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RESEARCH ARTICLE

ACUTE LEAD ENCEPHALOPATHY DUE TO INGESTION OF CERTAIN HERBAL FOLK REMEDIES IN RURAL AREA IN IRAQ

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ABSTRACT

Uses of certain herbal folk remedies is well known in rural area in Iraq & other countries this mostly due to lack of medical education among lay peoples and sporadic distribution of small districts & villages which are faraway from primary health centers .for examples of theses remedies are seeds, plants, berries, roots, banks, these remedies are widely used for treatment and prevention of various disease. The long life adventure of SAGWA (which is prepared from mixture of boiled animal parts of urchin, tar, drug lomotil, rose water, & cow feces) this strange mixture widely used by some midwives & elderly woman in rural areas as part of traditional knowledge & wrong believes for treatment of prolong gastroenteritis despite of its known harmful effect with serious complications like nephrotoxicity & neurotoxicity. In children hospital daily receivesmany cases of SAGWA poisoning from country side around Baghdad with various sign of presentation & complication include dehydration, sepsis, & sever electrolytes disturbances & bleeding with renal failure that warrant emergency PD dialysis which very common presentation. In this case of SAGWA poisoning child presented with serious sign of disturb level of consciousness and oliguria were admitted to emergency department then transfers to ICU, & treated as encephalitis.

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INTRODUCTION

Lead has been used in industry, the clinical manifestation of lead toxicity known as PLUMBISM have been known since ancient times. Population are exposed to lead chiefly via paints cans, old plumbing fixture, lead gasoline, other sources of exposure are leafy vegetables grown in lead contaminated soil, improperly glazed ceramics and certain herbal folk remedies. Element lead and inorganic lead compound are absorbed through ingestion or inhalation organic gasoline can absorbed to significant degree by skin. Lead interferes with variety of body process and it is toxic to many organs and tissues include heart, bones, intestine, kidneys & nervous system, it interferes with development of CNS and therefore it is particularly toxic to children causes permanent disorder. No safe threshold for lead exposures have been discovered, so there is no known amount of lead that is too small to cause body harm. Lead poisoning shows pattern of symptoms that accrue with toxic effect from mild to high level of exposure so toxicity is wider spectrum of effect range from subclinical to sever symptoms, WHO state that blood lead level of 10 micrograms/dl or above is concern. In this case of SAGWA poisoning. A samples of this remedies was sanded to central poisonings center in medical city for detection of heavy metals the result obtained of REINSCH test for heavy metals was negative but the sample contain high amount of lead.

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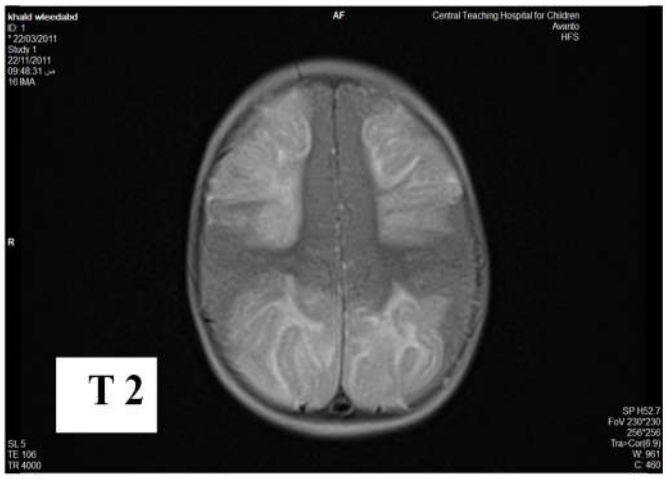
DISCUSSION

Children more at risk for lead poisoning because their smaller bodies and lead absorbed at faster rate compared to adult, so children absorbed up to 50% of lead ingestion whereas adult absorb only 10-20% , lead absorb to blood plasma where rapidly cross the membranes such as blood brain barrier & placenta so the brain is the organ most sensitive to lead exposure. The continued occurrence of lead poisoning inchildren, despite the efforts of physicians, health agencies to disseminates information concerning prevention of this disease .sources of lead in infants may follow prolong use of lead nipple shields, or use of mother face powder, old house wall painting, ingestion over period of time of water containing even small amount of lead which is transmitted by lead pipes, and recently the inhalation of battery fumes when used as source of fuel. In blood about 95-99% of lead is sequestrated in RBC where it bound to hemoglobin, so lead measured in hole blood rather than serum, large proportion of absorbed lead is incorporated in to skeleton. Lead excreted mainly in urine and feces, hair, nail, sweat, saliva & breast milk with half life in blood about 25 days, in soft tissue about 40 days and nonlabile portion of bone more than 25 years. Thus blood lead level may

decline significantly while the total burden of lead remains heavy. Standard elevated blood level of lead in adult is 25 micrograms /dl, in children the number is much lower at 10 micrograms /dl and recent recommendation it reduced to 5 micrograms /dl. Acute lead poisoning happened from intense exposure of short duration, but chronic from repeated low level exposure over prolonged period. Symptomatic lead poisoning in children generally developed at blood lead level exceeding 80 micrograms /dl, and characterized by abdominal pain, irritability, lethargy. and slurred speech , pallor , coma and death due to cerebral edema and renal failure occurs in most sever cases. In this case the result of blood lead is obtained after one & half month after ingestion of herbal remedies (which is already exceed half life in blood & urine).

