FREQUENCY OF COMPLICATIONS IN CHRONIC BRUCELLOSIS AMONG WOMEN OF REPRODUCTIVE AGE

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ABSTRACT. Chronic brucellosis, caused by Brucella species, is a persistent zoonotic infection with significant morbidity, particularly in endemic regions. Women of reproductive age are at risk of unique complications due to physiological and hormonal factors. This review examines the frequency and nature of complications in chronic brucellosis among women aged 15–45 years, focusing on osteoarticular, reproductive, neurological, and systemic manifestations.

Keywords: Chronic brucellosis, women, reproductive age, complications, osteoarticular, reproductive health, zoonotic infection, Brucella.

Introduction. Brucellosis, a zoonotic disease caused by Brucella species, remains a public health challenge in endemic regions, including the Mediterranean, Middle East, and parts of Asia and Africa [1]. Chronic brucellosis, defined as symptoms persisting beyond 6–12 months, is characterized by relapsing or persistent symptoms and a high risk of complications [2]. Women of reproductive age (15–45 years) are particularly vulnerable due to hormonal influences, pregnancy-related immune modulation, and socioeconomic factors increasing exposure in endemic areas [3]. This review synthesizes evidence on the frequency and types of complications in

chronic brucellosis among women of reproductive age, emphasizing osteoarticular, reproductive, neurological, and systemic sequelae.

Epidemiology and risk factors. Chronic brucellosis is more prevalent in endemic regions where unpasteurized dairy consumption and livestock contact are common [1]. Women of reproductive age in rural settings are disproportionately affected due to their roles in animal husbandry and food preparation [4]. Risk factors for chronicity include delayed diagnosis, inadequate treatment, and recurrent exposure to Brucella [2]. In women, pregnancy and hormonal fluctuations may exacerbate disease progression, increasing the likelihood of complications [3,8]. Estimates suggest that 10–20% of brucellosis cases in women of reproductive age progress to chronicity, though data specific to this demographic are limited [4,9].

Types and frequency of complications. Chronic brucellosis is associated with a range of complications, with varying frequencies among women of reproductive age. The most common complications are discussed below.

Osteoarticular complications. Osteoarticular involvement, including spondylitis, arthritis, and osteomyelitis, is the most frequent complication, reported in 20–40% of women with chronic brucellosis [5]. Spondylitis, particularly affecting the lumbar spine, is debilitating and may lead to chronic pain and disability. Peripheral arthritis, often involving large joints like the knees and hips, is also common [2]. Women of reproductive age may experience exacerbated joint symptoms during pregnancy due to increased joint laxity and immune suppression [3]. Delayed treatment significantly increases the risk of irreversible joint damage [5].

Reproductive complications.Reproductive complications are a significant concern in women of reproductive age, occurring in 5–15% of chronic brucellosis cases [4]. These include: **Spontaneous abortions:** Brucella infection

during pregnancy is associated with a 10–20% risk of miscarriage, particularly in the first trimester, due to placental invasion by the bacteria [3].

Premature delivery: Chronic infection may trigger preterm labor in 5–10% of cases [4].

Infertility: Chronic pelvic inflammation and endometrial damage may lead to infertility in 2–5% of affected women [6].

Congenital transmission: Vertical transmission to the fetus is rare (1–2%) but can result in neonatal brucellosis [3].These complications are underreported due to social stigma and limited access to reproductive health services in endemic areas [4].

Neurological complications. Neurobrucellosis, including meningitis, encephalitis, and peripheral neuropathy, is rare but severe, affecting 1–5% of women with chronic brucellosis [2]. Symptoms include headaches, seizures, and motor deficits, with higher morbidity in untreated cases [5]. Women of reproductive age may be at increased risk during pregnancy due to immune modulation, though data are scarce [3]. Neurobrucellosis requires prolonged treatment and is associated with significant neurological sequelae in 20–30% of cases [2].

Systemic and other Complications. Systemic complications, such as endocarditis, hepatosplenomegaly, and chronic fatigue syndrome, occur in 5–10% of chronic cases [6]. Endocarditis, though rare (1–2%), is life-threatening and more frequent in patients with preexisting cardiac conditions [5]. Chronic fatigue and depression, reported in 10–15% of women, significantly impact quality of life [4]. Hepatic abscesses and granulomatous hepatitis are less common but contribute to morbidity in 2–5% of cases [6].

Diagnostic challenges. Diagnosing chronic brucellosis in women of reproductive age is complex due to nonspecific symptoms and overlapping conditions (e.g., rheumatoid arthritis, pregnancy-related complications) [2]. Key diagnostic methods include: Serological tests: Standard agglutination test (SAT) titers ≥1:160 or enzyme-linked immunosorbent assay (ELISA) are diagnostic, but titers may fluctuate in chronic cases [7]. Culture: Blood or tissue cultures have low sensitivity (30–50%) in chronic disease [7]. Polymerase chain reaction (PCR): PCR is highly specific but not widely available in endemic regions [6]. Imaging: Magnetic resonance imaging (MRI) or computed tomography (CT) is essential for detecting osteoarticular and neurological complications [5].

Treatment and management. Treatment of chronic brucellosis in women of reproductive age requires prolonged combination therapy to prevent relapse and manage complications [7]. Standard regimens include:

Doxycycline and Rifampicin:Doxycycline (200 mg/day) plus rifampicin (600–900 mg/day) for 6–12 weeks is the first-line treatment [7]. Alternative Regimens: In pregnancy, rifampicin combined with trimethoprim-sulfamethoxazole (TMP-SMX) is preferred to avoid doxycycline-related fetal risks [3]. Severe Complications: Aminoglycosides (e.g., gentamicin) are added for endocarditis or neurobrucellosis, with treatment extended to 3–6 months [5]. Relapse rates are 10–20% in chronic cases, higher in women with inadequate initial treatment [2,10]. Management of reproductive complications may require obstetric consultation, while osteoarticular sequelae may necessitate physical therapy or surgical intervention [4].

Conclusion. Chronic brucellosis in women of reproductive age is associated with significant complications, including osteoarticular (20–40%), reproductive (5–15%), neurological (1–5%), and systemic (5–10%) sequelae. These complications disproportionately affect women in endemic regions,

compounded by diagnostic delays and limited healthcare access. Tailored diagnostic approaches, prolonged combination therapy, and preventive strategies are critical to mitigate morbidity. Future research should focus on improving diagnostic tools and addressing reproductive health outcomes in this population.

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