Bruselloz

Epidemiyoloji ve Klinik

Uzm.Dr. Neslihan Çelik
SBÜ.BEAH Enfeksiyon Hastalıkları

Epidemiyoloji

Tarihçe

- **1860 J.A. Marston** Malta'da İngiliz ordusunda doktor, ilk kez farklı bir ateş olarak tanımladı.

- **David Bruce** Malta'da 1887 yılında hastalıktan ölen 4 askerin dalaklarından Micrococcus melitensis

- **1897 A.E. Wright** İngiliz ordusunda patolog, aglütinasyon testini

- **1897 E. Bang,** Danimarkalı veteriner, sığırlarda düşüğe neden olan intrasellüler patojeni tanımladı, Bacterium abortus

Epidemiyoloji

Tarihçe

- **1905 Zammit;** Maltalı doktor, infeksiyon kaynağı keçiler
- **1914 Mohler** domuzların dalak ve karaciğerinden B.suis'i izole etti
- **1918 A. Evans;** Amerikalı mikrobiyolog *Bacterium abortus* ve *Micrococcus melitensis* arasındaki ilişkiyi saptadı ve hastalık için Bruselloz adını sundu
- **1920 Meyer and Shaw** Etken mikrorganizma tür adı Brucella olarak isimlendi
- **1957** B. neotome, 1963 B. ovis, 1966 B. canis

Epidemiyoloji

Malta humması
Akdeniz dalgalı humması
Cebelitarık kayalık humması
Konstantinopol köy humması
Girit humması
Dalgalı humma
Ondülan ateş
Brucelloz
Bang humması
Peynir hastalığı
Mal hastalığı
Koyun hastalığı

Epidemiyoloji

Brusellozis,

- Birlesmis Milletler Gıda ve Tarım Teskilatı (**FAO**),
- Dünya Sağlık Örgütü (**WHO**)
- Uluslar Arası Salgın Hastalıklar Ofisi (**OIE**)

Dünyada en yaygın zoonozlardan biri

Her yıl yaklaşık 500.000 yeni olgu bildirilmektedir

Epidemiyoloji

- Artan hayvan hareketleri
- Bölgeler arası göç
- Düşük enfeksiyon dozu
- Çevre/konakta kalıcı olması,
- Hızla yayılabilmesi
- Hayvanlarda ve insanlarda önemli sağlık sorunu
- Tedavisinin zor olması
- Biyoterorizm/biyolojik ajan olması önemli

Epidemiyoloji

- Belçika
- Çek Cumhuriyeti
- Danimarka
- Almanya
- Fransa
- İrlanda
- Hollanda
- Avusturya
- Finlandiya
- Slovakya
- Amerika, Kanada, Japonya,
- Avustralya
- Yeni Zelanda

Eradike edilen ülkeler

Epidemiyoloji

- 1968 ülkemizde ilk eradikasyon için kitlesel aşılama
- 2011 yılında yapılan çalışmalar doğrultusunda

  Bruselloz sürü prevalansı sığırlarda %7,8

  Koyunlarda Bruselloz sürü prevalansı %22,5
- 2012 yılında Brusellanın konjonktival aşı ile kontrol ve Eradikasyon Projesi
- 2019 Türkiye Zoonotik Hastalıklar Eylem Planı (2019-2023)

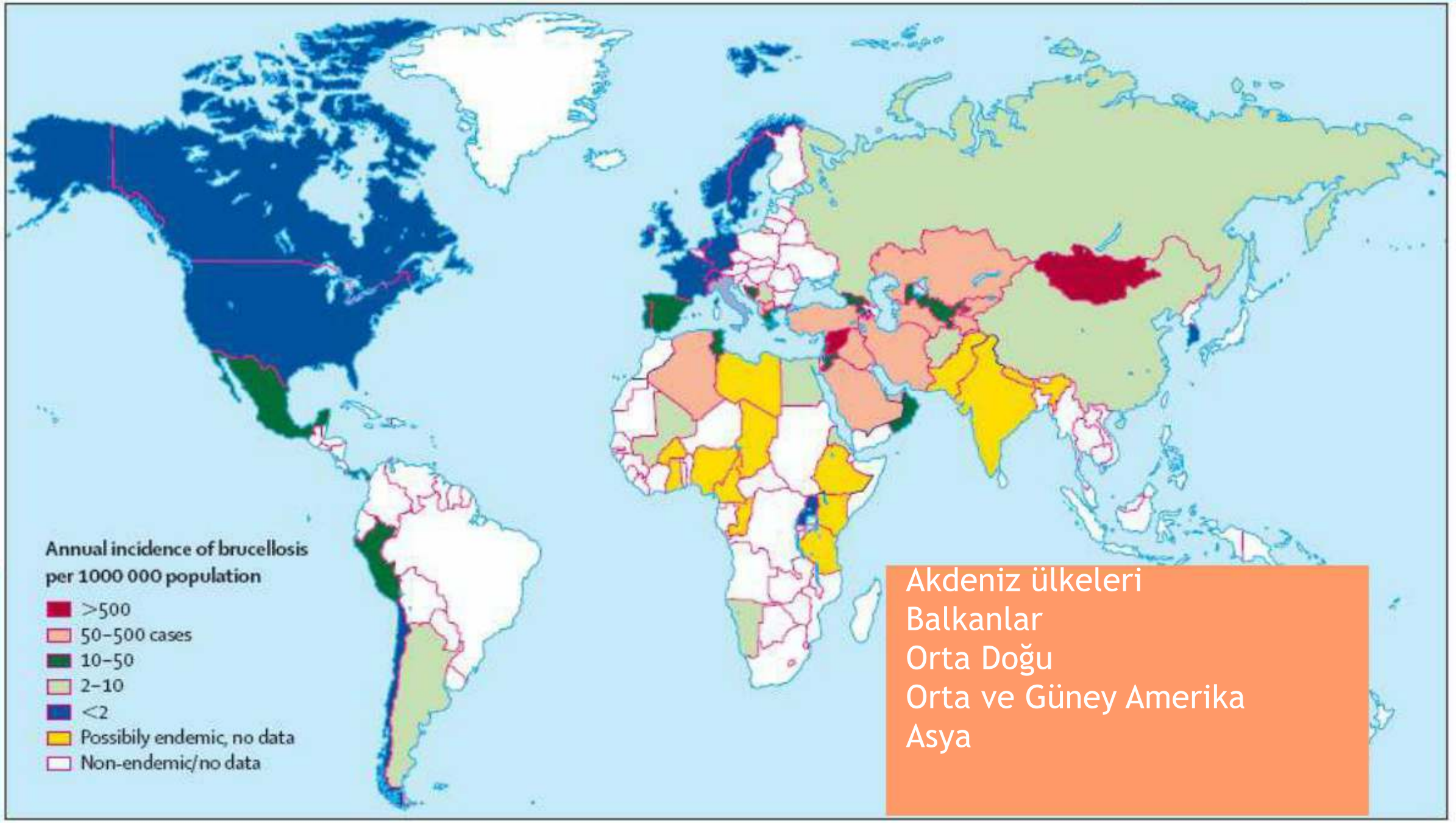
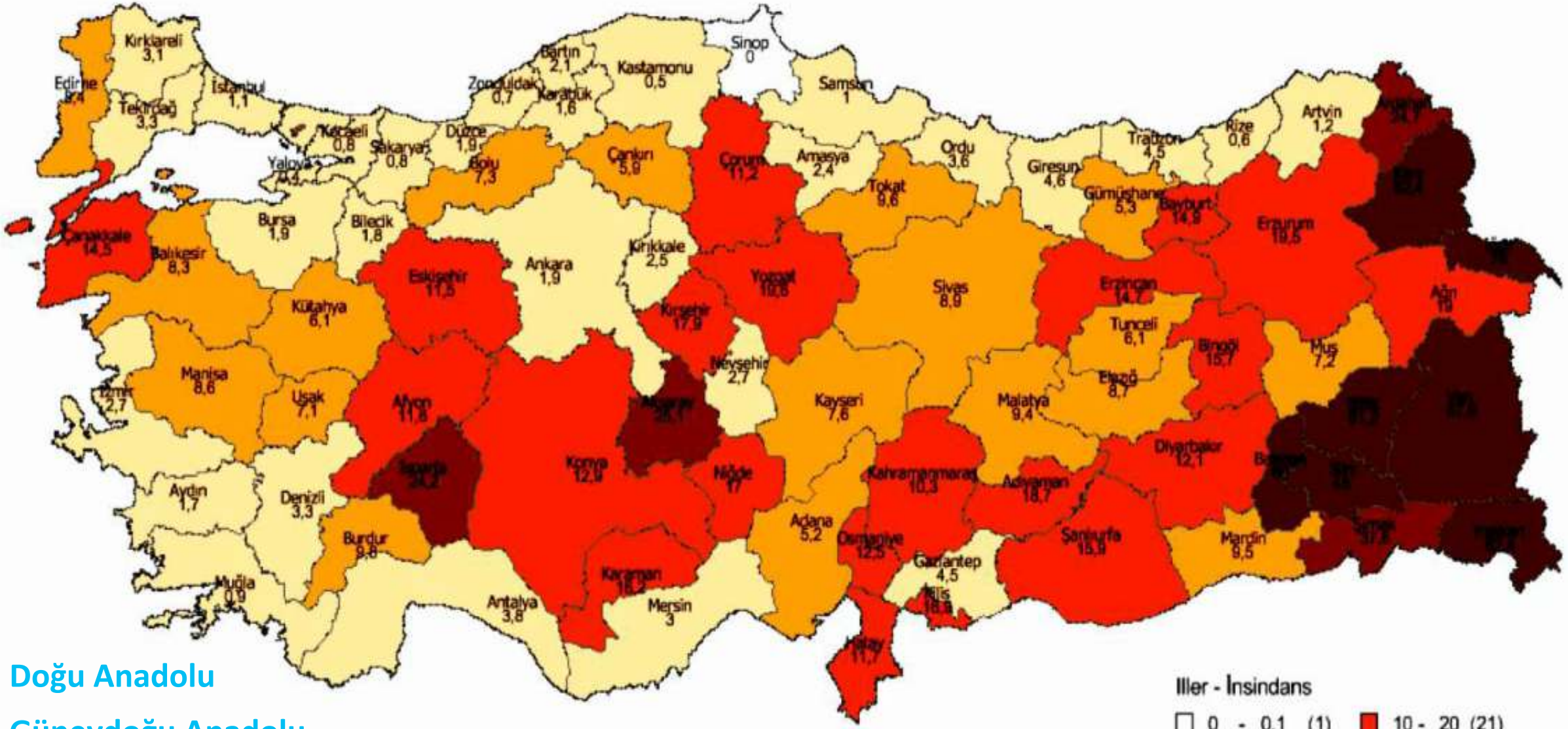


