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Research Article

Post Head Injury Low Grade Meningitis

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Abstract

Neurosurgeons often faces many complications after head injuries, one of these complications is ''Post traumatic low grade meningitis'' PTLGM with normal and sterile CSF which does not respond to empirical antibiotic treatment (e.g. combinations of betalactams/vancomycin). Here I try to reveal the nature of its causation and show the incidence of a hiding pre-traumatic pathologic agent that causes many post traumatic events, one of them is our subject here the " Low grade meningitis". Over 20 years of my career in neurosurgery I concentrated my efforts on all patients having signs of low grade meningitis in both gender and all age groups, of course the number is uncountable they were treated for such a clinical neuro - surgical entity in public and private hospitals and private clinics in Iraq since 1996 including Jordan (2006 - 2007) and Libya (2007 – 2008). As some patients with PTLGM show intermittent or undulant low grade fever this brought to my mind what the nature of PTLGM could be! However, some do not show fever at all but headache and meningism, I went on to consider such status is an aggravation of a dormant chronic brucellosis. A thorough history taking, wide systemic review, strict clinical examination, trial treatment and lastly PCR open tissue examination proved to a very high extent this issue to be a chronic Brucellosis sequel. Many countries in the world are endemic with *Brucella* so a state of subclinical affection is a fact we have not to ignore. As I entered in the Last 3 years PCR results (positive 25% - 80% according to tissue biopsy site) does not match with the high rate of successful anti *Brucella* trial treatment which nearly to be 100%, we need to consider other intracellular bacteria to be incriminated, that could cross respond to anti *Brucella* antimicrobial regimens especially I started to use regimens not mentioned in text books of medicine.

Keywords: *Post Head Injury; Post Traumatic; Post Concussion; Low Grade Meningitis; Betalactams; Vancomycin; Chronic Brucellosis; Intracellular Bacteria; PCR, Endemic*

Introduction

Neurosurgeons often faces many complications after head injuries, one of these complications is ''Post traumatic low grade meningitis'' PTLGM with normal and sterile CSF which does not respond to empirical antibiotic treatment (e.g. combinations of betalactams/vancomycin). Patients suffers from mild to moderate head ache of any location (occipital, vertex, frontal or mixed) either right way after the accident or delayed for some days or when patient get conscious, some neck rigidity, photophobia, vertigo, nausea and malaise, with or without low grade intermittent or undulant fever. Mild to moderate analgesics may not bring patient in comfort as well the broad spectrum high doses of betalactams and vancomycin. Gentamycin is not a routine choice. Such patients are whom the long standing or chronic post traumatic head ache the text book of neurosurgery mention as a complication to head injury because some develop such feature 1. so far from date of injury (for a reason or another). 2. not all feature are evident. so, it is a misleading issue. The low-grade fever give sus-

pension of exacerbated dormant Tb not only *Brucella*, the strict history and systemic review, physical examination and some primary lab results all these directed this clinical picture towards the chronic brucellosis as the main possible cause.

Aim

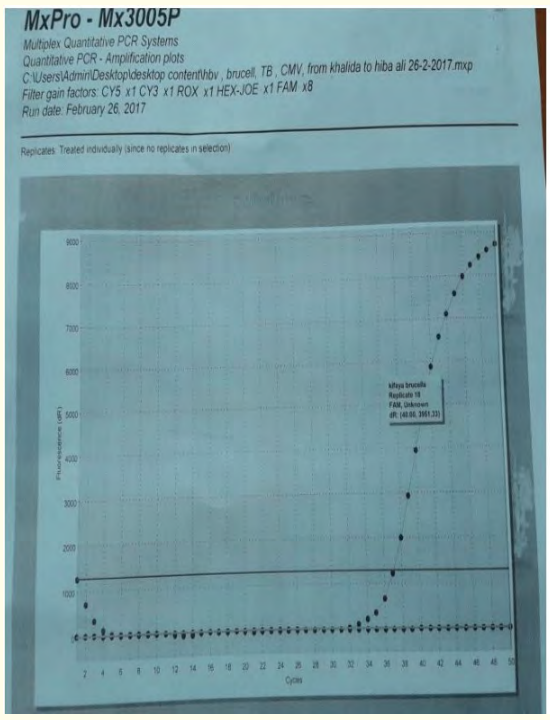
To reveal the nature of the cause behind PTLGM and show the incidence of a hiding pre-traumatic pathologic agent that causes many post traumatic events one of them is our subject here the "Post traumatic Low grade meningitis".

