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Letter to Editor

Brucellosis in Libya: Past and Present Challenges

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Dear Editor,

Since the mid-20th century, brucellosis has emerged as a significant public health and agricultural challenge in Libya (Ahmed et al., 2010). This enduring zoonotic disease, primarily caused by *Brucella melitensis*, predominantly affects small ruminants such as sheep and goats as well as camels, which serve as the primary reservoirs. Humans typically contract brucellosis through direct contact during animal husbandry activities including handling infected animals and/or aborted fetuses, slaughtering livestock, or through the consumption of unpasteurized dairy products (Dean et al., 2012).

Historically, studies conducted in the 1980s and 1990s provided valuable context for understanding the prevalence of brucellosis in Libya (Abdesalam et al., 2025). However, data collected post-2000 revealed significant challenges stemming from socio-political instability and efforts to control the disease (Kardjadj, 2018). Since 2011, ongoing socio-political turmoil has more disrupted healthcare and veterinary services, leading to an increased unregulated movement of livestock and exacerbating the transmission of brucellosis. weakened biosecurity measures have further facilitated disease spread, particularly in pastoralist regions, with varying prevalence rates.

In 2010, serological data from western Libya reported a high brucellosis prevalence, with seropositivity rates exceeding 40% in both livestock and humans (Ahmed et al., 2010). In contrast, a study conducted in 2024 in the Al Jufrah district reported a significantly lower prevalence of 2.7% in sheep and goats, attributed to communal grazing practices and insufficient veterinary oversight (Alshekh et al., 2024). Similarly, a cross-sectional study conducted in 2025 in the Wadi Al Shati District of Southern Libya revealed a seropositivity rate of 14.8% in goats, underscoring the persistent challenges faced in pastoralist areas due to inadequate animal management and weak biosecurity measures (Younis et al., 2018; Abdesalam et al., 2025).

Molecular diagnostics have confirmed active *Brucella* infections in aborted fetuses and apparently healthy animals, highlighting the challenges associated with disease detection and control (Altalhy and Shukri, 2024). Severe human cases, including brucellosis-induced endocarditis and myopericarditis, underscore the urgent need for standardized diagnostic protocols and integrated surveillance systems that encompass both human and animal health (Šačić et al., 2024). Control efforts are further hindered by socio-political instability, inadequate veterinary infrastructure, limited public awareness, and cross-border livestock trade, compounded by environmental constraints, traditional farming practices, and antimicrobial resistance (Elramalli et al., 2017; Wareth et al., 2022). Molecular studies, using whole-genome sequencing and multilocus variable-number tandem-repeat analysis, revealed significant genetic diversity in *B. melitensis*, with distinct clades linked to regional livestock trade routes, thereby aiding the tracking of transmission patterns across North Africa (World Health Organization, 2019; Wareth et al., 2022).

Controlling brucellosis in Libya demands a One Health approach that integrates public health initiatives, veterinary services, and community engagement. Key measures include enhancement of veterinary infrastructure in rural and conflict-affected areas, implementing regular vaccination campaigns for sheep, goats, and camels, and enforcing strict animal movement regulations (Ahmed et al., 2015; Dadar et al., 2022). Public education on safe food handling practices, particularly the avoiding of unpasteurized dairy products, is crucial, along with community-based programs was proved to be effective in pastoralist regions (Kardjadj, 2018).. Furthermore, regional cooperation with neighboring countries and international organizations can significantly enhance surveillance and control efforts.

Brucellosis remains endemic in Libya, with regional variations driven by agricultural practices, population movements, and socio-political and environmental factors. As a livestock trade hub, Libya faces challenges from uncontrolled animal movement but also opportunities for regional leadership in disease control. Sustained efforts to strengthen public health and veterinary systems, coupled with molecular surveillance and a One Health approach combining data and interventions, are vital for achieving sustainable control in Libya and North Africa.

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