Figure 1: Worldwide incidence of human brucellosis

Türkiye Zoonotik Hastalıklar Eylem Planı (2019-2023)

Bruselloz İnsidans Haritası, Türkiye, 2017



- Doğu Anadolu
- Güneydoğu Anadolu
- İç Anadolu

Epidemiyoloji

BRUSELLOZ

Vaka ve Ölüm Sayıları, Morbidite ve Mortalite Hızları, Türkiye, 2008-2017

Yıllar	Nüfus	Vaka Sayısı	Morbidite Hızı (100.000)	Ölüm Sayısı	Mortalite Hızı (1.000.000)
2008	71.517.100	9818	13,73	1	0,01
2009	72.561.312	9385	12,93	0	0,00
2010	73.722.988	7703	10,45	0	0,00
2011	74.724.269	7177	9,60	0	0,00
2012	75.627.384	6759	8,94	0	0,00
2013	76.667.864	7225	9,42	0	0,00
2014	77.695.904	4475	5,76	0	0,00
2015	78.741.053	4173	5,30	0	0,00
2016	79.814.871	5148	6,45	0	0,00
2017	80.810.525	6457	7,99	0	0,00

Türkiye Zoonotik Hastalıklar Eylem Planı (2019-2023), 2019

Son yıllarda bazı Ortadoğu ülkelerinde bildirilen yıllık insan bruselloz vakası sayıları.

Ülke	İnsan Vaka Sayısı †	İnsidans Oranı/100.000 *
Mısır	3.756 †	3.8
İran	15.103 ‡	18.6
Irak	1.004 §	2.6
İsrail	348 §	4.0
Ürdün	441 ‡	4.5
Kuveyt	446 §	10.8
Umman	416 ‡	9.0
Filistin	894 §	19.1
Katar	114 §	4.3
Suudi Arabistan	4.062 ‡	12.3
Suriye	7.411 ‡	40.6
Türkiye	6.457 §	8.0
Birleşik Arap Emirlikleri	47 §	0,5
Yemen	25.041 ‡	88.6

Bagheri Nejad R, Krecek RC, Khalaf OH,Hailat N, Arenas-Gamboa AM (2020) Brucellosis inthe Middle East: Current situation and a pathway forward. PLoS Negl Trop Dis 14(5): e0008071.

Epidemiyoloji

Etken

Brucella spp,

- 0.6-1.5 μm boyunda, küçük, gram negatif, hareketsiz, sporsuz, aerop veya mikroaerofil özellikte kokobasil
- İntrasellüler üreyen bakteri
- İdeal üreme ısısı 37°C'dir, ancak 20-40°C'de de üreyebilir

Epidemiyoloji

Brusella spp,

- 60ºC'da 10 dk
- %0,1 fenolde 15dk
- Tereyağı 4 ay
- Dondurma 1 ay
- % 10 tuz içeren salamura peynir 45 gün
- Direkt güneş ışığı 1-12 saat
- 8°C'de sütte 2 güne kadar,
- Donmuş ette 3 haftaya kadar
- Toprak nemliyse, >40 gün
- Suda 10 hafta
- Düşük hayvan fetüslerinde 75 gün

Brucella türleri ve doğal konakları

Brucella türü	Koloni tipi	Doğal konak*	Zoonotik potansiyel
B. melitensis (bv1-3)	Yumuşak	Keçi ve koyun, deve	+++
B. abortus (bv 1–6, 7, 9)	Yumuşak	Sığır, deve, buffalo, geyik	++
B. suis biovar** 1-3 2 4 5	Yumuşak Yumuşak Yumuşak Yumuşak	Domuz Yaban domuzu ve yaban tavşanı Ren geyiği, karibu Kemirgen	++ + ++ -
B. ovis***	Kaba	Koyun	-***
B. neotomae	Yumuşak	Çöl faresi	+
B. canis	Kaba	Köpek	+
B. ceti (B. delphini)	Yumuşak	Yunuslar	+
B. pinnipedialis (B. phocae)	Yumuşak	Ayı balığı	+
B. microti	Yumuşak	Vahşi kurt, kızıl tilki	?
B. inopinata	Yumuşak	İnsan	++
B. papionis	?	Babun	?
B. vulpis	?	Kızıl tilki	?
N.N.****	Yumuşak	Kurbağa	?

Türkiye Zoonotik Hastalıklar Eylem Planı (2019-2023), 2019

Yapılan çalışmada 83 suş B. Melitensis

ilaç direnci yok

Gültekin et al. Eur J Med Res (2021) 26:57
https://doi.org/10.1186/s40001-021-00527-5

European Journal of Medical Research

Open Access

Investigation of antibiotic susceptibilities of Brucella Strains isolated from various clinical samples in eastern Turkey

Esra Gültekin[1], Muhammet Hamidullah Uyanık[2], Ayşe Albayrak[3] and Selçuk Kılıç[4]

Abstract

Background: Brucellosis is a worldwide zoonotic disease that causes serious public health problems. This study aimed to identify Brucella strains isolated from various clinical samples by conventional and molecular methods and to determine antimicrobial susceptibilities against doxycycline (DOX), streptomycin (STR), ciprofloxacin (CIP) and rifampicin (RIF) by the gradient strip (E test) test method.

Methods: A total of 87 Brucella strains isolated from various clinical specimens between 2004 and 2018 were included in this study. While four of the 87 strains included in the study were identified only at the genus level, the remaining 83 strains were identified at the species level by the Real-Time Multiplex PCR (M-RT-PCR) method and con- ventional methods were used for biotyping.

Results: According to molecular identification results, 83 strains were identified as B. melitensis by the M-RT-PCR method, with 82 strains identified as Brucella melitensis biovar (bv) 3 and one as B. melitensis bv 1 according to the conventional biotyping method. Among the antibiotics studied, CIP was found to be the most active agent according to the minimum inhibitory concentrations $(MIC)_{90}$ values. This was followed by DOX and STR, respectively. While all of the isolates were sensitive to CIP, DOX and STR, 18 (20.7%) strains were found to be moderately susceptible to RIF, with the highest values of MIC_{50} and MIC_{90}.

Conclusions: In our study, all strains were identified as B. melitensis. DOX, STR, CIP and RIF used in the treatment of brucellosis were found to be effective.

Keywords: Antimicrobial susceptibilities, Biotyping, Brucella, E test

Background

The Brucella species is a zoonotic infectious agent that can be transmitted to humans by direct contact with body secretions by impaired skin, inhalation and con- junctiva, as well as the consumption of meat, milk and milk products of animals, such as infected sheep, goats, cattle and pigs. Although human-to-human transmis- sion is rare, it can also be transmitted through sex, blood transfusion and breast milk [1]. The incubation period of brucellosis, which is a systemic infectious disease, is 2–3 weeks. It begins with general signs of infection, progresses with septicemia and can be seen in different clinical forms effecting many organs [1, 2].

With the appropriate clinical manifestations, the diagnosis of the disease occurs by serological tests and the isolation of the agent [1, 3]. Although definitive diagnosis is isolation of bacteria from culture in brucellosis, serological methods are mostly preferred, due to the difficulties in isolating the agent most of the time, especially in chronic cases, the risk of laboratory infection, and the delayed results [4]. Although many serological methods

*Correspondence: esra_gltkn83@hotmail.com; esra.gultekin@erzincan.edu.tr
1 Department of Medical Microbiology, Faculty of Medicine, Erzincan Binali Yıldırım University, Erzincan 24100, Turkey
Full list of author information is available at the end of the article

Brucella melitensis biovar 3, Mısır, Ürdün, İsrail, Tunus ve Türkiye'deki hayvanlardan en sık

B. abortus biovar 3 İran ve Türkiye'de

Review Vet Microbiol. 2002 Dec 20;90(1-4):81-110. doi: 10.1016/s0378-1135(02)00248-1.

