Scholars Academic Journal of Biosciences (SAJB) **ISSN 2321-6883 (Online)**
Sch. Acad. J. Biosci., 2016; 4(5):425-428 **ISSN 2347-9515 (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI : 10.36347/sajb.2016.v04i05.012

Case Report

Space Occupying Lesion of the Liver: The Feline Connection

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Abstract: Eosinophilic granulomatous abscesses, the spectrum of visceral larva migrans are rare. Most reports are from the Far-East and India where the most commonly attributed cause is Toxocara canis or catis. We present here, the case of a middle aged woman with cats as pets who developed 3 to 4 weeks history of abdominal pain, fever and pruritus, initially managed conservatively and in whom, a simple but in depth history analysis led to the diagnosis of hepatic visceral larva migrans confirmed on fine needle aspiration cytology. We also provide a short algorithmic approach to differential diagnosis of liver SOLs in adults.
Keywords: visceral larva migrans, liver abscess, eosinophilia, Toxocara, fine needle aspiration cytology, fever of unknown origin.

INTRODUCTION

Visceral larva migrans occurs during the migratory second larva stage of nematodes in human beings. Dogs and cats are the most common primary hosts for the disease causing nematodes Toxocara canis and Toxocara cati respectively[1]. Uncommonly, Capillaria hepatica, Ascaris suum, and Ancylostoma species also cause similar hepatic disease[2]. Accidental ingestion of embryonated eggs present in the soil or the arrested second-stage larvae of nematodes from the primary host leads to infections in humans. Ingested eggs or larvae can evolve into migrating larvae, which are released into the small bowel, entering the portal venous system, and migrate to the liver, lungs, brain, heart, and eyes. Larva migrans in the liver present as as eosinophilic abscesses or granulomas[3]. On ultrasonography, appearance is usually multiple rounded or oval hypoechoic lesions with conglomeration. Contrast computed tomography or magnetic resonance imaging reveals ill-defined enhancing fuzzy walls of liquefied conglomerating lesions which may be oval, rounded, or asymmetrical seen predominantly in the venous and equilibrium phases. A unique characteristic feature of these abscesses on plain MRI study hyperintense rim on T1-imaging and diffusion restriction on echo planar imaging[4].

CASE REPORT

A 48 year old housewife, presented with 2 weeks history of fever and right upper quadrant abdomen pain. She recovered from fever, severe pruritus and urticaria two weeks before after course of montelukast and cetrizine, 6 weeks prior to current presentation. Four months prior, she bought 4 cats from a local pet shop and was caring for them at home as a past time. Examination revealed mild pallor without organomegaly or skin changes. Ultrasound (USG) done elsewhere showed large heterogeneous lesion in the right lobe of liver. Blood investigations revealed anaemia (haemoglobin 9.8 g/L), total leukocyte count 13 x 10^9/L with 24% eosinophils. Contrast MRI abdomen revealed multiple heterogeneous coalescing, peripherally enhancing well defined T1 iso-intense (Figure 1, Panel A) and T2 hyper-intense lesions with central non-enhancing areas and thick peripheral wall involving segments IVB and V (Figure 1, Panel B). Serum tumor markers were within normal limits. USG guided fine needle aspiration from the liver mass (Figure 1, Panel C) revealed large number of eosinophils (Panel C dashed arrow), in the background admixed with multiple Charcot-Layden crystals (Panel C, black arrow) leading to final diagnosis of visceral larva migrans (VLM) – eosinophilic liver abscess.

