

# Brucellar Breast Abscess as A Rare Complication of Human Brucellosis: Ultrasonography and Magnetic Resonance Imaging Findings: Case Report

## İnsan Brusellozisine Bağlı Nadir Bir Komplikasyon: Brusella Meme Apsesi: Ultrasonografi ve Manyetik Rezonans Görüntüleme Bulguları

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**ABSTRACT** Brucellosis is an endemic disease seen in many countries. It may affect different organ systems. Breast abscess caused by human brucellosis is extremely rare. A 29-year-old woman received the diagnosis of brucellosis with positive serologic tests. Two months after the onset of symptoms she was referred to our clinic with a complaint of bilateral breast mass. She was investigated with ultrasonography and magnetic resonance imaging. The diagnosis was provided by fine needle aspiration biopsy and specimen culture. Purulent material was obtained by needle aspiration. Microbiologic analysis showed no pathogen growth due to being antibiotic treatment. It was successfully controlled by prolonged antimicrobial treatment.

**Key Words:** Brucellosis; abscess; breast; radiology

**ÖZET** Brusella birçok ülkede görülen endemik bir hastalıktır. Farklı organ sistemlerini etkileyebilir. İnsan brusellasına bağlı meme apsisi oldukça nadirdir. Serolojik testlerle brusella tanısı alan 29 yaşında kadın hasta; şikâyetlerinin başlamasından 2 ay sonra, her iki memede kitle şikâyeti ile kliniğimize başvurdu. Ultrasonografi ve manyetik rezonans görüntüleme ile değerlendirildi. Tanısı iğne aspirasyon biyopsisi ve kültür ile konuldu. İğne aspirasyonundan pürülan materyal elde edildi. Alınmış olan antibiyotik tedavisine bağlı, mikrobiyolojik kültürde üreme olmadı. Apse tedavisi uzun süreli antibiyotik tedavisi ile başarıyla yapıldı.

**Anahtar Kelimeler:** Bruselloz; apse; meme; radyoloji

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Brucellosis is an endemic zoonosis seen in a number of geographical locations such as Mediterranean countries and the Middle East. Brucellosis is primarily a zoonotic infection, but it also affects human health. Abscess formation in the breast is relatively common during lactation. On the other hand, hematologic spread of a systemic infection rarely causes abscesses in the breast. Breast involvement very rarely occurs as a focal complication of brucellosis.<sup>1-3</sup> In this case, a breast abscess caused by brucella was presented with a special emphasis on radiological findings.

### CASE REPORT

A 29-year-old woman was referred to our clinic with a complaint of a bilateral breast mass. In the history, two months earlier, the patient was admitted

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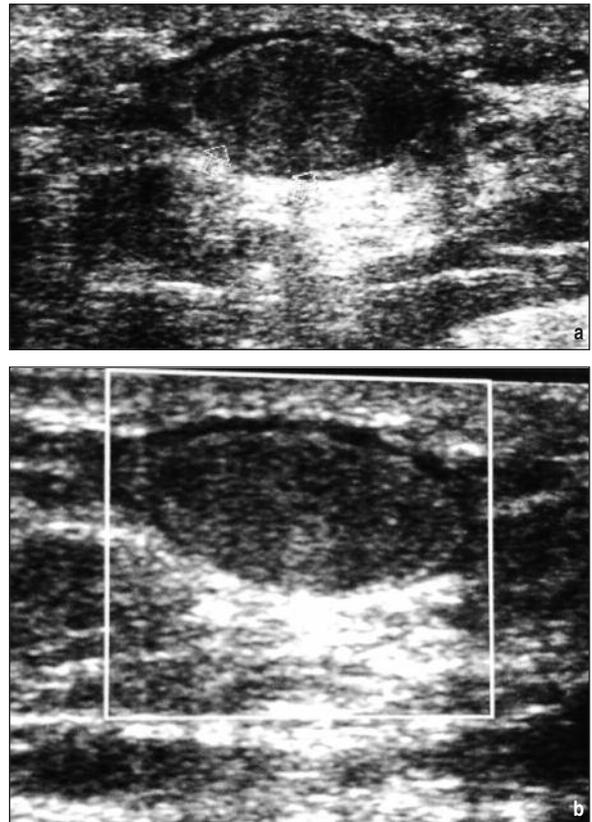
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to the hospital with symptoms and signs of a systemic infection. She received the diagnosis of brucellosis with positive Wright serologic tests. On physical examination; breast palpation revealed a painless, mobile, round mass of 2 cm in the right breast adjacent to the areola margin at 11 o'clock and in the left breast adjacent to the 2 o'clock. No further symptoms or signs of a systemic infection or local inflammation were noted. On radiological examination; breast ultrasonography (US) revealed a hypoechoic (cystic) mass with well-defined margins at the 11 o'clock and 2 o'clock. Its dimensions were 16x10 mm in the right and 17x11 mm in the left. A posterior acoustic enhancement and lateral marginal shadowing were evident. Doppler US showed no vascularity (Figure 1A, B). On magnetic resonance imaging (MRI), the mass was homogeneously hyperintense on T2- weighted images. On contrast-enhanced T1- weighted images, a thin peripheral capsular enhancement was noted (Figure 2A, B).