Incidence and control of brucellosis in the Near East region

Mohamed[1] Refai

Affiliations

PMID: 12414137 DOI: 10.1016/s0378-1135(02)00248-1

Abstract

In countries of the Near East region, brucellosis was reported in almost all domestic animals, particularly cattle, sheep and goats. Brucellosis in camels has been reported in Saudi Arabia, Kuwait, Oman, Iraq, Iran, Sudan, Egypt, Libya and Somalia. It has been reported even in racing camels in the United Arab Emirates. In Egypt, brucellosis has been reported also in buffaloes, equines and swine. Brucella melitensis biovar 3 is the most commonly isolated species from animals in Egypt, Jordan, Israel, Tunisia and Turkey. B. melitensis biovar 2 was reported in Turkey and Saudi Arabia, and B. melitensis biovar 1 in Libya, Oman and Israel. B. abortus biovar 1 was reported in Egypt, biovar 2 in Iran, biovar 3 in Iran and Turkey, and biovar 6 in Sudan. The countries with the highest incidence of human brucellosis are Saudi Arabia, Iran, Palestinian Authority, Syria, Jordan and Oman. Bahrain is reported to have zero incidence. Most human cases are caused by B. melitensis, particularly biovar 3. However, B. abortus has been responsible for an increasing number of cases in recent years, e.g. in Yemen, where B. abortus was identified in 45 cases and B. melitensis in 7 cases out of 330 cultures performed in 1995. Concerning control of brucellosis in animals, there is a controversy on the choice of policy. In some countries, the test and slaughter policy together with the vaccination of young females is adopted, in others, particularly with regard to sheep and goats; mass vaccination has been recently started. The most commonly used vaccines are B. abortus S19 and B. melitensis Rev.1 vaccines. B. abortus RB51 vaccine is used in some countries on small scale. Vaccination is limited to cattle and small ruminants.

Epidemiyoloji

Bulaş kaynağı

Enfekte hayvanların

- Eti
- Sütü
- Salyaları
- İdrarı
- Dışkısı
- Atık yavruları

- Sindirim sistemi
- İnhalasyon
- Kontamine ürünlere ve materyallere çıplak elle temas

Kaynatılmadan hazırlanan süt ve süt ürünlerinin tüketilmesi en önemli kaynak

Epidemiyoloji

Bulaş yolları

- İnsandan insana bulaş nadir

⬇

Ancak

- Transplasental
- Emzirme
- Transfüzyon
- Cinsel yolla

Centers for Disease Control and Prevention. Brucellosis reference guide. Exposures, testing and prevention. CDC; 2017 Feb. Erişim tarihi: 27 Aralık 2018. Erişim adresi: https://www.cdc.gov/brucellosis/pdf/brucellosis-reference-guide.pdf

Tropical Medicine and International Health doi:10.1111/tmi.12856
volume 22 no 5 pp 539–548 may 2017

Systematic Review

Human-to-human transmission of Brucella – a systematic review

Felipe F. Tuon,1,2, Regina B. Gondolfo1 and Natacha Cerchiari1

1 School of Medicine, Pontifícia Universidade Católica do Paraná, Curitiba, Brazil
2 Division of Infectious Diseases, Hospital de Clínicas da UFPR, Curitiba, Brazil

Abstract

objective The most common form of transmitting human brucellosis is through contaminated food or direct contact with infected animals. Human-to-human transmission (HHT) has been described as isolated case reports. The aim of this systematic review was to describe all cases of HHT of human brucellosis reported in the medical literature.

methods A literature search was conducted using PubMed, Scopus and Scielo databases using specific search terms published until March 2016. Two investigators independently determined study eligibility. All clinical data were evaluated to construct a table comprising the most important clinical aspects, age, gender, confirmed infection and detection method, transmission method and HHT confirmation and potential source of infection for human transmission. No statistical method was employed in this study.

results The initial search resulted in 615 publications, but only 35 were included. 45 brucellosis HHT cases were identified. 61% of patients who acquired brucellosis from another human were <1 year old (newborn and breastfeeding). Other cases include sexual transmission, blood transfusion, bone marrow transplantation and aerosol from an infected patient. Most patients (40/45) presented symptoms upon diagnosis. Diagnostic tests included culture, molecular methods and serum testing.

conclusion Human brucellosis is a disease liable to transmission between humans by placental screening in

- 35 yayın
- %68'i Brucella melitensis
- En fazla transplesental 11 vaka
- İkinci sırada cinsel bulaş 10
- Kan transfüzyon 5 vaka
- 7 düşünülen 2 vakada anne süt kültüründe Brucella üremesi ile doğrulanmış
- kemik iliği nakli 2 vaka

Epidemiyoloji

Eklemlerinde şişkinlik
Orşit
Ölü doğum
Mastit
İnfeksiyonla doğan canlı- gizli taşıyıcı

Bakteri eritritolden zengin dokulara yerleşme eğiliminde

(metabolizmasında glikoza tercih ettiği bir şeker)

Hayvanlarda eritritolden zengin dokular

Meme
Uterus
Plesenta
Epididim

Hayvanların süt, idrar ve doğum sonrasında açığa çıkan atıklarında çok sayıda bakteri bulunur

Bu organlara yerleşerek kısırlık, düşük ve yaşam boyu asemptomatik taşıyıcılığa neden olur

30 makale
9281 örnek içeren
metaanaliz
çalışması İran ve
Türkiye ilk sıralarda

ScienceDirect

Acta Tropica
Volume 202, February 2020, 105241

The prevalence of Brucella spp. in dairy products in the Middle East region: A systematic review and meta-analysis

Abdol-Samad Abedi [a], Fataneh Hashempour-Baltork [b], Adel Mirza Alizadeh [b], Samira Beikzadeh [b], Hedayat Hosseini [b, c], Moin Bashiry [d], Musarreza Taslikh [b], Fardin Javanmardi [b], Zhaleh Sheidaee [b], Zahra Sarlak [b], Yadolah Fakhri [e], Amin Mousavi Khaneghah [f]

Show more

Share Cite

https://doi.org/10.1016/j.actatropica.2019.105241

Abstract

Brucellosis, known as Malta fever or Mediterranean fever, is one of the most common bacterial zoonotic diseases caused by Brucella spp. which can result in serious health issues. The objective of the present study was to systematically review and summarize the studies regarding the prevalence of Brucella spp. in milk and milk products in the Middle East region. Some international databases (PubMed, Web of Science, Scopus, Science Direct, and Google Scholar) were searched to retrieve relevant reports published between 1 January 2008 and 30th October 2018. After assessing for eligibility, 30 articles containing 9281 samples, were included in the current study. The highest number of publications were found in Iran and Turkey (n = 12 and 7, respectively), while Saudi Arabia, Kuwait, and Syria had the lowest number of publications (n = 1). Besides, the highest and lowest prevalence was observed in Kuwait (62%) and Egypt (15%), respectively. The highest and lowest overall prevalence of Brucella spp. in milk was found in raw cow milk 36% (95%CI: 28–54%) and raw buffalo milk 13% (95%CI: -22–48%), respectively. The overall prevalence in cheese estimated to be 9% (95%CI: -16–35%). The overall prevalence of Brucella spp. in dairy products in the Middle East was estimated to be 29% (95%CI: 23–35%). The results indicate that more risk management plans are needed to reduce the incidence of Brucella spp. in dairy products in the Middle East, especially in cow milk.

Graphical abstract

Çiğ inek sütte %36
Çiğ manda sütünde %13
Peynirde %9

Sivas ta toplanan 150 çiğ süt örneğinin 85 (%56),

50 adet beyaz peynir örneğinin 2 (%4)

Tokat'ta toplanan 100 çiğ süt örneğinin 32 (%32) ,

50 adet beyaz peynir örneğinin 9 (%18)

50 tereyağı ve 50 yoğurt numunesinde tespit edilmemiş

CMJ Original Research June 2020, Volume: 42, Number: 2
Cumhuriyet Tıp Dergisi (Cumhuriyet Medical Journal) 145-151
http://dx.doi.org/10.7197/cmj.vi.637835

Investigation of *BRUCELLA* SPP in milk and dairy products and lifespan of *BRUCELLA MELITENSIS* and *BRUCELLA ABORTUS* in kefir

Süt ve süt ürünlerinde *BRUCELLA* SPP'nin araştırılması ve *BRUCELLA MELITENSIS* ile *BRUCELLA ABORTUS*'un kefirde yaşamı

Ayşe Hümeyra Taşkın Kafa, Zeynep Sümer

Sivas Cumhuriyet University, Faculty of Medicine, Department of Medical Microbiology, Sivas, Turkey
Corresponding author: Ayşe Hümeyra Taşkın Kafa, MD, Sivas Cumhuriyet University, Faculty of Medicine, Department of Medical Microbiology, Sivas, Turkey
E-mail: ahtaskin@cumhuriyet.edu.tr
Received/Accepted: October 24, 2019 / June 27, 2020
Conflict of interest: There is not a conflict of interest.

SUMMARY

Brucellosis is common disease in our country and it is an important zoonotic infection that is up to date in terms of public health, animal industry and economic losses.

