



Contents lists available at ScienceDirect

Tzu Chi Medical Journal

journal homepage: www.tzuchimedjnl.com

Pathology Page

Eosinophil-rich granuloma of the liver

Ming-Hsun Li ^a, Yung-Hsiang Hsu ^{a, b, *}^a Department of Pathology, Buddhist Tzu Chi General Hospital, Hualien, Taiwan^b Department of Pathology, Tzu Chi University, Hualien, Taiwan

ARTICLE INFO

Article history:

Received 9 March 2016

Received in revised form

25 April 2016

Accepted 30 May 2016

Available online 1 August 2016

A 55-year-old woman complained of relapsing right upper abdominal pain 9 months after a cholecystectomy. She underwent cholecystectomy because of cholelithiasis, chronic abdominal pain, and body weight loss. In this admission, imaging studies showed a hypodense mass lesion in the right lobe of the liver. Serology showed positive hepatitis C virus antibodies and negative hepatitis B virus surface antigen and core antigen. Alpha fetoprotein, aminotransferases, and bilirubin were within normal limits. Mild eosinophilia was noted (11.9% eosinophils with total WBCs 6030/mL). Stool sedimentation did not reveal parasitic ova.

A laparoscopic resection of the liver lesion was performed. The specimen received was one 6.5 cm × 5.0 cm × 4.0-cm fragment of liver. It contained multiple irregular soft yellowish lesions measuring up to 2.2 cm (Fig. 1). Microscopically, granulomatous inflammation with a necrotic center (Fig. 2), surrounded by epithelioid histiocytes and eosinophil-rich mixed inflammatory cells, was noted (Fig. 3). Charcot–Leyden crystals were seen in the necrotic center (Fig. 4). Calcified debris was seen in the junction of the necrotic center and inflammatory infiltrates. No parasitic debris or ova were found in the specimen. Results of staining with acid fast, periodic acid Schiff and Grocott's methenamine silver nitrate were negative. Immunohistochemically, the epithelioid cells were negative for S-100 and CD21.

Conflict of interest: none.

* Corresponding author. Department of Pathology, Buddhist Tzu Chi General Hospital, 707, Section 3, Chung-Yang Road, Hualien, Taiwan. Tel.: +886 3 8565301x2190; fax: +886 3 8574265.

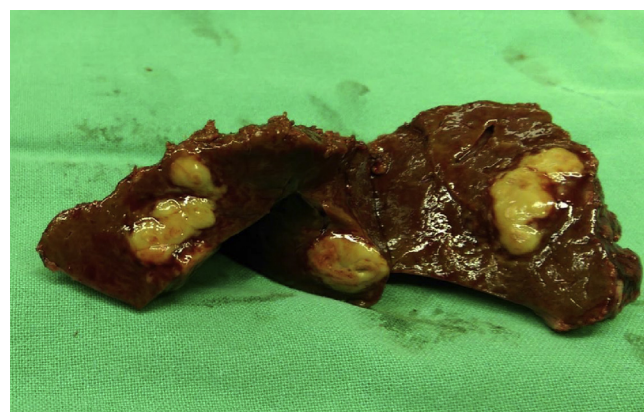
E-mail address: yhhsu@mail.tcu.edu.tw (Y.-H. Hsu).

Fig. 1. The liver showing multiple soft yellowish mass lesions.

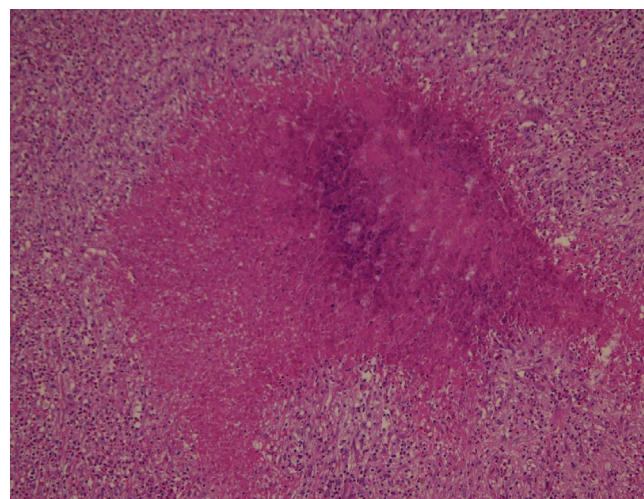


Fig. 2. Granulomatous inflammation with central necrosis.