Fine-needle aspiration from this cystic mass was performed for a final diagnosis and also as focal treatment. The aspirate was purulent material. Pathologic examination showed abscess formation and microbiologic analysis showed no pathogen growth. Radiological and pathological findings were compatible of breast abscess due to brucella. The lesion was successfully treated through abscess drainage and patient was treated with a combined antibiotic treatment with tetracycline (100 mg/day, twice a day) and rifampicine (300 mg/day, once a day). After 6 months of follow-up, the patient is healthy with no relapse.

## DISCUSSION

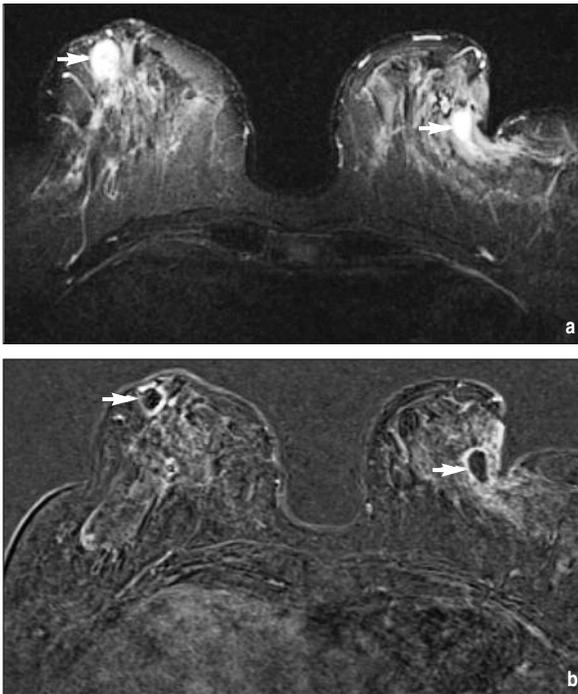
Brucellosis is a zoonotic infection transited from animals to humans by ingestion of infected food products, direct contact with an infected animal, or inhalation of aerosols. Brucellosis is seen in a number of geographical locations such as Mediterranean countries and the Middle East. Systemic brucellosis is a common clinical form of a specific infection. The hematogenous spread of infection may result in localized infection and abscess formation; meningitis, spondylitis, endocarditis, and orchitis as unusual presentations.



**FIGURE 1:** Breast ultrasonography (US) revealed a hypoechoic (cystic) mass with well-defined margins. A posterior acoustic enhancement and lateral marginal shadowing were evident (a). Doppler US showed no vascularity (b).

Brucellar infection of the human breast is extremely rare.<sup>1-4</sup> Prevalence of human brucellosis as a breast abscess is only 0.7%.<sup>5</sup> Clinical symptoms of brucellosis are nonspecific and include fever, malaise, sweats, arthralgia, lower back pain, and headache. The Wright agglutination test, the most useful serologic analysis for systemic brucellosis, established the diagnosis on the first admission. US and MRI define abscess formations but they were not characteristic of brucella. It should be kept in mind in the differential diagnosis of breast abscess in areas where ingestion of unpasteurized milk and milk products is common.

Brucella is a slow-growing organism in the culture, and there is a possibility of misdiagnosing cases with unusual presentation. Diagnostic difficulties may also occur particularly if the patient lives in a brucellosis-free country. In such cases the presence of an abscess can be verified with US and MRI.



**FIGURE 2:** On magnetic resonance imaging (MRI), the mass was homogenously hyperintense on T2- weighted images (a). On contrast-enhanced T1- weighted images, a thin peripheral capsular enhancement was noted (Arrows) (b).

US is considered the most useful initial imaging modality when a breast abscess is suspected. It is also the imaging method of choice to monitor progress, response to therapy and to ensure resolution. For the purpose of follow up the three dimensional measurement of the abscess and the volume of the contents should be given. US features suggestive of a breast abscess include hypo

echoic collection, mostly multiloculated, no vascularity within the collection and acoustic enhancement due to fluid content.

MRI imaging is not generally indicated and can be reserved for atypical situations. MRI characteristics of the lesion are homogenous hyperintensity on T2-weighted images and thin capsular enhancement that compatible with abscesses.

Fine needle aspiration (FNA) of the abscess establishes a final diagnosis and provides focal treatment. FNA of inflammatory breast lesions is a useful tool if performed by a pathologist and combined with further workup including microbiologic culture correlation. It helps in management and treatment of the patient and avoiding unnecessary surgery.<sup>6</sup> Our case, microbiologic analysis showed no pathogen growth due to being antibiotic treatment. The patient's systemic infection was treated for two months. Also radiological and clinical findings were compatible of breast abscess due to brucella.

Brucella may be susceptible to tetracycline, ampicilline or rifampicine. Symptomatic relief may occur within a few days of the treatment. The patient was treated with a combined antibiotic treatment with tetracycline (100 mg/day, twice a day) and rifampicine (300 mg/day, once a day). However, because of their intracellular location, the organisms are not readily eradicated completely from the host. For best results, treatment must be combined and prolonged.

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