Acute Q Fever Diagnosis in a Patient Presenting with Alcohol Associated Hepatitis and Positive Autoantibodies

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Background

- Q fever is caused by infection with Coxiella burnettii (CB)
- It is characterized by fever, headaches, myalgias and malaise
- Liver involvement is common and results in elevated aminotransferase levels
- Prior case reports have described an association between Q fever, autoimmune hepatitis (AIH), and autoantibody positivity[1]
- There are no prior reports describing alcohol associated hepatitis and autoantibody positivity in the setting of Q fever

Patient History

- 59-year-old male with history of alcohol use, drinking approximately 10 beers daily for more than ten years
- Quit drinking two weeks prior to presentation due to feeling ill
- Minimal prior interaction with healthcare and no known history of liver disease

Case

- Patient presents with jaundice, nausea, vomiting and abdominal pain
- Labs are shown below in Table 1. Abdominal ultrasound was unremarkable
- He was diagnosed with severe alcohol associated hepatitis with a MELD score of 25 and discriminant function of 59.5. He was started on prednisolone daily.
- Liver biopsy (figure 1, 2) demonstrated active and chronic steatohepatitis with significant hepatocyte ballooning and Mallory-Denk bodies with stage 3 fibrosis
- Biopsy also showed fibrin ring granulomas, typical of CB infection
- CB titers were elevated, typical of acute infection
- He was started on doxycycline 100mg BID for 14 days, prednisolone was stopped
- At follow-up, labs were improved, and symptoms had resolved

	Total Bilirubin	ALP	AST	ALT	F-actin Ab IgG (ref<19)	Mitochondrial antibody (AMA) IgG (ref<20)	ANA	Serum IgG	INR	CB IgG phase II titer	CB IgM phase II titer
Admission	19	159	142	100	63	73.6	1:160 speckled	1408	1.8	1:131,072	1:4,096
Follow-up	2	319	52	60	-	-	-	-	1.2	-	-

Table 1

Pathology

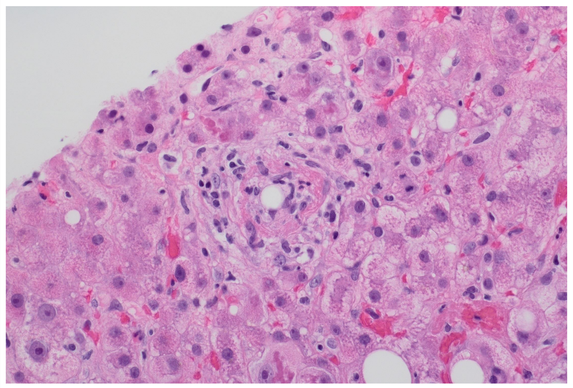

Figure 1

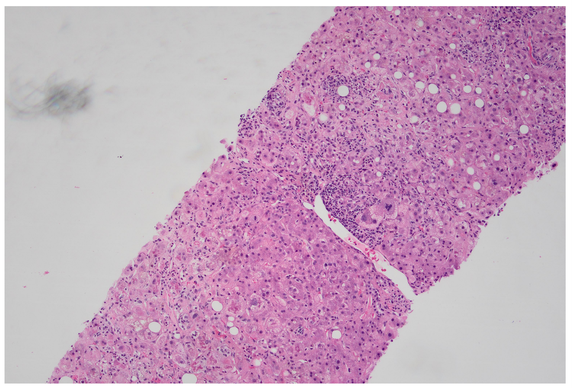

Figure 2

Figure 1 shows a close-up view of liver biopsy highlighting fibrin ring granuloma. Figure 2 shows a lower power view of liver biopsy highlighting steatohepatitis and hepatocyte ballooning.

Discussion

- Initial presentation was consistent with alcohol associated hepatitis, however, elevated autoantibodies raised concern for autoimmune hepatitis, so biopsy was performed.
- Biopsy confirmed that alcohol related hepatitis was present (steatohepatitis) but fibrin ring granulomas presented another possible etiology for his acute liver injury. Serology confirmed acute Q fever
- Q fever was unexpected because he did not present with typical symptoms and did not have recent animal exposure
- Previous cases have reported an association between Q fever and AIH in the setting of positive autoantibodies, but this was not found on biopsy
- This case highlights the importance of maintaining a broad differential when evaluating acute liver injury
- The findings reinforce the value of liver biopsy in clarifying the diagnosis when competing etiologies are possible
- This case highlights knowledge gaps regarding the role of autoimmune markers in infection and autoimmune liver disease

References

1. Streit JA. Association of Q fever with Autoimmune Hepatitis. J Autoimmun Disod. 2015, 1:1. DOI:10.21767/2471-8513.100003

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