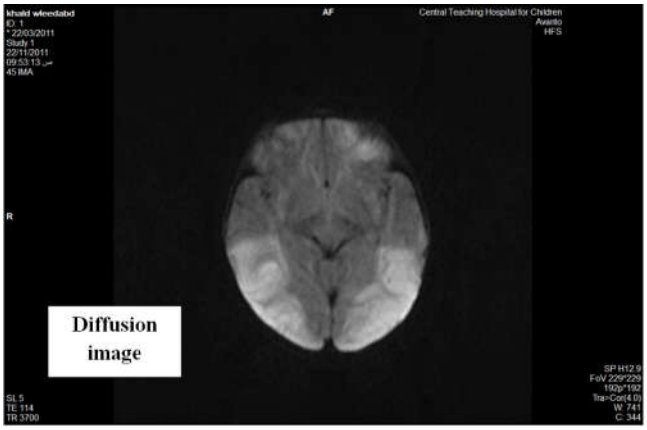
Case history & management

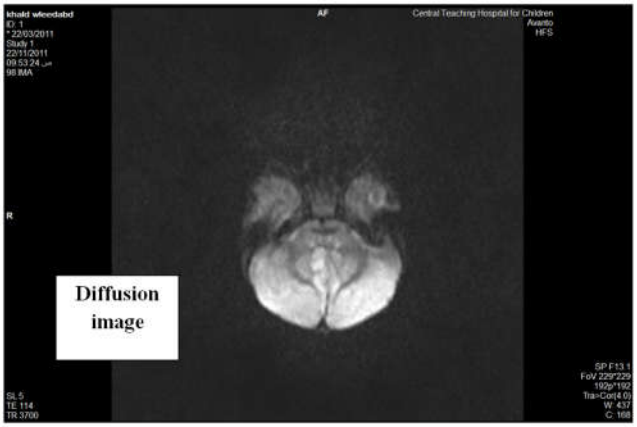
In November 2011, Khalid waleed infant of 8 month age presented to emergency department in central hospital for pediatrics in Baghdad with disturb level of consciousness of one day duration, Who is referred to our hospital from rural hospital near Baghdad. The condition started as frequent bowel motion and repeated vomiting with fever of two days ago (his mother as source of information) says that his condition became worse in form of lethargy & rapid breathing with reduce urine output after ingestion of fork medicine mixture which is locally prepared called Sagwa (a bad habit for treating gastroenteritis in rural area), immediately the mother asked to bring a sample of this herbal fork remedies for laboratory analysis. MRI of brain was done in the same day of admission 22.11.2011 in which reveals extensive T2/flair hyper intense signal intensity in cortical & subcortical white matter in bilateral symmetrical fashion at frontal , parietal & occipital regions with hyper intense signal in both cerebellar hemisphere white matter , associated with diffusion restriction in the same regions due to cytotoxic brain edema associated with normal MRA. Samples of remedies was send to medical city /toxicology department for analysis for presence of lead , thallium & other heavy metals, which is done out side children hospital and already take several days to obtain the results, the results was obtained in 17.12 2011 as the sample contain high amount of lead. Immediately samples of blood and urine was sanded for lead level which obtained normal results in 2.1.2012.



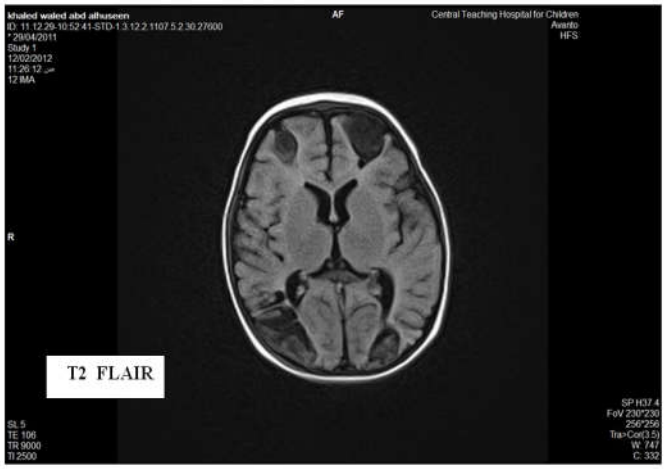
The case already managed in ICU as completely comatose child for about two weeks with slow recovery and returned good consciousness after 2 weeks when the mother said the baby is blind. Another brain MRI was done for follow up the sequences obtained T2 hyper intense signal intensity in same regions with flair sequence shows evidence of gliosis & cystic encephalomalasia, with normal diffusion images (as the condition not acute now).