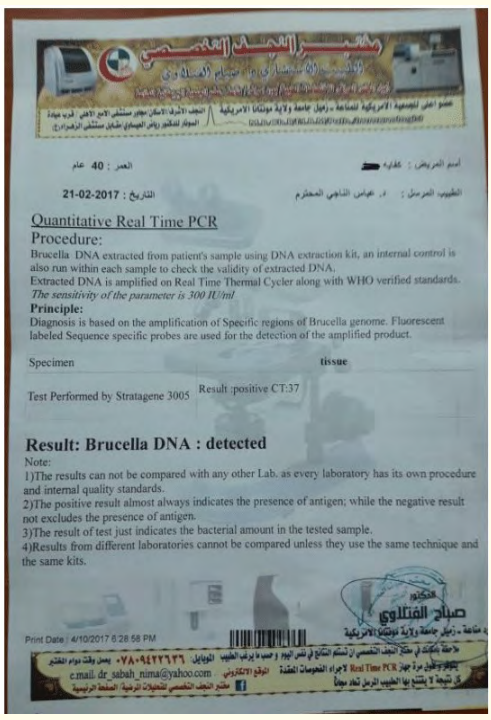
Method and Patients

Over 20 years of my career I found near to be a one third of head injured patients (this one third is > one thousand patient) of all ages (from pediatric to young and geriatric) and both genders who recovered from any trauma severity at least in Iraq and two other Arabian countries show features of low grade meningitis either they show it as they regain consciousness or very short period of 2 - 3 days after head injury with or without history of loss of consciousness. Features are very variable could be all, or some of them available, and could be rising with time or stationary; Head ache, photophobia, irritability in pediatric age group, anorexia, intermittent low grade fever, periodic malaise, meningism, Babinski, kernig's sign and brudzinski's sign and reflex (or simply neck stiffness), CT scan is negative for SAH, CSF nearly normal, CSF C/S is sterile for bacteria and AFB (Tb), culture is difficult for *Brucella* around us. ELISA is 20 % positive for *Brucella* in blood and CSF. As wide work up, CSF sample is negative for Tb. PCR is a recent device to enter the service in my work (early 2015). I started with blood samples which were very unhelpful (all samples are negative of 10 patients, while the trial treatment for *Brucella* is nearly to be positive in all of these 10 patients). As our target is *Brucella* and it is an intracellular bacteria I directed the examined sample to be a open tissue biopsy from the sacroiliac region (20 patients who accept to take biopsy out of the total number which exceeds a thousand over the last 20 years) where theoretically it is involved in chronic brucellosis, then I went to take this tissue sample from a Trapezius muscle (10 patients) because a high percent of these treated patients suffer from pain and tenderness in this area in some stage of his past clinical status.

Results

patients who develop PTLGM whether he/she is already on a wide spectrum betalactams prophylactic course for a reason or another or start to be treated with as an empirical anti meningitis measure, does not respond even when amoxicillin is replaced by vancomycin. While very good and dramatic response when patients are given Doxycyclin and co-trimoxazole when above six years of age. Cotrimoxazole alone or recently Azothromycin plus cefixime in usual doses below six years of age. I do not remember an exception for this policy. The last three years PCR results showed positive 25% - 80% according to open biopsy site, from connective tissue around sacroiliac region and Trapezius respectively. As this measure is unfavorable for a percentage of patients, we do it for whom accept after a scientific discussion with the patient if old enough and with his family. Open biopsies from tissue around sacroiliac joint area done for twenty patients, five of them 25% were PCR positive for *Brucella* as a genus (we do not work on species yet), those with Trapezius muscle open biopsy were ten (10), eight (8) of them were PCR positive for *Brucella* 80%.





The graph shows the load of *Brucella* open biopsy from Trapezius muscle, as the curve crosses the sold horizontal line in 37 it is high positive. The report discusses details of the technique (patient's family name in Arabic is over shadowed for ethical purposes, her given name shown as well in English on the curve of the graph).

Discussion

This interpretation was born from two facts; First, as I am originally interested in the biological bases for the surgical pathologies which gave me a good visions to many events as long as I proceed in this prospect. The Second, presence of intermittent or undulant low grade fever in some patients who show PTLGM, when I applied this principle on those develop PTLGM but without fever the results were encouraging in favor of the principle as a whole. Relative poor general health of the patient in presence of the above mentioned clinical picture generally give a clue to presence of a pre-traumatic opportunistic hiding infection, or it might be presented differently, but the community consider it either with normal limit, or an unexplained ill health triggered by simple exertion or by some other usual daily events (in third world this is seen as low weight or any other feature like poor appetite before the trauma). For that the possible causative agent in this regard is chronic Brucellosis based on clinical evidences. Serology is not dependable and it is negative in most of these patients who recovered dramatically on anti-Brucella regimens. Other possible pathogens whom I enlisted need to be proved and discriminated from *Brucella* in PCR negative open biopsy patients, however the theory say negative results do not rule out infection.

Conclusion

If this very successful trial treatment and concept is true!!! We need to re-direct our principles and efforts not to treat post traumatic meningitis successfully only, rather, we have to look on the incidence of hidden pathologies which might be the same all over the world which forms an underestimated national hazards. How or why national hazards?? because the one third of my patients over very long time (20 years) is a considerable number in any community general health considerations if we add the wide spectrum of pathologies done by *Brucella* it will big loss if overlooked.

Recommendations

I hope this mode of analysis and treatment is applied elsewhere if such complication is found, with knowledge sharing.

This work is dedicated to whom in touch with the unknown, scientists and genius researchers.
So, I will mention no references.
Because they are the reference themselves.
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