The aim of this study was to determine *Brucella* IgG positivity of raw milk and dairy products purchased non-packed and non-labelled. In this study, a total of 450 samples including 250 raw milk, 100 white cheese, 50 butter and 50 yoghurt samples were investigated by ELISA method for *Brucella* IgG positivity. 85 (56.6 %) of 150 raw milk samples obtained from Sivas province center and surrounding villages, 32 (32 %) of 100 raw milk samples obtained from the milk deliverers of Tokat province center and Reşadiye and Pazar districts of Tokat were detected positive for *Brucella* spp. 2 (4 %) of 50 white cheese samples collected in Sivas province center and 9 (18 %) of 50 white cheese samples collected in Tokat province center were positive for *Brucella* spp. None of the yoghurt and butter samples were positive for *Brucella* IgG antibodies

Additionally, in this study, the survival time of *Brucella melitensis* and *Brucella abortus* bacteria prepared in different bacterial density in kefir obtained from 3 different sources (A, B brand and homemade) were investigated. Bacteria in A and B brand kefir lived between 0-72 hours, while homemade kefir lived between 0-24 hours. No reproduction was observed at the end of the period. This study investigated *Brucella* Ig G positivity in milk and dairy products in Sivas and Tokat provinces and milk and dairy products may pose a risk for Brucellosis. Additionally, it was observed that *Brucella* could survive up to 3 days in probiotic fermented milk drink Kefir and the kefir suppresses *Brucella* growth.

Keywords: *Brucella* spp, milk and dairy products, kefir

Ayşe Hümeyra Taşkın Kafa
Zeynep Sümer

ORCID IDs of the authors:
A.H.T.K. 0000-0002-7282-4928
Z.S. 0000-0002-1520-3359

İran 238 pastörize edilmemiş süt ürününün incelendiği

48 çiğ süt örneğinden 9'u

48 yoğurt numunesinde 3'ü pozitif

Mol Biol Res Commun. 2020 Sep; 9(3): 117–121.
doi: 10.22099/mbrc.2020.37381.1506

PMCID: PMC7727767
PMID: 33313331

Prevalence of *Brucella* species in unpasteurized dairy products consumed in Shiraz province using PCR assay

Fargol Abdali,[1] Saeid Hosseinzadeh,[2] Enayat Berizi,[3] Maryam Pourmontaseri[3]

Abstract

The consumption of milk and unpasteurized dairy products contaminated with Brucella bacteria is one of the most important ways of brucellosis transmission to humans. The principal goal of this study was to determine the prevalence of *Brucella abortus* (*B. abortus*) and *Brucella melitens* (*B. melitens*) in unpasteurized dairy products consumed in Shiraz province. In this study conducted in 2016, 238 unpasteurized dairy products including 48 raw milk, 48 yogurt, 46 cheeses, 48 dough and 48 ice cream samples, were purchased from the retail market in Shiraz province and were examined by a speci ic PCR assay. This study showed positive 5/04% out of 238 unpasteurized dairy products including 9 out of 48 (18/75%) raw milk samples and 3 out of 48 (6.25%) yogurt samples). Contamination was not detected in samples of dough, cheese and traditional ice cream. The results also showed that among 12 positive samples, 6 samples were contaminated with *B. abortus* (including 4 milk samples and 2 yogurt samples), 2 samples were contaminated with *B. melitensis* (including 2 Milk samples) and 4 samples were contaminated simultaneously with *B. abortus* and *B. melitensis* (including 3 milk samples and 1 yogurt sample). The present study suggests the unpasteurized dairy products as the major

46 cheeses, 48 dough and 48 ice cream samples, were purchased from the retail market in Shiraz province and were examined by a speci ic PCR assay. This study showed positive 5/04%

Key Words:

Back to Top

Selçuk Tip Dergisi
Selcuk Medical Journal
Selcuk Med J 2021;37(2): 130-136
DOI: 10.30733/std.2021.01495

Evaluation of Brucellosis Patients Followed-up in a Tertiary Hospital

Üçüncü Basamak Bir Hastanede İzlenen Brusellozis Olgularının Değerlendirilmesi

Esma Kepenek Kurt[1], Bahar Kandemir[1], Ibrahim Erayman[1], Sumeyye Yuce[1], Rukiyye Bulut[2]

Öz

Amaç: Brusellozis Türkiye'de endemik olarak görülen aynı zamanda halk sağlığı problemi olan zoonotik bir infeksiyondur. Bu çalışmada kliniğimizde takip edilen brusellozis olgularının demografik/epidemiyolojik, klinik, laboratuvar özelliklerinin, komplikasyon ve tedavilerinin değerlendirilmesi amaçlanmıştır.

Hastalar ve Yöntem: Bu çalışmada kliniğimizde 1 Ocak 2010-31 Aralık 2018 tarihleri arasında takip edilen olguların özellikleri retrospektif olarak incelendi. Tanımlayıcı veriler sayı ve yüzde (%) olarak belirtildi. Kategorik değişkenler ki-kare testi, sayısal değişkenler Student-T testi kullanılarak analiz edildi. **Bulgular:** Toplam 365 brusellozisli hastanın 159 (%43.56)'u kadın, 206 (%56.44)'sı erkekti. Hastaların yaş ortalaması 45.9±14.51 (18-82) idi. En sık başvuru zamanı 137 (%37.5) ile yaz mevsimiydi. Hastalığın en sık 252 (%69) bulaş yolu hayvancılıkla uğraşma öyküsü olarak bulundu. Olguların 168 (%46)'i akut, 96 (%26.3)'sı subakut, 101 (%27.7)'i kronik

...mi olup kadınlarda anemi daha
...ositoz, %9.6 trombositopeni,
...t agglütinasyon testi

Yaş ortalaması 45.9±14.51

%69 hayvancılık öyküsü

%38 ile yaz mevsimi en sık

%44 kadın, %56 erkek

23.11.2022 21:45 Clinical manifestations and complications in 1028 cases of brucellosis: a retrospective evaluation and review of the literature

An official website of the United States government

Review Int J Infect Dis. 2010 Jan;14(1):e469-78. doi: 10.1016/j.ijid.2009.06.031. Epub 2009 Nov 11.

Clinical manifestations and complications in 1028 cases of brucellosis: a retrospective evaluation and review of the literature

Turan Buzgan 1, Mustafa Kasim Karahocagil, Hasan Irmak, Ali Irfan Baran, Hasan Karsen, Omer Evirgen, Hayrettin Akdeniz

Affiliations

PMID: 19910232 DOI: 10.1016/j.ijid.2009.06.031

Free article

Abstract

Introduction: Brucellosis is the most prevalent bacterial zoonosis worldwide. In this study, we aimed to compare our 1028 brucellosis cases with other big series in the literature in view of epidemiological, clinical, and laboratory findings and therapeutic features.

Methods: A total of 1028 brucellosis cases admitted to the Department of Infectious Diseases and Clinical Microbiology over a 10-year period were included in the study. A retrospective analysis was undertaken and patient files were reviewed for history, clinical and laboratory findings, and therapeutic features, as well as complications.

Results: Of the 1028 patients, 539 (52.4%) were female and 489 (47.6%) were male. The mean age of patients was 33.7+/-16.34 years and 69.6% of cases were aged 13-44 years. Four hundred and thirty-five cases (42.3%) had a history of raising livestock and 55.2% of the cases were found to have no occupational risk for brucellosis. Six hundred and fifty-four of the cases (63.6%) had a history of raw milk and dairy products consumption. The most frequently seen symptoms were arthralgia (73.7%) and fever (72.2%), while the most common clinical findings were fever (28.8%) and hepatomegaly (20.6%). The most frequent laboratory finding was a high C-reactive protein level (58.4%). The standard tube agglutination (STA) test+Coombs STA test was positive in 1016 cases (98.8%). Focal involvement was present in 371 (36.1%) cases. The most frequent involvement was osteoarticular involvement with 260 cases (25.3%). The overall relapse rate for patients with brucellosis was 4.7%. The highest relapse rate, 8.5%, was observed in the group of patients with osteoarticular involvement.

...more effective

...o be a major
...ted brucellosis.
...hoices and

...served.

1028 bruselloz olgusu

%42 hayvancılık öyküsü

ortalama yaşı 33,7+/-16,34

%52 kadın, %48 erkek

1/2

Epidemiyoloji

Riskli Meslekler

- Hayvancılık yapan aile bireyleri
- Hayvan çiftliklerinde çalışanlar
- Veterinerler
- Hayvansal gıda üretiminde ve hazırlanmasında çalışanlar (kasaplar, et paketi yapanlar, süt ve süt ürünleri hazırlama işinde çalışanlar)
- Yün ve deri ile uğraşanlar
- Laboratuarlarda çalışan sağlık personeli

JCM
Journals.ASM.org

A Literature Review of Laboratory-Acquired Brucellosis

Rita M. Traxler,[a] Mark W. Lehman,[a,b] Elizabeth A. Bosserman,[a] Marta A. Guerra,[a] Theresa L. Smith[a]
Division of High-Consequence Pathogens and Pathology, Centers for Disease Control and Prevention, Atlanta, Georgia, USA[a]; Epidemic Intelligence Service, Centers for Disease Control and Prevention, Atlanta, Georgia, USA[b]

Brucellosis is a bacterial zoonotic disease which has been associated with laboratory-acquired infections. No recent reviews have addressed the characteristics of laboratory-acquired brucellosis (LAB). English-language literature was reviewed to identify reports of laboratory exposures to *Brucella* spp. and LAB cases between 1982 and 2007. Evaluation of 28 case reports identified 167 potentially exposed laboratory workers, of whom 71 had LAB. Nine reports were identified that summarized an additional 186 cases of LAB. Only 18 (11%) exposures were due to laboratory accidents, 147 (88%) exposures were due to aerosolization of organisms during routine identification activities, and the circumstances of 2 (1%) exposures were unknown. *Brucella melitensis* was the causative agent in 80% (135/167) of the exposures. Workers with high-risk exposures were 9.3 times more likely to develop LAB than workers with low-risk exposures (95% confidence interval [CI], 3.0 to 38.6; $P < 0.0001$); they were also 0.009 times likelier to develop LAB if they took antimicrobial PEP than if they did not (95% CI, 0 to 0.042; $P < 0.0001$). The median incubation period in case and summary reports was 8 weeks (range 1 to 40 weeks). Antimicrobial PEP is effective in preventing LAB. The incubation period may be used to identify appropriate serological and symptom surveillance time frames for exposed laboratory workers.