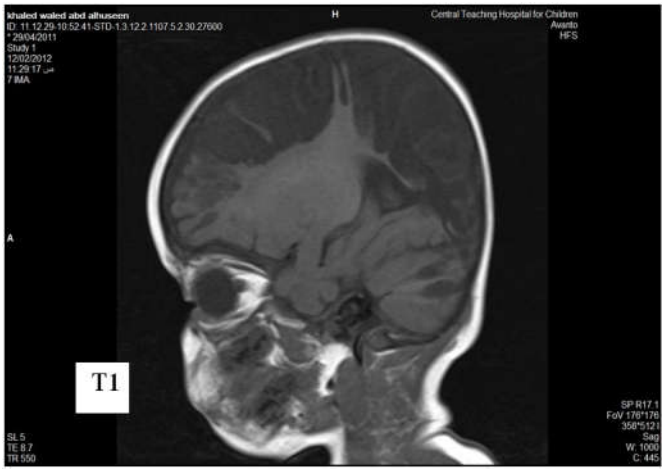
Initial MRI at day of presentation

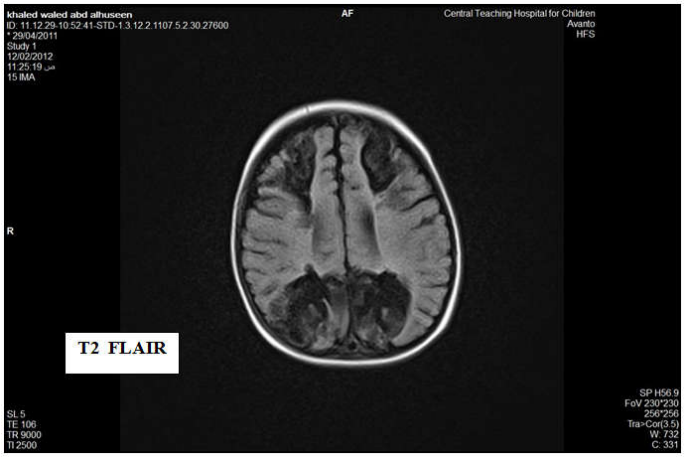


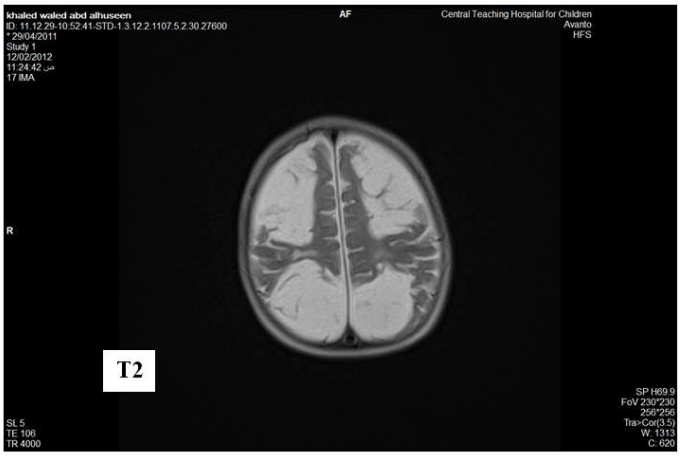


Follow up MRI after two weeks









Vision & recommendations

Fatal lead encephalopathy has disappeared & blood lead concentration has decrease in USA & worldwide children, but 25% of children in USA still lives in housing with risk of lead exposure. Lead exposure in children lead to cognitive impairment & other sequels, like growth retardation, speech dysfunction, anemia & behaviors disorders. The focus in children lead poisoning should shift from case identification and management to primary prevention. With exception of folk remedies the source of most lead poisoning in children is dust and chips from deteriorated lead paint on interior surface of old houses, so the main goal of prevention measures is safe housing for all children. Children who developed lead encephalopathy with blood concentration more than 100 micrograms/dl often had chips of lead paint visible on plain abdominal x-ray.

The ministry of health in Iraq should prepare a project to formulate a plan to eliminate childhood lead poisoning , the main lines of this plan should be includes. Improve lead safe housing by attempt to ovoid lead hazards, by encourages remediation of old houses and even money providing for poor families for that purposes. Continued screening specially among Medicaid-eligible children & children how received folk remedies, refugees children, & children with parents works with lead dusts, by measures blood lead concentration. Concentration even less than 10 micrograms/dl may impair cognition, with no threshold yet identified for this effects. Provides anticipatory guidance's to parent of all infants & toddlers about inspection & prevention of abnormal mouthing behaviors.

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