



Ocular Brucellosis: a review

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ABSTRACT Brucellosis may involve the eye and can lead to serious complications. In patients with brucellosis, early ophthalmologic evaluation can lead to prompt treatment and might prevent blindness from severe ocular damage. Uveitis is commonest and patients with posterior uveitis or panuveitis have a poor prognosis. ¹ Because ocular involvement of brucellosis is frequent in endemic regions, detailed ophthalmic examination of all patients with brucellosis should be done routinely. Ocular brucellosis should be considered in the differential diagnosis of all forms of uveitis or choroiditis in endemic regions, and these patients should undergo serologic screening for brucellosis. ² It needs high degree of clinical suspicion to diagnose ocular brucellosis as it may present with unusual clinical manifestations. Ocular involvement caused by brucellosis remains a very poorly recognized entity in brucellosis endemic areas.

KEYWORDS : .brucellosis, ocular brucellosis, uveitis, neurobrucellosis, ophthalmic brucellosis

INTRODUCTION

To begin with let us focus on a brief historical account of Malta fever (undulant fever, brucellosis) as given in a paper by Baltzan. ³ An epidemic form of fever in man had long existed in the Mediterranean area and was especially noticed in the island of Malta. It was first described by Marston in 1861 and called "Mediterranean fever." But it was not until 1886 that Sir David Bruce proved the etiological factor, which he called *Micrococcus melitensis*. In honor of Bruce other organisms belonging to this group have been given the generic name of Brucella. Twenty years later it was recognized that the goat was the host, and that in herds this organism was the cause of abortion. In the human beings the disease was variously termed Mediterranean, Gibraltar, Malta, undulating, and undulant fever. It was first reported in America as early as 1897 in goat prevalent areas. ⁴ In 1924, Keefer in Baltimore reported a case of undulant fever in a patient who had no contacts with goats. The infection was bovine type. Since then the porcine strain has also been recovered in human disease, and even known to be more virulent and more readily acquired from contaminated material, and not only by ingestion. Investigations revealed later that brucella-like organisms originating from goats, cattle and swine were varieties of same genus. A lot of ocular manifestations have been observed & described in patients with brucellosis but their etiology and their relationship to brucella infection is often unclear. Diagnosis is mostly based on serology and CSF study as the organism cannot be recovered from ocular tissues.

DISCUSSION

Brucellosis is a multisystem disease with a broad spectrum of clinical manifestations and complications. ⁵ Neurobrucellosis is rare and among various presentations ocular involvement of brucellosis is even a rarer entity. It requires a high degree of clinical suspicion and awareness on the part of health care professionals especially working in endemic areas to diagnose ocular brucellosis. Considering the severe outcome of undiagnosed ophthalmic brucellosis, the timely recognition of this form of disease could prevent its further complications. The eye involvement in brucellosis occurs in different forms including dacryoadenitis, conjunctivitis, episcleritis, keratitis, iritis, iridocyclitis, neuroretinitis, retinitis, chorioiditis, panuveitis, pars planitis, and hyalitis. The clinical manifestations of ophthalmic brucellosis include injection, blurred vision, eye pain, tearing, diplopia, foreign body sensation, cotton-wool lesions, exudative retinal detachment, and retinal hemorrhage. ^{6,7,8,9,10} In a study done in Ankara, Turkey 132 patients with brucellosis was admitted between 1992 to 2006 and ocular involvement was detected in 21% of brucellosis patients. The most frequent manifestations were anterior uveitis (41%) and choroiditis (32%), followed by panuveitis (9%), papilledema (9%), and retinal hemorrhages (9%). Forty-one percent of these patients were in the acute stage and 59% were in the chronic stage of brucellosis. Interestingly, all the patients with anterior uveitis were in the acute stage and all the other patients with choroiditis, papilledema, and retinal hemorrhages were in the chronic stage. ² In another study held in Peru over an extensive period of 26 years involving 1551 brucellosis patients between 1980 to 2006, 52 patients with ocular brucellosis were studied. It was found that 7 (0.7%) of 965

patients with acute brucellosis and 45 (7.9%) of 570 patients with chronic brucellosis had ocular brucellosis ($p < 0.001$). In 16 patients with brucellosis, the disease stage was unclassified. The most frequent ocular presentation was uveitis, which was found in 43 (82.7%) of the 52 patients with ocular brucellosis. Posterior uveitis was the most frequent uveal syndrome (21 cases; 45.7%). Patients with panuveitis had the worst visual prognosis: 8 of 9 patients with panuveitis were legally blind, including 5 patients with no light perception. ⁷

Reporting long back on the work of 23 authors, Green ¹¹ stated that all ocular compromise appeared during the chronic phase of the systemic disease and his observations were relevant clinically even today. Puig Solanes et al. ⁸ concluded that uveitis develops more frequently in individuals with the subacute and chronic forms of brucellosis. Güngür et al. ¹² also found that ocular brucellosis was more frequent during the chronic phase of the disease (accounting for 71% of cases of ocular brucellosis). Basically two types of ocular involvements are seen in brucellosis - ophthalmologic and neuro-ophthalmologic. Of the ophthalmologic pathology caused by Brucella species, the most frequent form that was encountered was uveitis which has been recognized as the most important manifestation in ocular brucellosis. ¹⁴ Diagnosis of ophthalmic brucellosis is made through clinical ophthalmic examinations and laboratory tests including standard agglutination tests (SAT), Coomb's Wright/SAT, 2ME, blood culture, and bone marrow culture. In some cases, aspiration of intraocular fluids followed by culture and serology and biopsy may be necessary. ^{7,10,14}

CONCLUSION

The most common symptom of ophthalmic brucellosis is blurred vision that in most cases occurs bilaterally. In a study by Rolando et al., it was demonstrated that among 52 patients with signs of ophthalmic brucellosis, 69.2% were with blurred vision. Interestingly, 19.3% of patients with no obvious ophthalmic symptoms had abnormal sight and pathologic findings when subjected to ophthalmologic examinations. ⁷ The most frequent uveal syndrome is posterior uveitis, followed by panuveitis. Since the patients with no ophthalmic symptoms still may have ophthalmic involvement, it is recommended that in endemic areas patients with systemic brucellosis should be thoroughly examined for ophthalmic involvement. ¹⁵ Limited awareness of disease on the part of health care providers often results in a late diagnosis. In developing countries, patients frequently do not seek medical care until the advanced stage of the disease. As far as the treatment part of ocular brucellosis is concerned management remains same as brucellosis but introduction of short term oral steroids in some cases gives faster response to improved vision.

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