%81 B.melitensis

167 laboratuvar çalışanının 71 de

Revista da Sociedade Brasileira de Medicina Tropical 46(6):791-794, Nov-Dec, 2013
http://dx.doi.org/10.1590/0037-8682-0160-2013

Case Report

Outbreak of laboratory-acquired *Brucella abortus* in Brazil: a case report

Ana Luisa Calixto Rodrigues[1], *Stéphanie Kneipp Lopes da Silva*[1], *Bárbara Luíza Alves Pinto*[1], *Jane Braga da Silva*[1] *and Unaí Tupinambás*[2]

[1] Curso de Medicina, Universidade Federal de Minas Gerais, Belo Horizonte, MG. [2] Departamento de Clínica Médica, Universidade Federal de Minas Gerais, Belo Horizonte, MG.

ABSTRACT

Human brucellosis is an occupational disease affecting workers in slaughterhouses, butcher shops and the milk and dairy product industry as well as individuals who work in clinical or research laboratories. We report the first outbreak of a *Brucella abortus* infection in a Brazilian laboratory and compare the data obtained with reports available in the literature. Exposure was a result of damage to a biological safety cabinet and failure of the unidirectional airflow ventilation system. An epidemiological investigation identified 3 seroconverted individuals, 1 of whom had clinical manifestations and laboratory results compatible with infection at the time of exposure (n=11; attack rate=9.1%).

Biyogüvenlik kabininde arıza 3 vaka

J Hosp Infect. 2004 Mar;56(3):223-7

Analysis of risk factors for laboratory-acquired brucella infections.

Ergönül O, Celikbaş A, Tezeren D, Güvener E, Dokuzoğuz B

The First Infectious Diseases and Clinical Microbiology Clinic, Ankara Numune Education and Research Hospital, Ankara, Turkey. oergonul@hotmail.com

Abstract

The aim of the study was to determine the risk factors for acquiring brucella infection among healthcare workers (HCWs). The study was performed in Ankara Numune Education and Research Hospital, Turkey, before the introduction of Biosafety III measures. A questionnaire was given to HCWs, who were at risk of brucella infection. Twelve HCWs with brucella infection were detected, an incidence of 8% per employee-year. A multivariate analysis of risk factors in seven of the cases and 48 control HCWs was performed. Male physicians were found to be associated with a higher risk of acquiring brucella infection [odds ratio, 25.3; confidence interval (CI), 2.3-283.7; P=0.008]. Using gloves was found to be protective (odds ratio, 0.02; CI, 0.008-0.4; P=0.017).

Biyogüvenlik III önlemleri uygulanmadan önce yapıldı. Brucella enfeksiyonu riski taşıyan sağlık çalışanlarına bir anket verildi. 12 brusella enf

Journal of Hospital Infection 80 (2012) 126–130

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevierhealth.com/journals/jhin

Laboratory-acquired brucellosis in Turkey

S. Sayin-Kutlu [a,*], M. Kutlu [a], O. Ergonul [b], S. Akalin [a], T. Guven [c], Y.Z. Demiroglu [d], O. Acicbe [e], M. Akova [f] Occupational Infectious Diseases Study Group [1]

[a] Department of Infectious Diseases and Clinical Microbiology, Pamukkale University, Faculty of Medicine, Denizli, Turkey
[b] Department of Infectious Diseases, Koc University, School of Medicine, Istanbul, Turkey
[c] Infectious Diseases and Clinical Microbiology Clinic, Atatürk Training and Research Hospital, Ankara, Turkey
[d] Department of Infectious Diseases and Clinical Microbiology, Baskent University Adana Hospital, Adana, Turkey
[e] Department of Infectious Diseases and Clinical Microbiology, Ondokuz Mayis University, Faculty of Medicine, Samsun, Turkey
[f] Department of Medicine, Section of Infectious Diseases, Hacettepe University, School of Medicine, Ankara, Turkey

ARTICLE INFO

Article history:
Received 23 August 2011
Accepted 10 December 2011
by J.A. Child
Available online 25 February 2012

Keywords:
Brucellosis
Laboratory-acquired infection
Risk factors

SUMMARY

Background: Laboratory healthcare workers (HCWs) are at risk of laboratory-acquired brucellosis (LAB).
Aim: To describe the risk factors of LAB among HCWs.
Methods: A multicentre survey study was conducted by face-to-face interview in 38 hospitals from 17 provinces of Turkey. A structured survey was administered to the HCWs, working in infectious diseases clinics and microbiology departments, who were at risk of brucella infection.
Findings: The survey response rate was 100%. Of the 667 laboratory workers, 38 (5.8%) had a history of LAB. In multivariate analysis, factors independently associated with an increased risk of LAB included working with the brucella bacteria (odds ratio: 5.12; 95% confidence interval: 2.28–11.52; $P < 0.001$) and male gender (2.14; 1.00–4.45; $P = 0.042$). Using a biosafety cabinet level 2 (0.13; 0.03–0.60; $P = 0.009$), full adherence to glove use (0.27; 0.11–0.65; $P = 0.004$) and longer duration of professional life (0.86;

17 ilinden 38 hastanede çok merkezli anket 667 laboratuvar çalışanından 38'inde (%5,8)

Epidemiyoloji
Patogenez

- Etken → bölgesel lenf bezleri

(mezenterik, aksiler, servikal, supraklavikular)

↓ 2 hafta-7 ay

Kan

2-3 hafta bakteriyemi

↓

uterus, endometrium, eklem, bursa, tendon,meme ve ilişkili lenf nodülleri , epididimis, testis, retiküloendotelyal sistem hücreleri

Bruselloz

Klinik

- İnsanlardaki inkübasyon süresi

  1-3 hafta-3 ay

- Başlangıç semptomları sessiz veya akut
- Tüm organ ve sistemleri tutabilir
- Genellikle genel infeksiyon belirtileri ile başlar

  Halsizlik,

  İştahsızlık

  Baş ağrısı

  Etraf ağrıları, sırt ağrısı

  Ateş

  Terleme

Epub 2009 Nov 11.

Review Int J Infect Dis. 2010 Jun;14(6):e469-78. doi: 10.1016/j.ijid.2009.06.031.

Clinical manifestations and complications in 1028 cases of brucellosis: a retrospective evaluation and review of the literature

Turan Buzgan 1, Mustafa Kasim Karahocagil, Hasan Irmak, Ali Irfan Baran, Hasan Karsen, Omer Evirgen, Havrettin Akdeniz

Affiliations

PMID: 19910232 DOI: 10.1016/j.ijid.2009.06.031

Free article

Abstract

Introduction: Brucellosis is the most prevalent bacterial zoonosis worldwide. In this study, we aimed to compare our 1028 brucellosis cases with other big series in the literature in view of
epidemiological, clinical, and laboratory findings and therapeutic features.

Methods: A total of 1028 brucellosis cases admitted to the Department of Infectious Diseases and Clinical Microbiology over a 10-year period were included in the study. A retrospective analysis was undertaken and patient files were reviewed for history, clinical and laboratory findings, and therapeutic features, as well as complications.

Results: Of the 1028 patients, 539 (52.4%) were female and 489 (47.6%) were male. The mean age of patients was 33.7+/-16.34 years and 69.6% of cases were aged 13-44 years. Four hundred and thirty- five cases (42.3%) had a history of raising livestock and 55.2% of the cases were found to have no occupational risk for brucellosis. Six hundred and fifty-four of the cases (63.6%) had a history of raw milk and dairy products consumption. The most frequently seen symptoms were arthralgia (73.7%) and fever (72.2%), while the most common clinical findings were fever (28.8%) and hepatomegaly (20.6%). The most frequent laboratory finding was a high C-reactive protein level (58.4%). The standard tube agglutination (STA) test+Coombs STA test was positive in 1016 cases (98.8%). Focal involvement was present in 371 (36.1%) cases. The most frequent involvement was osteoarticular involvement with 260 cases (25.3%). The overall relapse rate for patients with brucellosis was 4.7%.

doxycycline and streptomycin with or without

There is no recommended treatment
ces and durations in complicated

Ateş	72.2
Halsizlik	71.2
Kas ağrısı	36.1
Bel ağrısı	21.2
Gece terlemesi	64.8
Eklem ağrısı	73.7
İştahsızlık	49.0
Baş ağrısı	14.4
Bulantı Kusma	24.9
Kilo kaybı	42.4
Karın ağrısı	6.7
Öksürük	2.0
Testiste şişlik	3.4

S.D.Ü Sağlık Bilimleri Enstitüsü Dergisi
Cilt 3 / Sayı 3 / 2012

ARAŞTIRMA

Bruselloz: 382 olgunun geriye dönük irdelenmesi

Brucellosis: retrorospectiveevaluation of 382 patients

Orhan Akpınarı, Hüseyin Kılıç

1Isparta Devlet Hastanesi, Mikrobiyoloji AD, Isparta, Türkiye
2Erciyes Üniversitesi Tıp Fakültesi, Acil Servis, Kayseri, Türkiye

Özet

Amaç: Bruselloz; dünyanın birçok ülkesinde ve Türkiye'de yaygın olarak görülen, ciddi ekonomik kayıplara neden olan ve pek çok ülke için önemli bir halk sağlığı sorunudur. Çalışmamızda brusellozvakalarının, epidemiyolojik klinik ve laboratuar bulgularının değerlendirilmesi amaçlandı.

