Case Report

Indian Journal of Anaesthesia and Analgesia
Volume 2 Number 1, January - June 2015
DOI: https://dx.doi.org/10.21088/ijaa.2349.8471.2115.7

Neurocysticercosis: An Unusual Incidental Diagnosis of Postdural Puncture Headache

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Abstract

Neurocysticercosis is a parasitic neurological infection caused by the ingestion of larvae from the adult tapeworm *Taenia solium*. We describe a man who presented with severe headache post herniorrhaphy under spinal anaesthesia. A diagnosis of PDPH with meningismus was made by neurologist and a MRI was performed to further investigate the cause. His initial MRI showed multiple characteristic cystic lesions in observance with Neurocysticercosis.

Keywords: Neurocysticercosis; Taenia-solium; PDPH; Meningismus; Spinal Anaesthesia.

Introduction

Cysticercosis is a multi-system disease resulting from the seeding of the larval form of the pork tapeworm, Taenia-solium, to various organs of the body. It is contracted via the faecal-oral route, after ingestion of viable eggs in foods contaminated with human faeces. Its clinical manifestations are highly variable and depend on the number, stage, and size of the lesions and the host's immune response. The cysticerci are notorious for their encystment in the central nervous system (CNS), known as Neurocysticercosis (NCC). Globally, NCC is the most common cause of adult-onset seizures, with greater incidence rates in developing countries[1,2]. However, disseminated cysticercosis is a very rare manifestation of the neurocysticercosis and fewer than 50 cases of disseminated cysticercosis have been reported in the world[3]. Spinal cysticercosis can present with either leptomeningeally, in which the response is similar to that in subarachnoid disease, or intramedullary[4]. The leptomeningeal type is more common. The number of infected individuals is gradually escalating in both developing and developed countries, as well as among human immunodeficiency virus (HIV) positive patients.

Case Report

A 26-yr-old man was admitted to the emergency department 5 days after a Right inguinal hernia surgery, complaining of a severe headache that had worsened over the previous 3 days.

The patient complained of a severe, throbbing, positional headache, neck pain, nausea and vomiting of 03 days' duration and stated that his symptoms were getting worse. On examination, he was afebrile and in moderate pain over lower back and head. The remainder of the physical examination, including funduscopy, was normal. Because of the

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Figure 1

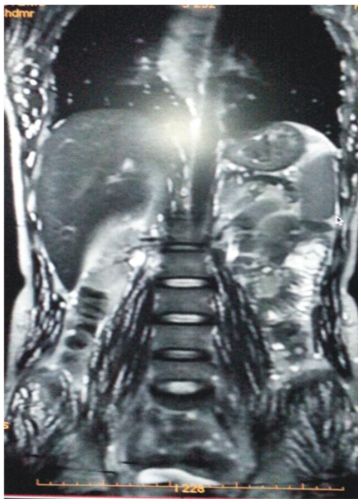


Figure 2

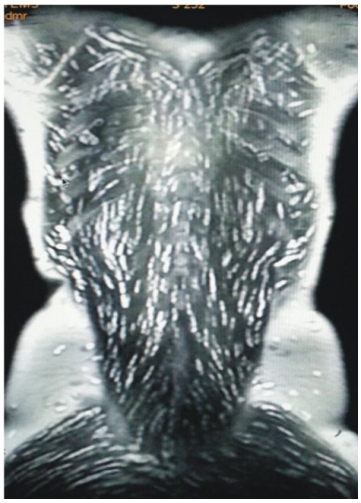


Figure 3

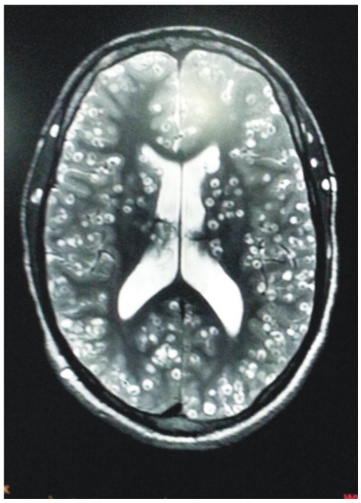
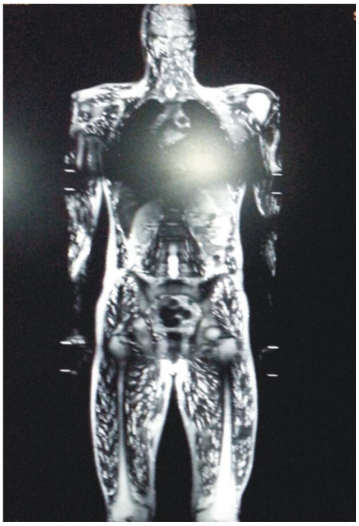


