

Q fever and miscarriage: The hidden danger of the rural lifestyle

Case: 29 years old G1P0 K22+5 presented to a regional hospital in Queensland after a diagnosis of Intrauterine foetal demise (IUFD) during her follow-up growth scan with a known history of intrauterine growth restriction (IUGR) with oligohydramnios from her morphology scan. On her booking appointment she had a low risk combined first trimester screen (CFTs) and no other known significant medical history.

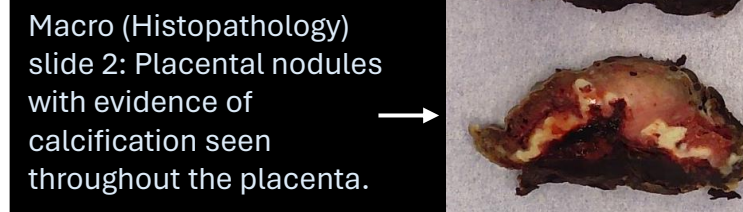
Social situation: She had lived rurally her whole life but had never been tested or vaccinated as per the current Q fever guidelines in Australia. She had recently moved to an area where the primary use of land is farmland, with many farms that had animal husbandry, but was not involved in farming or animal cares herself.

Delivery: She had a PPH due to tissue and had a MET Call (resulting in many staff attending during the delivery of the placenta). She recovered and was discharged. Her placenta was sent for histopathology.

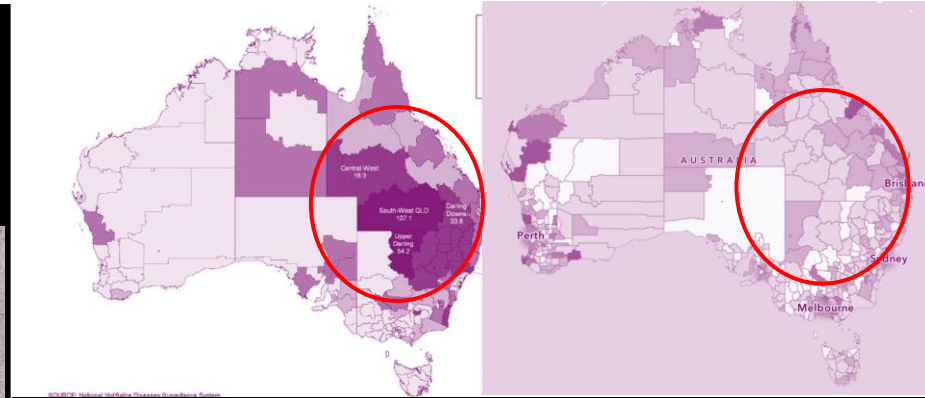
How they found Q fever: On Macroscopy there was evidence of multiple infarcts and nodules (shown in slide 2). The pathologist request Q fever testing for mum and the placenta, which came back positive. From this public health was alerted and staff involved in the case received screening. No one required treatment for Q fever. However the mother was given antibiotic treatment for Q fever and referred to infectious diseases for ongoing care.



← Macro (Histopathology) slide 1: Multiple white nodules seen at maternal aspect of the placenta. Suggesting infarcts.



Macro (Histopathology) slide 2: Placental nodules with evidence of calcification seen throughout the placenta. →



LEFT: Map of Q fever notification rates in Australia (2009) (darker = increased number of reported cases). RIGHT: Map of population growth in Australia in 2022-2023 (Light to dark showing low to high). This map highlights population growth in areas that are known to have higher Q fever notifications.

There has been an **increase in migration to regional and rural areas from the city**. The ABS (2024) has shown significant population growth across rural Queensland and New South Wales over the last few years, this is particularly concerning as more and more people are moving to areas highlighted by National Notifiable Diseases Surveillance System (2009) to have higher reported cases. Many of these people, who would not be directly involved in animal husbandry, would be at risk of exposure but not be deemed as high risk as per the current guidelines to get tested or have the vaccination. Therefore, putting the region at risk of a Q fever outbreak.

This is particularly concerning given the **long incubation periods and virulence of Q fever** in soil, fur, equipment and dust. The symptoms can be quite nonspecific and masquerade as flu. There have been reported outbreaks of Q fever in Netherlands and Queensland in towns downwind of abattoirs or popular highways used for transporting sheep/ goats. It is possible that this patient was exposed in a similar way, but there is no way to determine this without further cases at this time. Further highlighting the need for Q fever testing in those suspected to be exposed due to location or those with symptoms, IUGR or an IUFD in rural and regional areas.

This case demonstrates a significant gap in maternity care in regional and rural areas around Australia when it comes to Q fever monitoring and management. Given the rising rate of migration into rural and regional areas, more education and surveillance is needed. This is particularly concerning for **pregnant women, the foetuses, risk of exposure to the healthcare providers and the public**. Q fever can have significant immediate and life altering long term sequelae if left untreated.

References:

1. Australian Bureau of Statistics. 2024. "Regional Population." <https://www.abs.gov.au/statistics/people/population/regional-population/latest-release>.
2. CoDNA. 2018. "Q Fever: CDNA National Guidelines for Public Health Units." QLD Health . November 27. Accessed September 7, 2023. <https://www.health.gov.au/sites/default/files/documents/2020/02/q-fever-cdna-national-guidelines-for-public-health-units.pdf>.
3. QLD Health. 2019. "Q Fever." Queensland Government. March 6. Accessed September 07, 2023. <http://conditions.health.qld.gov.au/HealthCondition/condition/14/33/116/Q-Fever>.
4. Southwick, Frederick S. 2020. Infectious diseases: A Clinical short course. 4th. New York: McGraw Hill.
5. Spec, Adrej, Gerome Escofa, Courtney Chisler, and Bethany Davies. 2020. Comprehensive review of infectious diseases. Elsevier Ltd.
6. Gidding, H.F., Wallace, C., Lawrence, G.L., & McIntyre, P.B. (2009). Australia's national Q fever vaccination program. Vaccine, 27 14, 2037-41 .
7. Australian Bureau of Statistics. (2024). Regional Population. ABS. Retrieved from <https://www.abs.gov.au/statistics/people/population/regional-population/2022-23>