Materyal–Metod: Araştırmamızda Bruselloz şüphesi ile serolojik tetkik istenmiş 23443 hasta dosyası retrospektif olarak taranmış ve bu hastalardan serolojik olarak tanı konulan 382 hastanın dosyası incelenmiştir. RB (+) ve SAT 1/160ve üzeri pozitif olan 382 hastanın yaş, cinsiyet, meslek, klinik bulgu ve laboratuar parametreleri değerlendirilmiştir.

Abstract

Objective: Brucellozis is commonly seen all over the world as well as in Turkey and it is an important public health problem that causes serious economic loss. The aim of this study was to evaluate the epidemiological, clinical and laboratory findings of the patients with brucellosis.

Material–Method:: For this study, 24343 patients' files were examined retrospectively and 382 patients, who were serologically diagnosed, were subjected to this study. The age, sex, occupation, laboratory findings and clinical symptoms of 382 patients with RB (+) and SAT 1/160 and over were investigated.

- Ateş 93
- Halsizlik 90
- Kas ağrısı 80
- Bel ağrısı 76
- Gece terlemesi 71
- Eklem ağrısı 66
- Baş ağrısı 42
- Hareket kısıtlılığı 35
- Bulantı Kusma 26
- Kilo kaybı 22
- Karın ağrısı 8
- Öksürük 6
- Testiste şişlik 2

Epidemiyoloji

Semptomların Süresine Göre

Akut bruselloz

Semptom süresi

8 haftadan kısa

- Ateş, halsizlik, iştahsızlık, baş ağrısı, sırt ağrısı, kilo kaybı, miyalji ve artralji
- Splenomegali ve hepatomegali %6-35
- Organ tutulumu olabilir,
- Artrit %40-50

Subakut bruselloz

Semptom süresi

8-52 hafta

- Eksik veya yetersiz antibiyotik tedavisi
- Yanlış tanı nedeniyle uygunsuz antibiyotik tedavisi
- Nedeni bilinmeyen hastalıkların çoğunluğunu oluşturur
- Semptomlar genellikle hafiftir ve lokal organ yerleşimleri görülebilir

Kronik bruselloz

Semptom süresi

1 yıldan uzun

- Kronik yorgunluk sendromuna benzer
- Yaşlılarda sık görülür
- Depresyon gibi psikiyatrik semptomlar, halsizlik, terleme ve kilo kaybı
- Semptomlar uzun süre sonra tekrarlayabilir
- Ateş nadirdir ve genellikle lokal semptomlar izlenir

287 basılı makale

29 kongre sunumu

Toplam 4204 hasta

Turk J Med Sci
2011; 41 (3): 549-555
© TÜBİTAK
E-mail: medsci@tubitak.gov.tr
doi:10.3906/sag-0911-404

Original Article

Human brucellosis in Turkey: a review of the literature between

9

ÖKENGİN[2]

- **Osteoartikuler tutulum** 1839 vaka (%44)
- **Hematopoetik tutulum** 1401 vaka (%33)
- **Nörolojik tutulum** 413 vaka (%9)
- **Gastrointestinal sistem** 182 vaka (% 4.3)
- **Ürogenital sistem** 171 olgu (%4)
- **Cilt Tutulumu** 146 olgu(%3.5)
- **Kardiyovasküler sistem** 67 olgu (%2)
- **Respiratuvar sistem** 46 olgu (%1)
- **Okuler tutulum** 12 olgu (%0.2)

Bruselloz-Komplikasyonlar

Osteoartiküler

%10-85

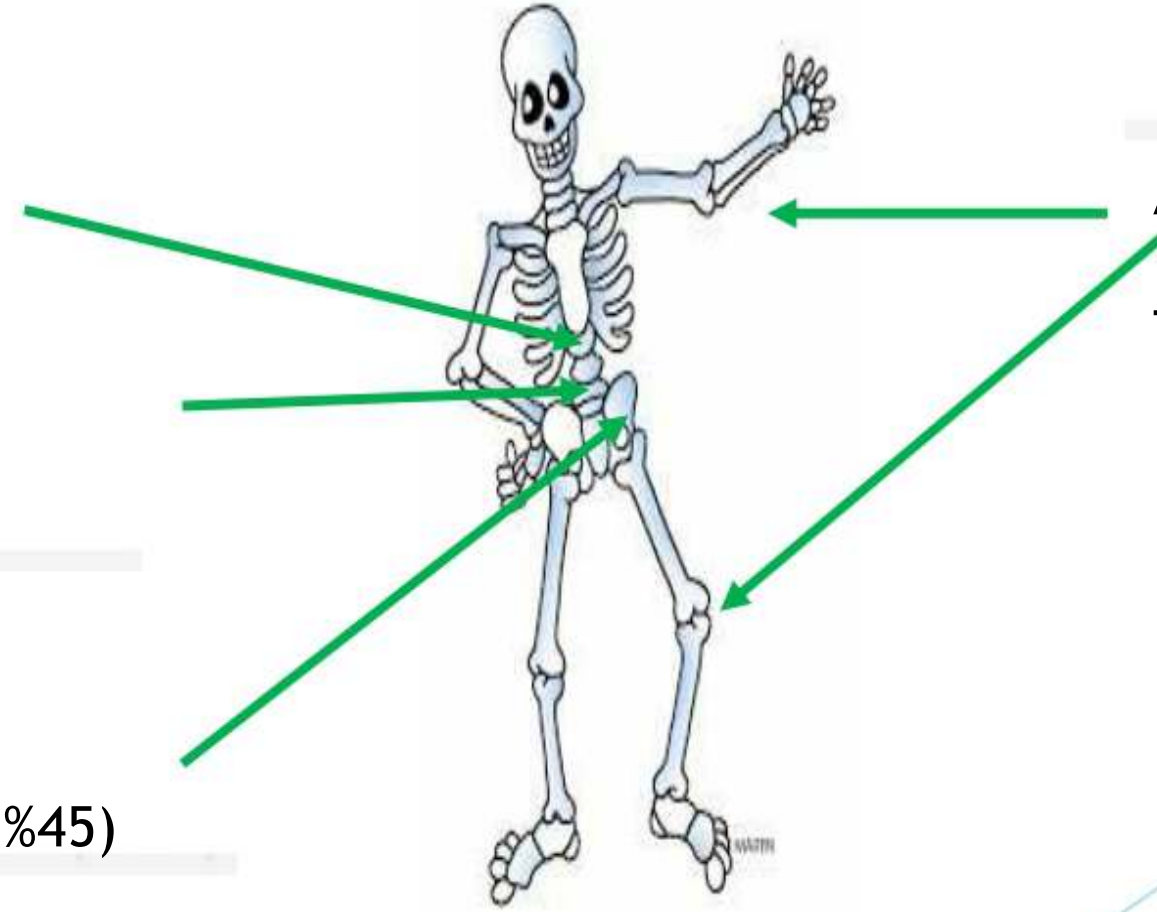
Spondilit (%10-65)

Spondilodiskit

Osteomiyelit

Paravertebral abse

İleopsoas absesi



Artrit (%40)
Bursit
Tenosinovit

Sakroileit (%45)