Figure 4



severity of his symptoms, however, the patient remained in the observation area of the emergency room for the next 12 hrs, where he was given IV fluid therapy and opioid analgesics. When it was realized that the patient had received a spinal anesthesia 05 days previously, the anesthesiologist on call was called and requested to perform a blood patch. However, because the anesthesiologist elicited positive Kernig and Brudzinski signs during a neurologic examination, a decision was made to postpone the epidural blood patch, and a neurology consultation was requested.

After evaluation by the neurologist, the patient was admitted to the neurology service with a differential diagnosis of "PDPH (Post Dural Puncture Headache) with meningismus versus meningitis after spinal anaesthesia." The patient complained of right occipital and parietal pain that was severe when he stood up and totally resolved when he was supine. In addition, he stated that the headache was the "worst pain" that he had ever experienced. Lumbar puncture was performed, and the CSF examination revealed leucocytosis with 80% polymorphonuclear leukocytes, decreased glucose, and increased protein. No organisms were identified on

Gram staining, and CSF culture was negative.

A magnetic resonance imaging (MRI) scan of the lumbar spine (Figure 1, 2), head (Figure 3) and a whole body screening (Figure 4) showed multiple cystic lesion with ring enhancement, considered to be pathognomonic for neurocysticercosis. The patient was treated as an outpatient with tablet Albendazole, an orally administered broad-spectrum antihelminthic, and had total resolution of his headache and backache symptoms. After completion of antibiotic course, despite numerous attempts to reach him, the patient was lost to follow-up, so that further radiologic workup to evaluate cyst resolution was not possible.

Discussion

Neuraxial anesthesia has also been implicated as an etiologic factor for severe post spinal headaches. Headaches after neuraxial anesthesia have been attributed not only to PDPH, but also to meningitis and pneumocephalus. One of the classic features of PDPH is the relationship of the headache to posture. This positional component is considered to be pathognomonic for PDPH. Other symptoms include throbbing pain in the frontal or occipital regions, neck pain, or auditory and visual complaints. This patient had many of these features. In this case, however, the patient experienced a positional headache after spinal anesthesia that appeared to be related to incidental intracranial pathology. The most common clinical presentation of neurocysticercosis is seizures, which may be focal, focal with secondary generalization, or generalized.[5] Headaches are very much common in parenchymal, ventricular, and cisternal neurocysticercosis. They can be hemicranial or bilateral and are often confused with migraine or tension headaches. Such presentation may be the initial sign of increased intracranial pressure (ICP). Other symptoms and signs of increased ICP may also be present, including nausea and vomiting, altered mental status, visual disturbances, or dizziness.[6,7]

Medical therapy and prophylaxis, with either praziquantel or albendazole, are recommended. Praziquantel is the medication of choice for intraparenchymal NCC. Albendazole is the drug of choice in cases of non-response to praziquantel, and is highly recommended in intraventricular NCC without intraparenchymal cysts.[8] Most patients require urgent neurosurgical intervention for spinal cord decompression, but in resource-scarce areas, medical treatment can be a second best alternative.[9]

The best management of this condition is prevention. The most important approach is education regarding possible contamination of drinking water, and the role of hygiene at both community and personal level.[10]

In summary, we report a case of a positional headache, occurring 05 days after an uneventful spinal anesthesia, initially presumed to be due to PDPH but eventually diagnosed as neurocysticercosis. Since the introduction of spinal anesthesia, headache or neurological symptoms that follow have been immediately attributed to the anaesthetic procedure or technique. *Vandam and Dripps[11], in their landmark 1954 review, state that "it is not scientific thinking always to attribute to the anesthetic a neurological complaint arising in a patient who has had spinal anesthesia."* This case exemplifies the concept that neurological sequelae after spinal anesthesia are not always attributable to the anaesthetic and illustrates the importance of taking a careful history and

neurologic examination before performing an epidural blood patch.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Conflict of Interests

The authors declare that they have no conflict of interests related to this manuscript.

Authors' Contributions

Dr. Lalit Gupta was the main anaesthetist on the case and took the pictures. Dr. Gaurav Dwivedi and Dr. Lalit Gupta reviewed the literature and wrote the manuscript. Dr. Poonam Bhadoria guided at every step and helped in final compilation of case report.

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