Papilloedema and cranial nerve palsies complicating apparent benign aseptic meningitis

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Summary

Three patients who presented with apparently uncomplicated aseptic meningitis subsequently developed papilloedema and sixth cranial nerve palsies between 11 and 16 days after the onset of the illness. All three patients recovered completely without treatment. Raised intracranial pressure is a poorly recognized complication of aseptic meningitis that may represent a post-infective or 'allergic' response to an enteroviral infection. While clinicians should be aware of this possible complication of aseptic meningitis, differentiation from tuberculous meningitis may be difficult necessitating empirical treatment with anti-TB drugs.

Introduction

Aseptic or lymphocytic meningitis is a clinical syndrome characterized by a lymphocytosis in the cerebrospinal fluid (CSF) and meningeal irritation. Enterovirus infections are responsible for the majority of cases and the disease is usually of short duration with a good prognosis[1]. We describe three patients who presented with uncomplicated aseptic meningitis and subsequently developed papilloedema and cranial nerve palsies. All three patients caused considerable diagnostic difficulty as the benign nature of these complications is not widely appreciated.

Case reports

Case 1

A 14-year-old girl presented with a 5-day history of headache and diarrhoea. She was pyrexial and had neck stiffness. A lumbar puncture revealed clear CSF at a pressure of 200 mm with a lymphocytosis (140/mm^3) normal glucose but an elevated protein content (1.0 g/l). No organisms were found on microscopy and culture for tuberculosis was negative. Her symptoms subsided and she was discharged home on the 11th day of her illness. Five days later she was readmitted with papilloedema and a right sixth cranial nerve palsy. A CT scan was normal and a repeat lumbar puncture revealed a raised CSF pressure (more than 300 mm), persisting lymphocytosis (104/mm^3) and elevated protein content (0.64 g/l). She was managed conservatively, the papilloedema and ocular palsy resolving within 3 weeks.

Case 2

A 28-year-old woman was admitted with 3 days of headache, vomiting and diarrhoea. Her symptoms settled initially but 3 days after admission she developed a maculopapular rash and a pyrexia. Over the subsequent 5 days she developed a more severe headache and neck-stiffness. She was also found to have bilateral papilloedema and a right sixth cranial nerve palsy. A CT scan was normal and a lumbar puncture was performed. This revealed clear CSF under normal pressure (148 mm) with a slight lymphocytosis (12/mm^3), normal glucose and an elevated protein content (0.67 g/l). As no organisms were detected on microscopy or culture no treatment was given and her neurological signs disappeared during the following 2 weeks. TB cultures subsequently proved to be negative.

Case 3

A 22-year-old man was admitted with a 7-day history of a sore throat and headache. He was apyrexial with a slightly inflamed throat and cervical lymphadenopathy, but no neck stiffness. His blood count showed some atypical mononuclear cells, however, the monospot test for glandular fever and subsequent Paul-Bunnell test was negative as was toxoplasmosis serology. His condition improved and he was discharged home after 3 days in hospital. Three days later he developed diplopia and was readmitted to hospital where he was found to have bilateral papilloedema and a partial left sixth nerve palsy. The CT scan was normal and lumbar puncture revealed CSF under a pressure of 180 mm, normal glucose and protein content (3.2 mmol/l and 0.32 g/l respectively) and no white cells. CSF serology suggested a recent herpes simplex virus infection. The papilloedema resolved slowly over the subsequent 6 months.

Discussion

These cases illustrate that papilloedema and cranial nerve palsies may follow aseptic meningitis. None of the cases had clinical features of encephalitis. In the first two, serological studies for mumps, mycoplasma, cytomegalovirus, EBV, herpes, lymphocytic choriomeningitis and Lyme disease were negative and although no virus was isolated from the CSF, an enteroviral aetiology was most likely. The clinical features and course of the third patient were similar. However, a lumbar puncture performed after the onset of the papilloedema revealed evidence of a possible herpes simplex infection.

