Isolated torticollis as a presentation of bacterial meningitis in children

***Soumya Roy**[1], **Subroto Chakrabartty**[1], **Sumit Datta Majumdar**[1], **Sibaprasad Roy**[1]

Sri Lanka Journal of Child Health, 2020; **49**(2): 185-186
DOI: http://dx.doi.org/10.4038/sljch.v49i2.8971
(Key words: torticollis, meningitis, ocular torticollis, extra ocular muscle palsy, pyogenic meningitis, intracranial pressure)

Introduction

Acute torticollis as the sole presenting complaint of meningitis is exceedingly rare. To the best of our knowledge, there are only three such cases reported in the medical literature, two in children[1,2] and one in adults[3]. According to these three case reports, the mechanism of torticollis was unilateral neck muscle spasm due to inflammation of the local tissue[3]. We present the case of a six month old infant, who presented to our hospital with the sole complaint of acute onset torticollis, and was diagnosed as having pyogenic meningitis, later on. In contrast to the above case reports, we found that extra-ocular nerve palsy, secondary to meningitis, was the cause of the torticollis, a phenomenon known as ocular torticollis.

Case report

A six month old infant was admitted with acute torticollis of one day duration. According to the mother, the infant had fever for three days and a few episodes of vomiting, which had subsided one week before with an oral antibiotic (cefixime), prescribed by the family physician. On examination, the child was alert and active, vital functions were stable, and general systemic examination, including neurologic examination, was apparently normal, with the exception of a slightly bulged anterior fontanelle. The child kept her head persistently turned to the left side. Total leucocyte count was 22,000 per cu mm (neutrophils 88%, lymphocytes 6%). C-reactive protein was 256 mg/dl. X-ray of neck, including soft tissue, was normal. Magnetic resonance imaging (MRI) of the brain was done and showed diffuse cerebral oedema, suggestive of meningitis. MRI screening of the neck was unremarkable.

[1]*Institute of Child Health, Kolkata, India*
**Correspondence:* dr.roy85@gmail.com
orcid.org/ 0000-0002-4897-6518

(Received on 11 January 2017: Accepted after revision on 24 September 2018)
The authors declare that there are no conflicts of interest
Personal funding was used for the project.

We usually perform a routine eye examination to rule out papilloedema before performing a lumbar puncture (LP), so as to prevent any possible cerebral herniation after LP, in case of a very high intracranial pressure (ICP). Detailed eye examination by the ophthalmologist revealed papilloedema, along with lateral rectus muscle palsy, on the left side. Hypertonic saline infusion was started along with empirical antibiotics, ceftriaxone and vancomycin. Alternate patching of either eye for four hours in each eye was begun immediately. The eye cover was kept on only in the daytime and omitted at night. From the very next day, we observed that the torticollis had absolutely disappeared. After 72 hours, a repeat eye check up was done, and the papilloedema was found to have resolved. LP was performed and the CSF showed 40 cells (90% neutrophils), sugar 28 mg/dl and protein 140 mg/dl. Blood glucose at the time of LP was 86 mg/dl. Gram stain, India ink stain and acid fast bacillus stain of the CSF as well as culture were negative. CSF geneXpert test was also negative. Mantoux test and geneXpert test of gastric lavage failed to reveal any evidence of tuberculosis. A diagnosis of incompletely treated pyogenic meningitis was made and the antibiotics were continued for a total 14 days. After one week of antibiotics, as the ICP had decreased, we removed the patch altogether. It was found that the torticollis had completely resolved.

Discussion

The nerves supplying the extra ocular muscles may be paralysed in meningitis due to increased ICP. Increased ICP can result in downward displacement of the brain stem, causing stretching of the sixth nerve secondary to its location in Dorello's canal[4]. Chaudhuri et al. (2012) found that isolated lateral rectus palsy due to affection of the abducens nerve is found in 4.3% of all cases of meningitis[5]. The child was having a paralytic squint due to palsy of the lateral rectus muscle. The baby with paralytic squint was thus intentionally holding her head in such a position, in which the field of action of the paralysed left lateral rectus could be avoided. Only in such a position of her neck, could she eliminate horizontal, vertical and torsional diplopia and maintain a single binocular vision. It is well known that, in case of isolated unilateral lateral rectus palsy, the head is turned to the same side as that of

the paralysed muscle[6]. This type of torticollis is called ocular torticollis. In contrast to the previous papers[1-3], where torticollis was due to local inflammations of the neck muscles and had improved only after giving analgesics, here, in our case, the torticollis was painless and improved promptly after covering one eye with an opaque patch, along with reduction of the ICP with hypertonic saline and antibiotic therapy.

This case report points out that in case of incompletely treated pyogenic meningitis where the signs and symptoms are often obscure, isolated torticollis may warrant a LP. Besides, in any case of meningitis (both with and without the frank meningeal signs), if torticollis is present, then only examination of the neck may not be enough. We suggest an urgent eye examination in these cases, for early detection of any extra ocular muscle palsy.

References

1. McIntosh D, Brown J, Hanson R, Isaacs D. Torticollis and bacterial meningitis. *The Pediatric Infectious Disease Journal* 1993; **12**(2):160. https://doi.org/10.1097/00006454199302000-00013 PMid: 8426778

2. Mukherjee S, Sharief N. Bacterial meningitis presenting as acute torticollis. *Acta Paediatrica* 2004; **93**(7):1005-6. https://doi.org/10.1111/j.16512227.2004.tb02705.x PMid: 15303823

3. Chirurgi R, Kahlon S. Isolated torticollis may present as an atypical presentation of meningitis. *Case Reports in Emergency Medicine* 2012; **2012**: 193543. https://doi.org/10.1155/2012/193543 PMid: 23326704 PMCid: PMC3542889

4. Jones J, Farooq S. Sixth nerve palsy. Available from: https://radiopaedia.org/articles/sixth-nerve-palsy

5. Chaudhary M, Shah DN, Sharma PR. Ocular manifestations of meningitis in children. *Journal of Nepal Paediatric Society* 2012; **32**(2):136-41. https://doi.org/10.3126/jnps.v32i2.5534