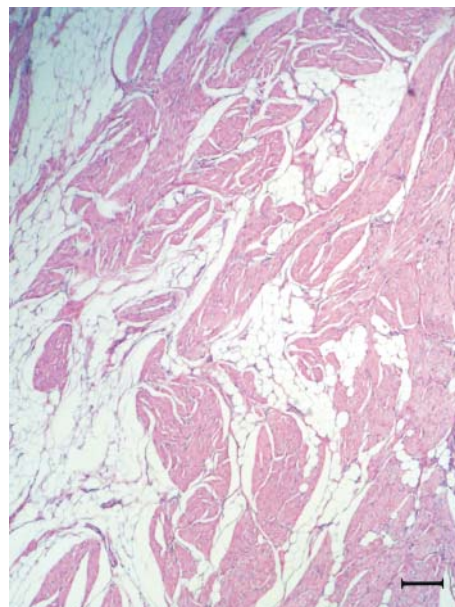


Fig. 3. Tunica muscularis of abomasum is infiltrated by well differentiated adipocytes as groups, rows or single cells. Scale bar = 100 μ m.

At necropsy, there was excessive straw-color pericardial fluid and ascitis that clotted on exposure to air. Hemorrhage was observed beneath the endocardium of the left ventricle. The small intestines were hyperemic and distended with gas. They contained dark semifluid material. The mesenteric lymph nodes were enlarged and edematous. The forestomach contained more roughage and little grain. Inspection of the abomasums revealed an intramural mass protruding into the lumen of approximately 3×2.5 cm² in size, firm in consistency with normal overlying mucosa in the pyloric region. It was not mobile on palpation. Adjacent to the mass, two extensive irregular ulcers were observed. The ulcerated areas had red, elevated nodular margins and a dried grayish color (Fig. 1). The abomasal pyloric lumen was significantly stenosed.

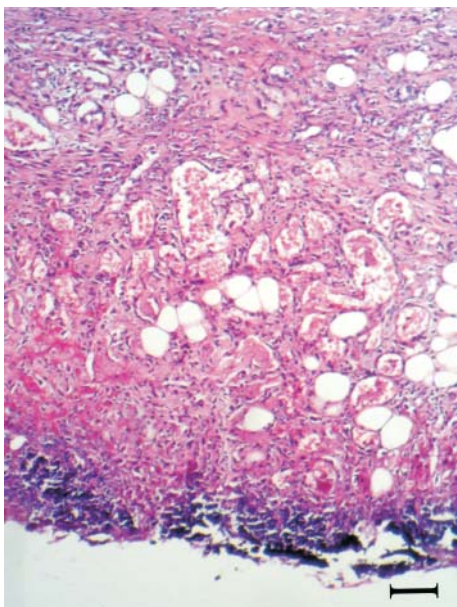


Fig. 4. Calcification on the surface and prominent vascular proliferation in the base of ulcer. Scale bar = 100 μ m.

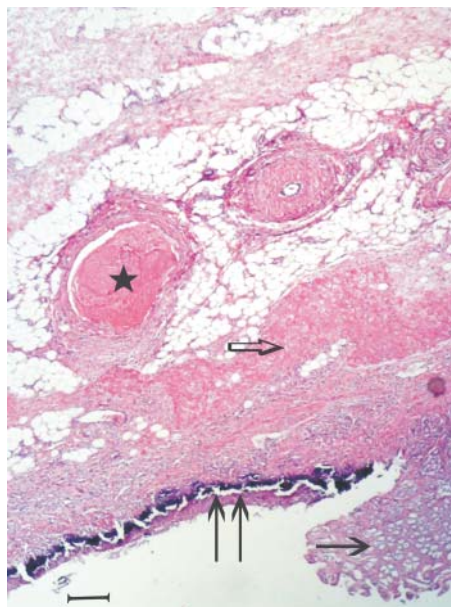


Fig. 5. The micrograph shows mucosal polypoid form in edge of ulcer (arrow), fibrin deposition (Open arrow), calcification on the surface (double arrows) and thrombus (asterisk) in deeper layers of ulcerated region. Scale bar = 100 μ m.

Histopathologically, the mass was composed of mature adipocytes that were localized in the tunica submucosa of the abomasum. The adipocytes were well differentiated and contained a single, large, cytoplasmic vacuole. There was minimal fibrous connective tissue in the stroma of the mass. Bundles of smooth muscles were scattered between neoplastic cells (Fig. 2). Mature adipose tissue also infiltrated the abomasal tunica muscularis where the tumoral adipose cells were organized between muscle fibers in different patterns, including group cells, single rows and single adipose cells (Fig. 3). Also, infiltration of fat cells was seen in the walls of blood vessels. In areas of more extensive tumor infiltration, there was evidence of muscular degeneration. Mitoses were not observed in the mature adipocytes.

