

A diagnostic query in a soldier who was weary...

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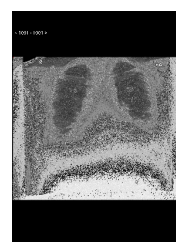
Case:

- 44 yo male civilian security officer
- Iraq > 1 year
- 'Flu A - Feb 2011
- Few weeks later:
 - FEVER
 - JAUNDICE
 - DIARRHOEA
 - HEADACHE
- Medevac to UK
 - SGH → GGH
 - WEAKNESS/TINGLING



Investigations (1)

- Hb 10.7g/dL (MCV 96) WCC 6, CRP 79, ESR ~50
- **LFTs – bili 36, AST 71, ALT 125, GGT-, AlkP 286, Alb 20**
- **CXR – L basal shadowing**
- CT CAP – bilat pleural effusions, thickened GB
- MRCP – nil/ AUSS – nil
- BC/MSU –ve/ Throat Swab *negative* for Influenza and mycoplasma
- Hep A / B / C / HIV negative
- CMV serology negative/ EBV IgG positive
- AutoAb –ve, LDH normal, B12 and folate normal
- MPx2 –ve
- **Strongly +ve cANCA (MPO 37u/ml; PR3 8.6u/ml)**
- Urine dip – trace protein only



Investigations (2)

- Neurological examination
 - Absent reflexes, power 3/5 distally all 4 limbs, poor proprioception
- Neurophysiological studies
 - reduced sensory responses in distal nerves, delayed responses in motor fibres
 - ‘*strongly supportive of a demyelinating sensory and motor polyneuropathy*’
- Unifying Diagnosis?



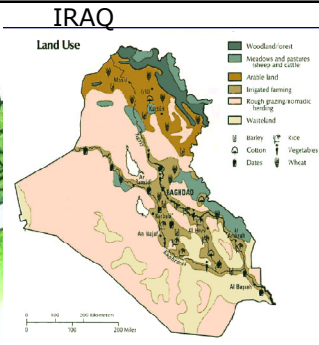
Phonecall from Porton Down...



- Q Fever serology:
 - Phase II IgG 1:5120, and IgM 1:10240
 - Phase I IgG 1:2180, IgA undetectable

 - Serum PCR weak positive – all 3 targets

Q Fever





MMWR Morb Mortal Wkly Rep. 2003 Sep
12;52(36):857-9

**Severe acute pneumonitis among deployed U.S. military personnel-
-Southwest Asia, March-August 2003.**

[Centers for Disease Control and Prevention \(CDC\).](#)

Abstract

During March-August 2003, a total of 19 U.S. military personnel deployed in the Central Command (CENTCOM) area of responsibility **had bilateral pneumonitis requiring intubation and mechanical ventilation**; two patients died. This report summarizes the results of the U.S. Army's investigation of these cases and describes the ongoing investigation to determine the cause(s). Cases of rapidly progressive respiratory failure among former or current CENTCOM personnel should be reported to state health departments and to the Department of Defense (DoD).



**This is an official
CDC HEALTH ADVISORY**

*Distributed via Health Alert Network
May 12, 2010, 15:45 EST (3:45 PM EST)
CDCHAN-00313-2010-05-12-ADV-N*

**Potential for Q Fever Infection Among
Travelers Returning from Iraq and the
Netherlands**

Summary: Increasing reports of Q fever among deployed U.S. military personnel due to endemic transmission in Iraq, as well as a large ongoing outbreak of Q fever in the Netherlands, may place travelers to these regions at risk for infection....

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Atypical Q Fever in US Soldiers

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Q fever is an emerging infectious disease among US soldiers serving in Iraq. Three patients have had atypical manifestations, including 2 patients with acute cholecystitis and 1 patient with acute respiratory distress syndrome. Providers must be aware of Q fever's signs and symptoms to avoid delays in treatment.

Guillain-Barré Syndrome



- 4 cases in the literature assoc with Q fever
 - 1 with Miller-Fisher syndrome

•Alajouanine T. Bull Mem Soc Med Hopital Paris. 1960; 9-10:329-331

•Bernard E. Eur J Clin Microbiol Infect Dis. 1994; 13:658-9.

•Diaz Ortuno A. J Neurol Neurosurg Psychiatry. 1990; 53:615-6

ANCA **Table 1: Distribution of patients with acute and chronic Q fever that showed specific autoantibodies (IgG isotype) by indirect immunofluorescence.**

Journals **Research** **Autoantibodies characterization and sequencing** **MT Camacho**

Specific autoantibodies	Acute Q fever (n = 24)(%)	Chronic Q fever (n = 34)(%)
ANA	3(12.5)	5(14.7)
dsDNA	1(4.1)	3(8.8)
ANCA	3(12.5)	4(11.8)
ASMA	7(29.2)*	9(26.5)*
PCA	0	3(8.8)
CMA	3(12.1)*	13(38.3)#
Total positive patients	13(54.2)	23(67.6)

ANA: Anti-nuclear antibodies;
 dsDNA: Anti-double strand DNA antibodies;
 ANCA: Anti-neutrophil antibodies;
 ASMA: Anti-smooth muscle antibodies;
 PCA: Anti-parietal cells antibodies;
 CMA: Anti-cardiac muscle antibodies.
 *: p < 0.05 as compared with healthy controls
 #: p < 0.05 as compared with acute Q fever patients and healthy controls

Open Access noblot is 2005, 2:10

Learning points?

- Epidemiology crucial to consideration of dx!
 - Military in Iraq
 - Netherlands
- Immunogenicity of Q fever
 - ?molecular mimicry – GBS
 - ANCA / ANA / ASMA

Questions?



References

- 1) Severe acute pneumonitis among deployed U.S. military personnel--Southwest Asia, March-August 2003. *MMWR Morb Mortal Wkly Rep.* 2003; 52(36):857-9
- 2) Delsing CE, Kullberg BJ. Q fever in the Netherlands from 2007 to 2010. *The Netherlands Journal of Medicine.* 2010; 68 (12): 382-7
- 3) Bernit E, Pouget J, Janbon F et al. Neurological Involvement in Acute Q Fever. *Arch Int Med* 2002; 162:693-700
- 4) Hartzell JD, Peng SW. Atypical Q fever in US soldiers. *Emerging Infectious Diseases* 2007;13 (8); 1247.
- 5) Alajouanine T, Bull Mem Soc Med Hopital Paris. 1960; 9-10:329-331
- 6) Bernard E. *Eur J Clin Microbiol Infect Dis.* 1994; 13:658-9.
- 7) Diaz Ortuno A. *J Neurol Neurosurg Psychiatry.* 1990; 53:615-6
- 8) Camacho MT, Otschoorn I, Tellez A et al. Autoantibody profiles in the sera of patients with Q fever: characterisation of antigens by immunofluorescence, immunology and sequence analysis. *Journal of Autoimmune Diseases* 2005, **2**, 10.