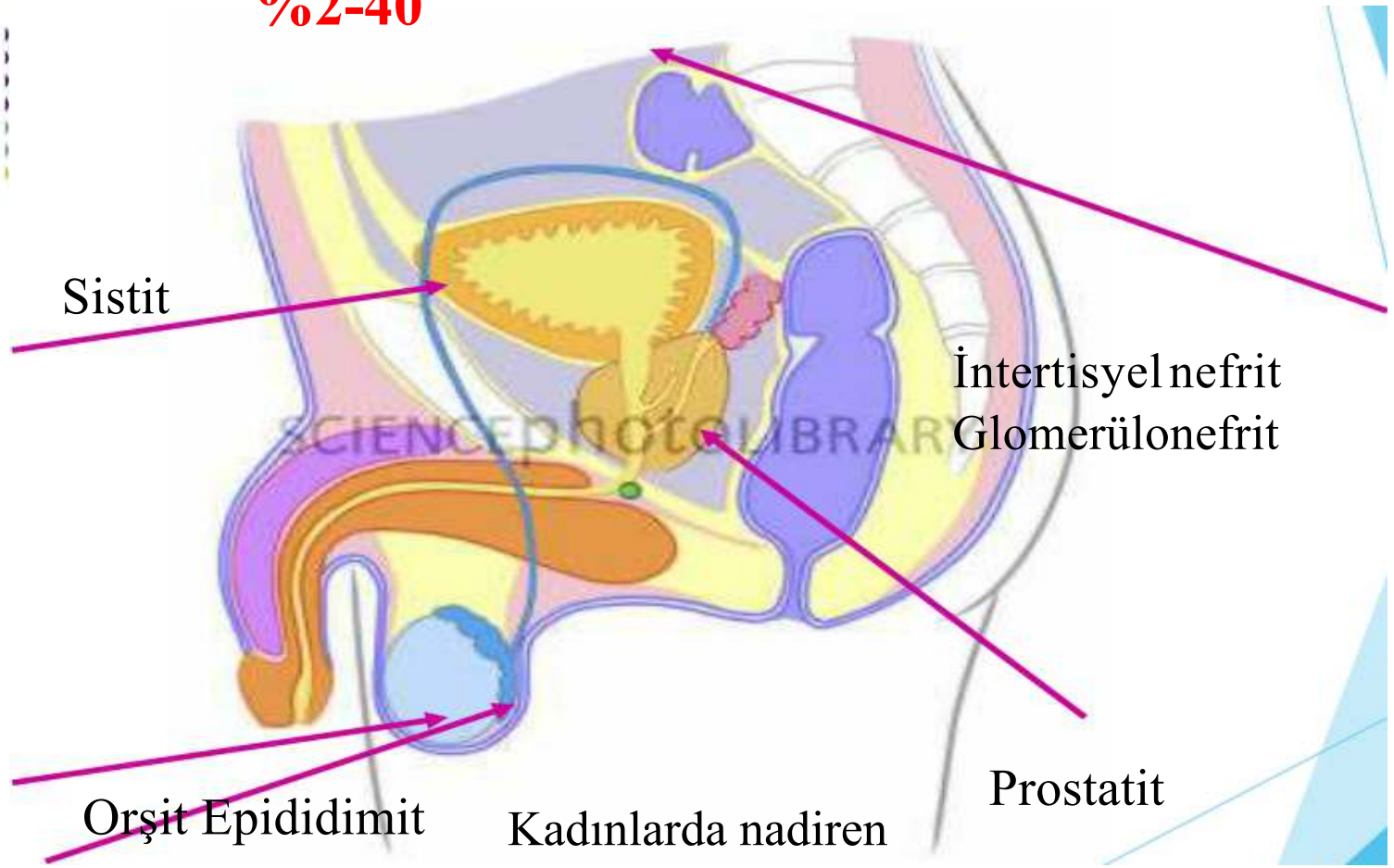
Bruselloz- Komplikasyonlar

Genitoüriner

%2-40

Table 5. Involvement of the urogenital system.

Urogenital system	n	%
Epididymo-orchitis	132	3.13
Chronic renal failure	8	0.19
Prostatitis	7	0.16
Pyelonephritis	6	0.14
Testicular abscess	4	0.09
Breast abscess	3	0.07
Ovarian abscess	2	0.04
Spontaneous abortus	2	0.04
Hematuria	2	0.04
Glomerulonephritis	2	0.04
Renal abscess	1	0.02
Acute renal failure	1	0.02
Bilateral mastitis	1	0.02
Total	171	4.06



Kadınlarda nadiren
pelvik abse ve salpenjit
spontan düşük, erken doğum,fetal ölüm

Bruselloz-Komplikasyonlar
Nöorolojik Sistem

<%5

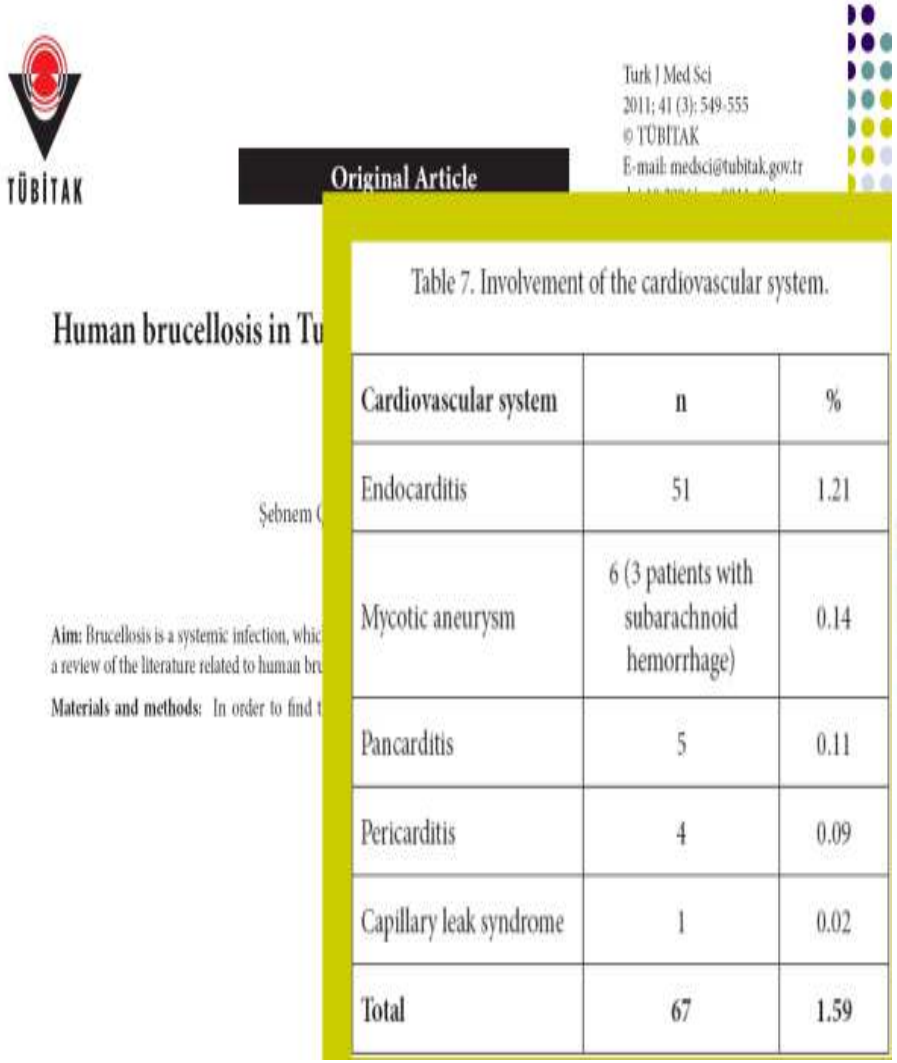
Nörit

Menenjit
Meningoensefalit
Serebral abse
Serebral vaskülit
Mikotik anevrizma
Depresyon
Psikoz

Miyelit
Guillain-barre
Nöropati

Bruselloz Komplikasyonları

Kardiovasküler Sistem



TÜBİTAK

Original Article

Turk J Med Sci
2011; 41 (3): 549-555
© TÜBİTAK
E-mail: medsci@tubitak.gov.tr

Human brucellosis in Tu

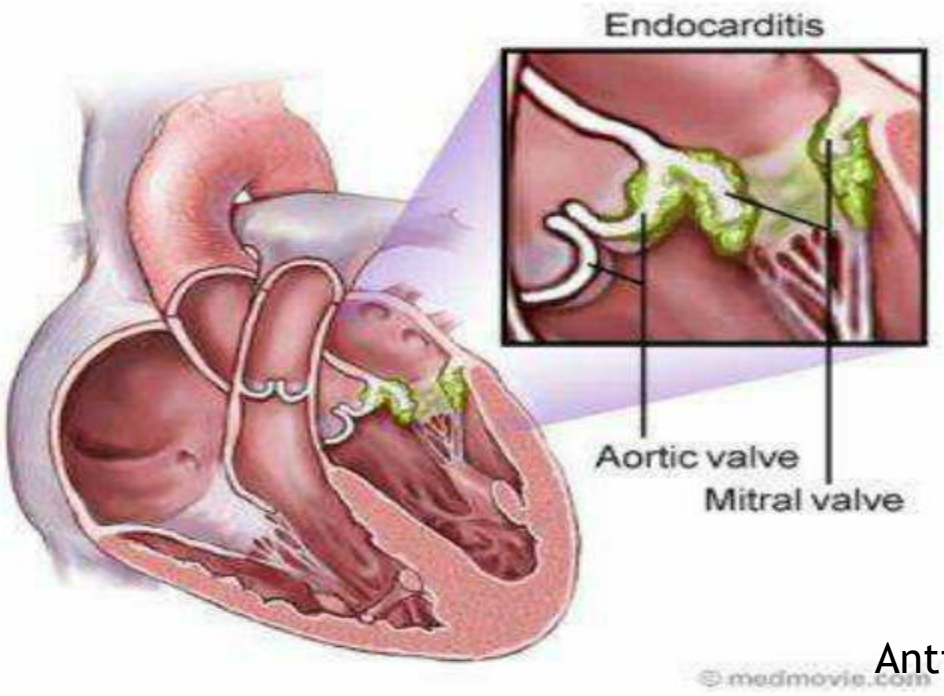
Şebnem

Aim: Brucellosis is a systemic infection, whic
a review of the literature related to human bru

Materials and methods: In order to find t

Table 7. Involvement of the cardiovascular system.

