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A case report on pathomorphological study of intra-abdominal lipoma in an adult bull

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Abstract

The present study describes the pathomorphological observations of lipoma in an adult bull. A carcass of an adult bull was presented to the Department of Veterinary Pathology, College of Veterinary Sciences of the Lala Lajpat Rai University of Veterinary and Animal Sciences (LUVAS), Hisar for necropsy. Animal was not showing any signs of illness before death. Grossly, the tracheal mucosa appeared severely congested and haemorrhagic. Lungs showed diffuse congestion and haemorrhages. Petechial to ecchymotic haemorrhages were present on the pericardium and spleen. On gross examination, coarsely lobulated yellow coloured tumorous mass of soft consistency was found diffused in omentum, mesentery and around the kidneys. Cut surface of neoplastic mass was yellow and oily in nature. Histopathologically, tumorous mass revealed large mature adipocytes with eccentric nucleus, separated by the fibrous connective tissue septa. At some places fatty cysts along with congestion, haemorrhages and inflammatory cells were also evident. Microscopic examination of heart revealed numerous sarcocysts along with myocardial congestion and haemorrhages in the pericardium. Spleen showed capsular thickening accompanied with haemorrhages and lymphocytic depletion in the white pulp area. Focal interstitial nephritis, cellular swelling, congestion and haemorrhages were prominent changes in the kidney parenchyma. Lungs revealed vascular changes. In conclusion, Histopathological findings suggested the tumorous growth to be lipoma. Lipoma may not cause acute problems but as they become large, can interfere with normal body functions.

Keywords: Adipocytes, lipoma, mesentery, nephritis, omentum

Introduction

Lipocytic tumors are typically observed in adult to elderly domestic animals, with congenital forms being rarely reported. Lipocytic tumors are categorized into distinct subtypes, including pure lipocytic tumors such as lipomas, infiltrative lipomas, and liposarcomas, as well as mixed cell types like fibro-lipomas [1]. Lipomas are frequently occurring non-cancerous growths composed of fully mature adipocytes, typically appearing as superficial, soft tissue masses on the upper back, abdominal areas, and proximal extremities. On rare occasions, they can also be found in the deeper layers of subcutaneous tissue or within internal organs [2]. While the majority of lipomas develop in subcutaneous locations, they can also manifest within the chest, abdomen, and pelvic areas. When situated within body cavities, these lipomas can go unnoticed for an extended period of time and may reach considerable sizes before causing noticeable symptoms. Typically, the clinical manifestations of these tumors are linked to the compression or constriction of adjacent organs [3]. The aim of the present study was to report the occurrence of an uncommon case of intra-abdominal lipoma in an adult bull.

Materials and Methods

An adult bull carcass that was presented to the post-mortem hall of the Department of Veterinary Pathology, College of Veterinary Sciences of the Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar for necropsy. Animal did not show any signs of illness before death. Subsequently, routine systemic necropsy was performed. After complete post-mortem examination, different tissue samples were collected in 10% neutral buffered formalin, embedded in paraffin sectioned at 4 µm thickness using semi-automatic rotary microtome (Yorco YSI 060 semi-automatic rotary microtome). The sections were then stained with haematoxylin and eosin (H&E) stain [4]. The slides were examined under light microscope and histopathological interpretation was carried out.

Results

On external examination, the tracheal mucosa appeared severely congested and haemorrhagic. Lungs showed diffuse congestion and haemorrhages. Petechial to ecchymotic haemorrhages were present on the pericardium (Fig. 1) and spleen (Fig. 2). Yellow nodular mass, which was soft in consistency was observed in omentum (Fig. 3), as well as mesentery and around the kidneys (Fig. 4). The cut surface of the mass was oily and yellow in colour (Fig. 5). Histopathologically, tumorous mass revealed large mature adipocytes with eccentric nucleus, separated by the fibrous connective tissue septa along with mild congestion, haemorrhages and lymphocytic infiltration (Fig. 6 & 7). Heart revealed vascular changes in the pericardium along with presence of numerous sarcocysts in the myocardial layer. Spleen showed capsular thickening accompanied by haemorrhages and lymphocytic depletion in white pulp area. Interstitial nephritis characterized by cellular swelling, infiltration of lymphocytes along with congestion and haemorrhages was evident in the kidney parenchyma (Fig. 8). Microscopic examination of liver revealed inflammatory reaction in the portal areas along with sinusoidal congestion. Vascular changes were evident in the lungs. Gross and histopathological findings, are suggestive of intra-abdominal lipoma with widespread dissemination to multiple organs however, determination of the source of the neoplastic mass in this particular case is difficult.

Discussion

In the present study, a yellow mass, having distinctly lobulated and soft texture, was observed within the omentum, mesentery, and surrounding the kidneys. The cut surface of the mass exhibited an oily texture and displayed a yellow hue. Histopathologically, the tumorous mass exhibited numerous mature adipocytes with peripherally located nuclei, separated by fibrous connective tissue septa. In the spleen, there was noticeable thickening of the capsule along with hemorrhages and a reduction in lymphocytes in the white pulp region. Noteworthy alterations in the kidneys included interstitial nephritis, cellular swelling, congestion, and hemorrhages. Previously author also reported similar tumorous growth attached to mesentery and greater omentum in adult male rhesus macaque [5]. Similar findings in buffalo were previously reported [6]. Earlier authors also reported similar findings under omental lipoma [7], intra-abdominal lipoma [12] and intra-abdominal lipoma having cystic appearance [3] in dog. Earlier authors also reported similar findings of mesenteric lipoma in goat [8] and findings of pedunculated lipoma in horse [9]. Apart from animals, some authors have also previously reported omental lipoma and mesenteric lipoma, respectively, in humans [10, 11]. The veterinary literature classifies adipose tumors into three categories: simple lipomas, infiltrative lipomas, and liposarcomas [3, 12]. Lipomas can originate from various sites within body cavity. Tumors of the soft abdominal tissues such as lipoma and liposarcoma, can originate from various fat-rich areas within dogs, including the omentum, intra-peritoneal and retro-peritoneal fat, fat located within the urachal remnant, and periprostatic fat. Abdominal lipomas and liposarcomas are rare occurrences, however, lipomas often have an extended subclinical period during which they can grow to a considerable size within the body cavities before the suffering animal displays any clinical symptoms [7]. Generally, majority of the lipomas do not cause any noticeable symptoms and are