Ulcerated areas and a tumoral mass were present nearby and linked together. The superficial ulcerated mucosa was covered with a layer of marked degenerated neutrophils,

cellular debris, and bacterial colonies. Foci of dystrophic calcification were present on the ulcerated surfaces. Significant vascular proliferation with dilated lumens was observed in the base of the ulcerated mucosa (Fig. 4). The surface epithelium was reactively hyperplastic and had formed polypoid structures on the edges of the ulcer. The epithelium showed branching glands in the mucosal layer. Ulceration was associated with acute and chronic inflammation and underlying granulation tissue. The granulation tissue contained multifocal hemorrhages, numerous fibroblasts and macrophages. Mature adipocytes were dispersed in the submucosal granulation tissue. Many atypical cells, with enlarged, vesicular nuclei and scant cytoplasm were within the areas of granulation tissue. These cells were macrophages where small clear vacuoles had occupied their cytoplasm. Some thrombi were observed in vessels. There was a large amount of fibrin deposited in different parts of the submucosal layer (Fig. 5). Foci of necrosis and neutrophil aggregation were present in the deeper layers.

Histopathologic findings confirmed the benign nature of the lesion. The final diagnosis was an infiltrative lipoma associated with abomasal ulceration.

Discussion

Lipomas are benign soft tissue mesenchymal tumor that have been subclassified according to their histopathologic features and growth patterns into simple lipoma (solitary or multiple), fibrolipoma, angioliipoma, infiltrating lipoma, intramuscular lipoma, hibernoma, pleomorphic lipoma, lipoblastomatosis, and diffuse lipoblastomatosis (SALVATORE et al., 2003). Lipoma may arise from different tissues in human and animals species. They are found incidentally when an examination is done for another reason (TAYLOR et al., 1990). Infiltrative lipoma is an uncommon tumor and its occurrence is less common than simple lipoma. It is a neoplastic process of well-differentiated adipocytes similar to lipoma but is locally invasive. The incidence of the tumor and its biological significance is unknown. Most gastric lipomas are usually single and submucosal (95%) in position (TURKINGTON, 1965; TAYLOR et al., 1990; TRESKA et al., 1998). In domestic animals, infiltrative lipomas have been reported on the face, skin, stifle joint, heart and bone (HARTIGAN and FLYNN, 1973; BAKER and KREEGER, 1987; FRAZIER et al., 1993; SALVATORE et al., 2003; KIM et al., 2005, REED and EVANS, 2010), but there has been no report of this tumor in stomach before.

The case presented here described the occurrence of an infiltrative lipoma as well as ulceration in the abomasum. It was incidentally exposed at postmortem inspection in a lamb with 6 month-old. Body condition and symptoms were not diagnostic for infiltrative lipoma. Macroscopic findings revealed a nodular lesion protruding into the lumen. Histopathologically, it composed of mature adipocytes that did not have a clear margin. Adipocytes were infiltrated between the muscle fibers of the abomasum. Diagnosis of

infiltrative lipoma was based upon the microscopic features. In sheep, neoplasms of abomasum are very rare because of young age at slaughter. This organ is a site more for secondary neoplasm such as lymphosarcoma. Similar pathologic characteristics has been documented in previous reports in human (SALVATORE et al., 2003; ÇALIŞANELLER et al., 2009) and other animal species (BAKER and KREEGER, 1987; DI et al., 2002; SICKINGER et al., 2009).

In this report, a congenital origin of the lesion has been suggested due to the young age of the affected animal. Congenital tumors are uncommon in animals. Only few reports are available on congenital tumors arising from lipocytes. DI et al. (2002) reported congenital infiltrative lipoma in a 5 month-old calf. The mass was seen on the face at birth. Also, congenital form of this tumor was observed on the neck region of a 4 week-old Angus-Charolais calf (SICKINGER et al., 2009).

Most lipomatous lesions don't present any particular diagnostic clinical problems. In humans, on rare occasions, they may cause surgical emergencies such as obstruction with ulceration and bleeding, perforation, intussusception, prolapse and, very rarely, massive haemorrhage (JOHNSON et al., 1981; TAYLOR et al., 1990; TRESKA et al., 1998). In this study, abomasal infiltrative lipoma was associated with ulceration in a lamb. Gastric lipoma with gastric ulcer was reported in humans (EUGENE and CORNETT, 1957; TRESKA, 1998). CHU and CLIFTON (1983) described that gastric lipoma frequently mimics peptic ulcer disease in its clinical presentation and its complications. The etiology of infiltrative lipoma is unclear. Radiography and ultrasonography are unable to indicate the invasion nature of the tumor (GRITZMANN et al., 1988). The definitive diagnosis of infiltrative lipoma can only be made followed by a histological evaluation (McENTEE and THRALL, 2001). Therefore, microscopic evaluation remains as the gold standard for precise diagnosis.

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SAŽETAK

Infiltrativni lipom rijetka je mezenhimska novotvorina osebujna po infiltraciji priliježećeg tkiva. Taj je tip lipoma iznimno rijedak u želucu. Opisan je u psa, mačke, konja, teleta i čovjeka. U ovom prikazu opisana je pojava slučajno otkrivenoga infiltrativnoga lipoma s ulceracijom u sirištu šestomjesečnoga janjeta. Po spoznajama autora to je prvo izvješće o pojavi infiltrativnog lipoma u ovaca s ulceracijom u piloričnom području. Tumorska masa bila je smještena u stijenci sirišta i nepokretna na palpaciju. Patohistološki uočeni su dobro izdiferencirani adipociti u submukoznom dijelu sirišta. Adipociti su se proširili na mišićnicu (tunica muscularis). Lipom je bio dijagnosticiran na osnovi mikroskopske pretrage.

Ključne riječi: infiltrativni lipom, ovca, sirište, patohistologija