Cardiovascular system	n	%
Endocarditis	51	1.21
Mycotic aneurysm	6 (3 patients with subarachnoid hemorrhage)	0.14
Pancarditis	5	0.11
Pericarditis	4	0.09
Capillary leak syndrome	1	0.02
Total	67	1.59



İnfektif Endokardit
(Aortik > Mitral)

En sık gelişen komplikasyonu ~ %2
Bu hastalığın en sık ölüm nedenidir

Nadir
Perikardit ,miyokardit
Mikotik anevrizmalar
Derin ven trombozu nadir

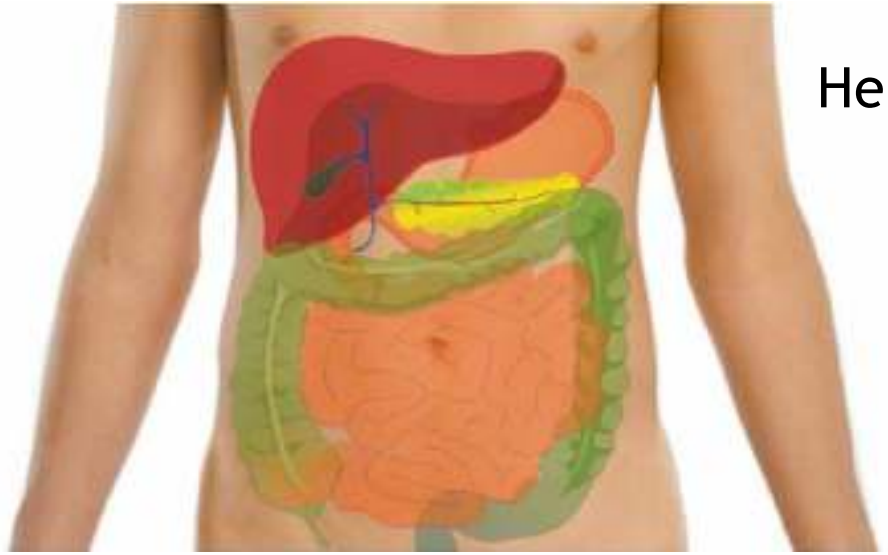
Antimikrobiyal tedavi yetersiz cerrahi girişim gerekebilir

Bruselloz Komplikasyonlar
Gastrointestinal Sistem

TÜBİTAK

Table 4. Involvement of the gastrointestinal system.

Gastrointestinal system	n	%
Hepatitis	141	3.35
Spontaneous bacterial peritonitis	13	0.21
Splenic abscess	9	0.21
Acute abdominal pain	4	0.09
Ascites	3	0.07
Pancreatitis	2	0.04
Splenic pseudocyst	2	0.04
Acute cholecystitis (acalculous)	2	0.04
Ileitis	2	0.04
Hepatic abscess	2	0.04
Panniculitis	1	0.02
Splenic hematoma	1	0.02
Total	182	4.32



Hepatosplenomegali

NADİR
Hepatik abse
Akut kolesistit
Pankreatit
Peritonit

Hepatit
KCFT ' leri hafif düzeyde ↑
B. abortus granülomatöz hepatit
B. melitensis sarılık

Brusellozda

Cilt Tutulumu
% 1-13

- Makül,
- Papül,
- Peteşi,
- Purpura,
- Raş,
- Granülomatöz vaskülit
- Eritema nodozum

Direk inokülasyon, hipersensitivite fenomeni, immunkompleks depolanması, hematojen yolla yayılım sonrası direkt invazyon

. A brucellosis case with macular rash and peripheral neuropathy. Mikrobiyol Bul 2009 Jan;43(1):147-51.

. Allergic vasculitis in brucellosis Ann.Dermatol Venereol. 1994;121(3):240-1.

Rheumatol Int (2014) 34:575–576
DOI 10.1007/s00296-012-2652-5

LETTER TO THE EDITORS

Two brucellosis cases with vasculitic skin lesions

Ayse Albayrak · Melek Kadi · Nurhan Döner · Ebru Sener

Bruselloz Komplikasyonla
Diğer

- **Pulmoner Sistem (%1)**

  bronşit, bronkopnömoni,
  akciğerde soliter veya multipl nodül,
  akciğer apsesi, hiler lenfadenopati
  plevral effüzyon

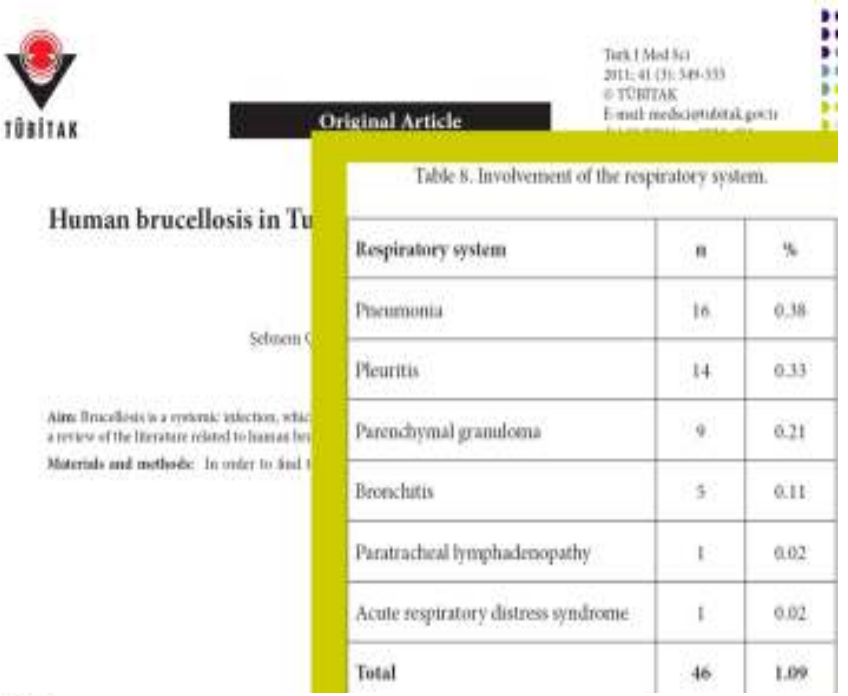
- **Hematopoetik Sistem (%33)**

  Hemafagositoz

  Kemik iliğinin granülomatöz tutulumu

- **Uveit, konjunktivit,optik nörit,keratit,episklerit,**

- **İşitme kaybı,vertigo,tinnitus**
- **Tiroidit**
- **Mastit**



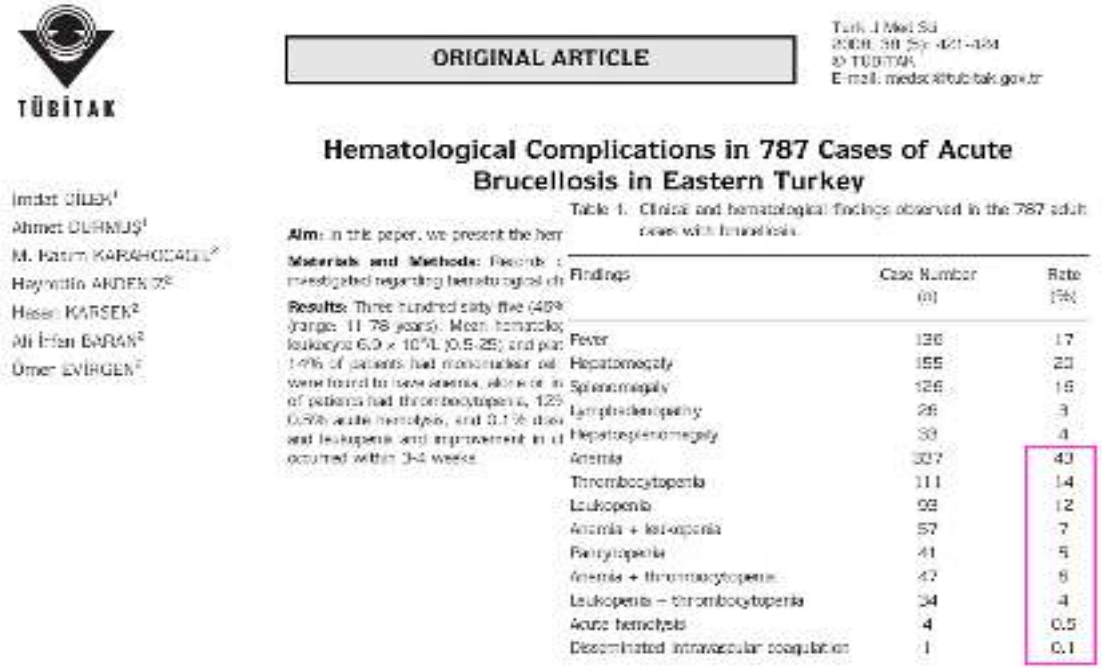
TÜBİTAK

Original Article

Human brucellosis in Tu

Table 8. Involvement of the respiratory system.

Respiratory system	n	%
Pneumonia	16	0.38
Pleuritis	14	0.33
Parenchymal granuloma	9	0.21
Bronchitis	5	0.11
Paratracheal lymphadenopathy	1	0.02
Acute respiratory distress syndrome	1	0.02
Total	46	1.09



TÜBİTAK

ORIGINAL ARTICLE

Hematological Complications in 787 Cases of Acute Brucellosis in Eastern Turkey

Table 1. Clinical and hematological findings observed in the 787 adult cases with brucellosis

Findings	Case Number (n)	Rate (%)
Fever	136	17
Hepatomegaly	166	21
Splenomegaly	126	16
Lymphadenopathy	26	3
Hepatosplenomegaly	33	4
Anemia	327	42
Thrombocytopenia	111	14
Leukopenia	99	12
Anemia + leukopenia	57	7
Pancytopenia	41	5
Anemia + thrombocytopenia	47	6
Leukopenia + thrombocytopenia	34	4
Acute hemolysis	4	0.5
Disseminated intravascular coagulation	1	0.1