usually discovered by chance during routine abdominal ultrasound scans. In situations where animals remain asymptomatic, these growths have the potential to reach a significant size, and over time, they may only start to induce symptoms related to pressure [11]. Nevertheless, most of the mesenteric lipomas do not pose clinical issues. Although not common, there have been recorded instances of pedunculated lipomas causing intestinal strangulation in dogs. However, in horses, pedunculated lipomas are reported to result in colic, ischemia and strangulation of intestines and death in some cases [8]. Lipomas have been seldomly documented and are typically discovered incidentally during post-mortem examinations. When encountering masses within the thoracic and abdominal cavities, it is important to consider lipoma as a possible diagnosis. The clinical features of body cavity lipomas are linked to the pressure they exert on adjacent tissues/organs, which can potentially disrupt their regular function.



Fig 1: Petechial to ecchymotic hemorrhages (arrowheads) present over the pericardium

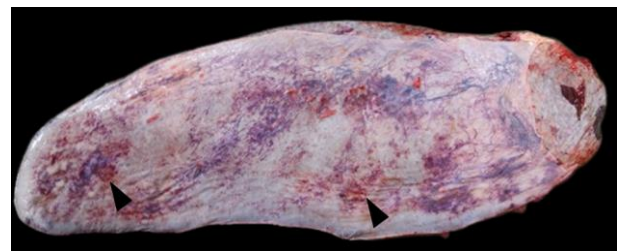


Fig 2: Petechial to ecchymotic hemorrhages (arrowheads) present over spleen parenchyma.



Fig 3: Large neoplastic nodular masses (arrowheads) present in the omentum

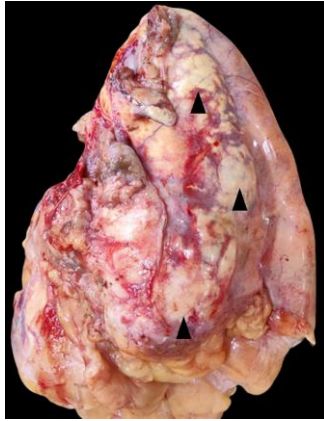


Fig 4: Lobulated neoplastic growths present around kidney



Fig 5: Cut surface showing yellow color and oily consistency of tumorous mass.

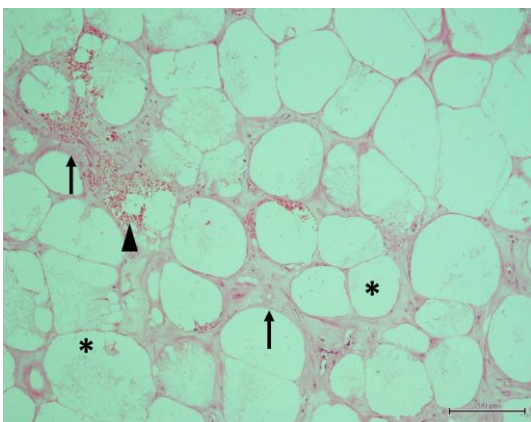


Fig 6: Photomicrograph of neoplastic mass showing variable sized mature adipocytes (asterisks), separated by fibrous connective tissue septa (arrows) and hemorrhages (arrowhead). H&E ×100

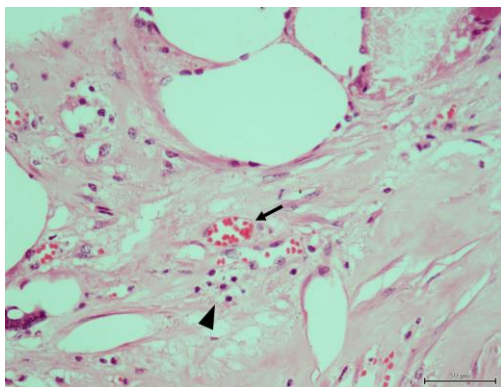


Fig 7: Photomicrograph of neoplastic mass showing infiltration of few lymphocytes (arrowhead) in the stroma along with vascular changes (arrow). H&E ×400

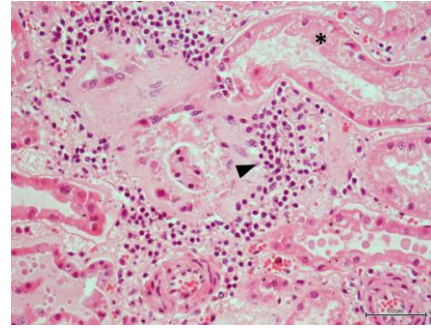


Fig 8: Section of kidney showing interstitial nephritis characterized by lymphocytic infiltration (arrowhead) along with cellular swelling of tubular epithelium (asterisk) and vascular changes. H&E ×400

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