

Brucella Infection of Ventriculo-Peritoneal Shunt; Case Report and Literature Review

Case Report

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Introduction

Brucellosis is a highly contagious zoonotic worldwide [1] where is most commonly affected by cattle, goat, cow, and sheep, is an endemic disease in the Arabian peninsula, the Indian subcontinent, and in parts of Mexico [2].

In Saudia Arabia has an infection rate of 70 per 100,000 people, the incidence of Brucellosis globally is up to 500,000 people infected annually [3].

Brucellosis is a systemic infection , it can involve organ and lead to serious sequence like the CNS as in this case report. We are reporting a child with Ventriculoperitoneal (VP) shunt brucella infection concomitant with literature review.

Case Report

4 years old female who is known to have Hydrocephalus as sequence of prematurity, she was treated as brucellosis with rifampicin and bacterium for 45 days six months before her presentation to us.

For now, she presented with fever, vomiting, diarrhea, abdominal distention for one week, with no neurological manifestation. brucella titer was 1:5120 with negative blood culture. CSF study revealed normal analysis then subsequently CSF culture grew Brucella species. CT brain revealed Unchanged size and appearance of the supratentorial hydrocephalus.

Abdomen CT showed Large intra-abdominal loculated collection with enhancement suggestive of infected CSF pseudocyst.

Ultrasound abdomen showed

Septated collections seen at tip of VP shunt and right lower quadrant. Neuro-Brucellosis diagnosis was confirmed, then the shunt externalized and antimicrobial therapy (rifampicin, Bactrim

and gentamycin) were initiated in addition abdominal drainage was connected to drain the cyst which showed negative brucella culture. and Permanent ventricular shunt was inserted within four weeks after CSF cleared and patient clinically improved where gentamycin discontinued and both Bactrim and Rifampicin continued with healthy condition and no relapse after three months of therapy.

Discussion

Brucellosis is an endemic disease in Arabian Peninsula but Brucella Shunt Infection is rare disease. So far only three cases reported in Saudi Arabia [4]. It has generally variable manifestations, including fever, malaise, abdominal distension. Furthermore, it present with gastroenteritis symptoms more than neurological symptoms [4,5]. Peritonitis one of the most cardinal symptoms in brucellosis shunt infection, Thus It could be an ascending infection through the ventriculoperitoneal shunt, or vice versa [5,6].

Usually brucella serology is showing high titer as our patient but rarely could have negative serology as reported by Suda tekin-koruk et.al [7]. The disease in beginning is frequently missed due to lack of suspicion, non-specific features on imaging or laboratory methods [5]. The diagnosis only by the isolation of bacteria from CSF in addition to positive serology from blood.

Given the potential for Brucella to be fatal, physicians should keep this in mind when treating any long-term fever in patient with VP shunt, regardless of associated signs and symptoms [7]. Good numbers of reported cases as shown in the Table presented with neurological symptoms, however, our patient with no of neurological symptoms.

A midline review demonstrated that the last reported case over world of shunt brucellosis was in 2021 from Saudi Arabia by Al-Qarhi et al. [4]. The cornerstone in treatment of VP shunt brucellosis is temporarily replace VP shunt with an external ventricular drain until the CSF is sterile [8]. The Durations of Antimicrobial therapy are variable and may reach up to 10 months in contrast there is reported cases the total duration given antibiotics only for 8 week [6,8-10



The antibiotics regimen should include three or four medications as international guide advice for neurobrucellosis cases [11]. In endemic regions, patients with hydrocephalus and VP shunt, neurobrucellosis should be investigated [12].

Conclusion

In the communitie's endemic to certain infections such as brucellosis, one should keep in mind the possibility of shunt infections in case of positive brucella titer for those who have VP shunt even with no neurological symptoms. VP shunt infection with brucella complicated by peritonitis is challenge, need both conservative managements with surgical intervention.

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