<http://dx.doi.org/10.1016/j.tcmj.2016.05.001>1016-3190/Copyright © 2016, Buddhist Compassion Relief Tzu Chi Foundation. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

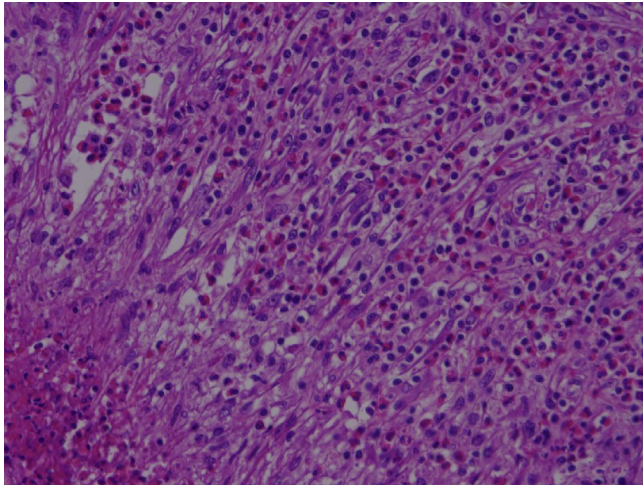


Fig. 3. Eosinophil-rich inflammatory infiltrates in the periphery of the granulomas.

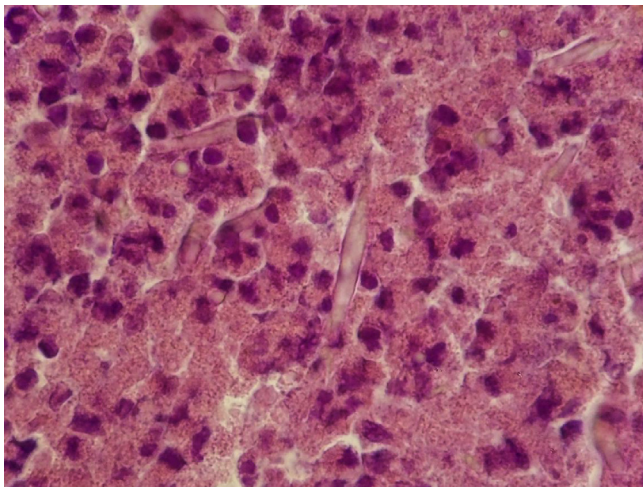


Fig. 4. Charcot-Leyden crystals.

Eosinophil-rich granuloma of the liver might be seen in various conditions, as in drug reactions, parasitic infection, autoimmune disease and histiocytic neoplasms.

In drug reactions, small noncaseating granulomas with eosinophils are characteristic, and necrosis is very rare. Primary biliary cirrhosis involves a small granulomatous reaction around destructed bile ducts and necrotic perivenular hepatocytes. Rheumatoid nodules in visceral organs also present with a granulomatous reaction around a necrotic center as in the skin or joints. The inflammatory infiltrates are rich in plasma cells and occasionally eosinophils. Churg–Strauss syndrome presents with vasculitis and small portal granulomas. Langerhans cell histiocytosis with characteristic grooved nuclei also involves the formation of granulomas rich in eosinophils. Follicular dendritic cell tumors usually manifest with inflammatory pseudotumor-like morphology and occasionally with eosinophil-rich granulomas. Immunohistochemical stains help in the differential diagnosis.

Eosinophil-rich granulomas in the liver are suggestive of visceral larva migrans, caused by infection with *Toxocara canis* or other helminths. Parasitic migration in liver destructed tissue and induced granulomatous and eosinophilic reaction. Eosinophilic pneumonitis is seen with larval migration to the lung. Charcot–Leyden crystals might be seen in cytologic and histologic examination.

Further reading

- [1] Burt AD, Portmann BC, Ferrell LD. MacSween's pathology of the liver. 6th ed. Edinburgh: Churchill Livingstone; 2012. p. 938–44.
- [2] Bennett JE, Dolin R, Blaser MJ. Mandell, Douglas, and Bennett's principles and practice of infectious disease. 8th ed. Philadelphia: Saunders; 2015. p. 3237–8.
- [3] Lamps LW. Hepatic granulomas: a review with emphasis on infectious causes. *Arch Pathol Lab Med* 2015;139:867–75.
- [4] Harada M, Oe S, Shibata M, Taguchi M, Matsuhashi T, Hiura M, et al. Churg–Strauss syndrome manifesting as cholestasis and diagnosed by liver biopsy. *Hepatol Res* 2012;42:940–4.
- [5] Li XQ, Cheuk W, Lam P, Wang Z, Loong F, Yeong ML, et al. Inflammatory pseudotumor-like follicular dendritic cell tumor of liver and spleen: granulomatous and eosinophil-rich variants mimicking inflammatory or infective lesions. *Am J Surg Pathol* 2014;38:646–53.
- [6] Kaplan KJ, Goodman ZD, Ishak KG. Eosinophilic granuloma of the liver: a characteristic lesion with relationship to visceral larva migrans. *Am J Surg Pathol* 2001;25:1316–21.
- [7] Misra V, Debnath S, Misra SP, Singh PA. Significance of Charcot–Leyden crystals in hepatic aspirates. *J Cytol* 2009;26:77–9.