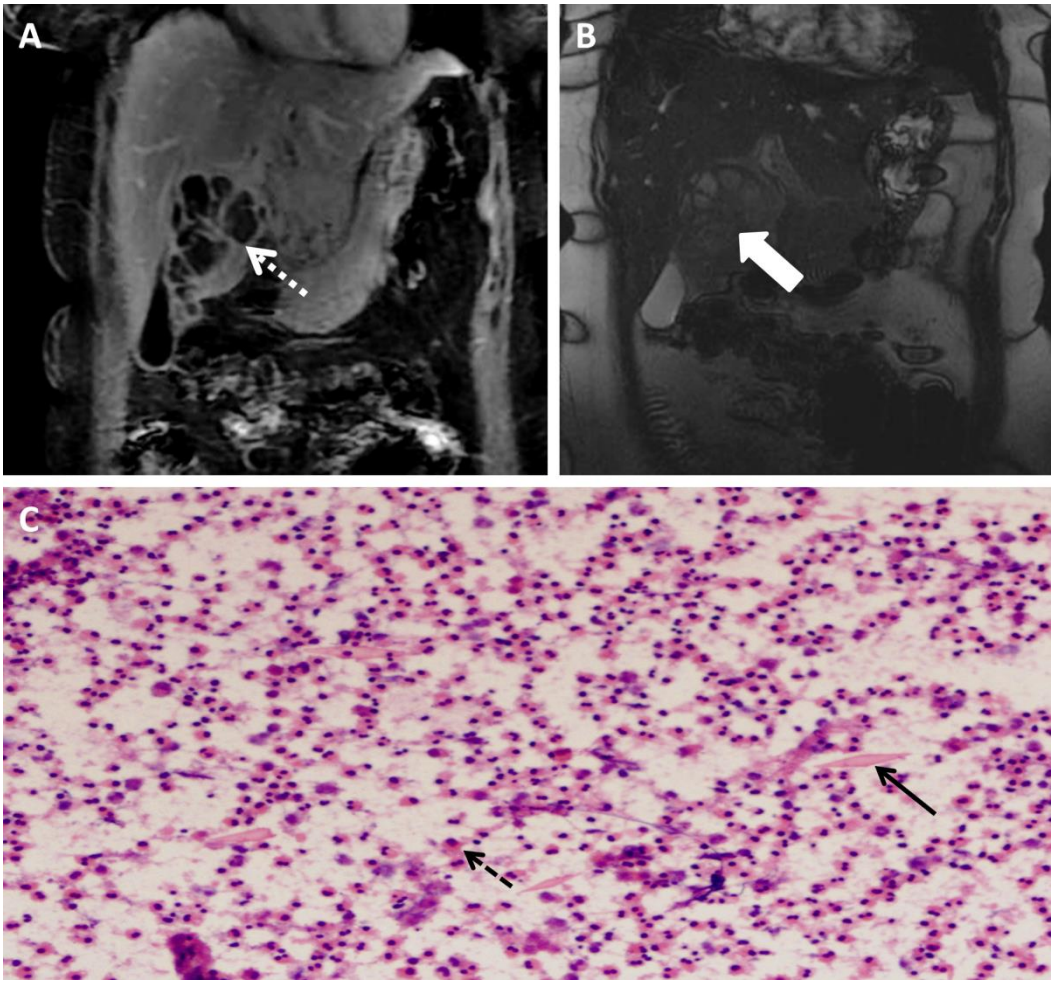

Fig 1: Contrast MRI abdomen showing multiple heterogeneous coalescing, peripherally enhancing well defined T1 iso-intense (Panel A) and T2 hyper-intense lesions with central non-enhancing areas and thick peripheral wall involving segments IVB and V (Panel B). USG guided fine needle aspiration from the liver mass showing large number of eosinophils (H and E stain, 20X Panel C dashed arrow), in the background admixed with multiple Charcot-Layden crystals (H and E stain, 20X, Panel C, black arrow)

DISCUSSION

VLM is caused by Toxocara canis (dog round worm) or catis (cat round worm) and even Fasciola hepatica or fungal infections such as Basidio bolusranarum. The 2nd stage larva of nematode when accidently ingested by human host enter portal circulation though small bowel wall, infesting distant organs such as lung, liver and eyes[5]. Visceral larva migrans can present as eosinophilic liver infiltrates or as granulomatous abscesses. On CT, hepatic lesions present as small, ill defined, oval or elongated hypo dense nodules best seen on portal venous phase[6]. On MR imaging, the lesions can have variable intensities, but usually hypo-intense or iso-intense on T1 and hyper-intense on T2 sequences (Panel B, white arrow). Peculiar findings include coalescent lesions (Panel A, dotted arrow) with peripheral rim enhancement in portal venous phase[7]. Differentials include hepato-cholangiocarcinoma or infected liver metastases[8]. A short algorithm for approach to focal liver lesions is shown in Figure 2. When dealing with atypical liver abscess, systemic symptoms such as easy fatigability, weight loss, skin rash and associated constitutional symptoms with peripheral blood work showing eosinophils or atypical cells point toward specific, but rare aetiology.

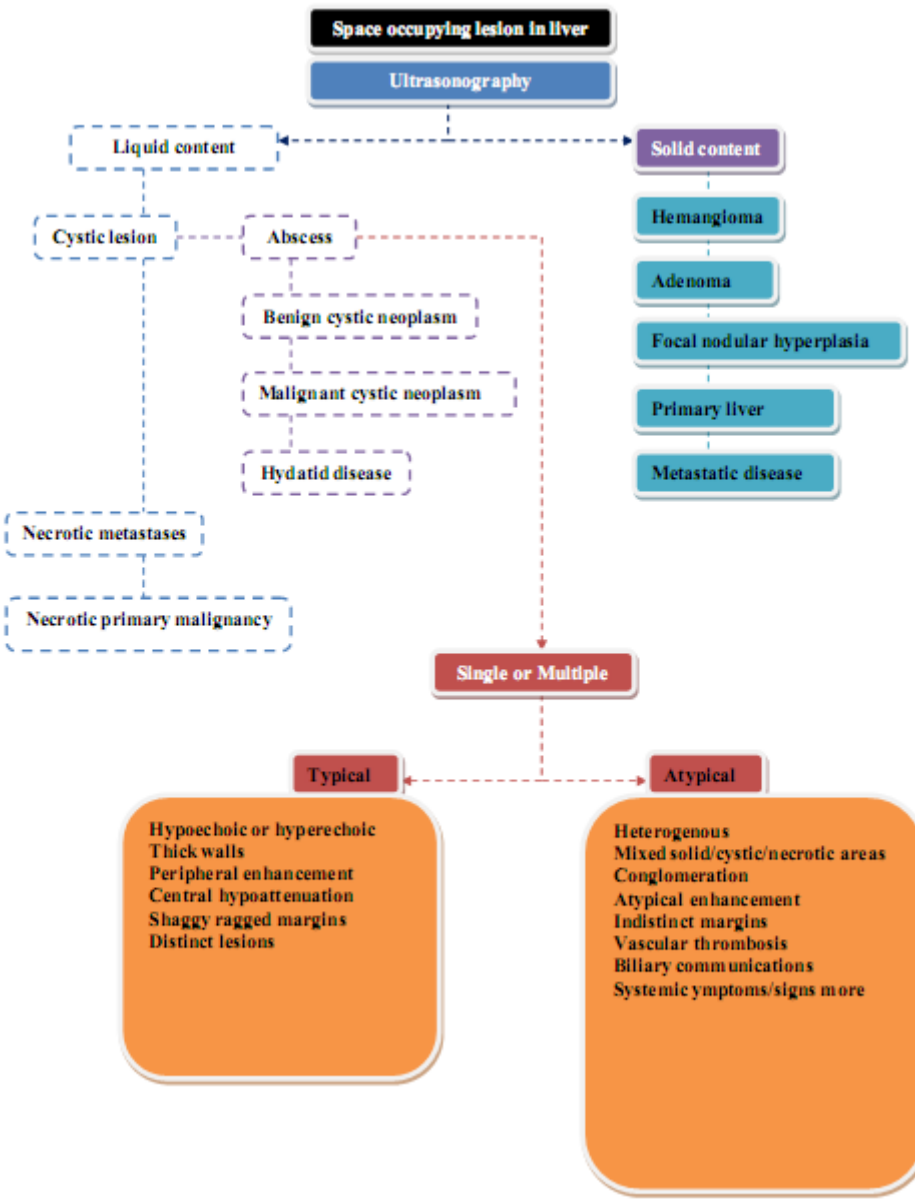

Fig 2: Differential diagnosis algorithm of liquid and solid space occupying lesions in the liver

CONCLUSION

Hepatic visceral larva migrans refers to a condition characterized by granulomatous liver lesions containing eosinophils and inflammatory cells secondary to second stage larval migration of Toxocara canis or catis. Typical imaging features include small, ill-defined, oval or elongated, low-attenuating nodules with shaggy margins, non-spherical shape, and absent or insignificant rim enhancement on contrast-enhanced computed tomography. Early resolution of lesions is seen with prompt utilization of anti-helminthic treatment for 3 to 6 months**.**

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