Papilloedema is not a widely recognized complication of aseptic meningitis. It was described in two case series reported more than 20 years ago[2,3] but not in a more recent report[1]. The associated sixth cranial nerve palsies are likely to have been false localizing signs as a result of the underlying raised intracranial pressure. There is nothing in the clinical or laboratory findings to suggest an explanation for the raised pressure. In the three cases it was observed late in the clinical course of the disease between 11 and 16 days after the onset of symptoms. The complication may possibly represent a post-infective 'allergic' response to an enterovirus manifested by a mild diffuse cerebral swelling. All three patients recovered without any neurological deficit although in the third patient the papilloedema persisted for 6 months after the original illness.

Clearly the major diagnostic problem is the possibility of tuberculous meningitis. In a recent case series

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papilloedema or ocular palsies were observed in up to 20% of patients with this condition[4]. While our cases demonstrate that papilloedema and ocular palsies may occur as a relatively benign complication of aseptic meningitis, obviously it is vital not to miss the diagnosis of tuberculous meningitis. A possible clue in distinguishing the two may be the absence of clouding of consciousness which is an invariable feature of TB meningitis in the non-compromised host. However, because of the similarities between the clinical and laboratory findings in the two conditions, it may be necessary for cases of aseptic meningitis who develop this complication to be treated empirically with anti-TB medication.

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Forthcoming events

Ninth British Course on Hip Surgery
3-6 April 1991, Oswestry, Shropshire
Further details from: Ms E Wilkinson, Symposium Secretary, Institute of Orthopaedics, The Robert Jones & Agnes Hunt Orthopaedic Hospital, Oswestry, Shropshire SY10 7AG, UK (Tel: 0691 655311, ext. 3392)

Spring Meeting of the British Association of Oral and Maxillofacial Surgeons
12 April 1991, Brighton
A joint meeting with the British Society for the Study of Orthodontics and will take the form of a Festschrift to celebrate the contributions of the late Mr John Hovell to the specialties of oral and maxillofacial surgery and orthodontics.
Further details from: John C Lowry, Honorary Secretary, British Association of Oral and Maxillofacial Surgeons, Royal College of Surgeons of England, 35/43 Lincoln's Inn Fields, London WC2A 3PN

Ethical Issues in Research
29-30 April 1991, Georgetown University, Washington DC
Further details from: Fidia Research Foundation, 1640 Wisconsin Ave, NW, Suite 2, Washington DC 20007, USA (Tel: 202 337-7185)

Gait Analysis in Cerebral Palsy
2 May 1991, Oswestry, Shropshire
Further details from: (see entry for 3-6 April 1991)

'Somatostatin '91' and Other Peptide Analogues: Clinical Applications
3 May 1991, Leicester University
Further details from: Mr P K Donnelly, Department of Surgery, Leicester General Hospital, Gwendolen Road, Leicester, UK

Eighth International Symposium on Radionuclides in Nephrourology
6-8 May 1991, Chester, UK
Further details from: P H O'Reilly MD FRCS, VIIIth International Symposium Radionuclides in Nephrourology, Department of Urology, Stepping Hill Hospital, Stockport SK2 7JE, UK

American Lung Association/American Thoracic Society: International Meeting
12-15 May 1991, Anaheim, California
Further details from: Maureen J O'Donnell, Associate Director, Professional Development, American Lung Association, 1740 Broadway, New York City, NY 10019-4374, USA

24th Annual Advances and Controversies in Clinical Pediatrics
16-18 May 1991, San Francisco, California
Further details from: (see entry for 21-23 March 1991)

Joint Meeting of The European Academy of Facial Surgery and The Swedish Society of Esthetic Surgery
23-24 May 1991, Goteborg, Sweden
Further details from: M P Stearns, 97 Harley Street, London W1N 1DF (Tel: 071-487 4695)

First North Sea Meeting on Venous Diseases
Fourth Anglo-French Meeting on Phlebology
30 May-1 June 1991, Amsterdam, The Netherlands
Further details from: Symposium Office, PO Box 39 5720 AA Asten, The Netherlands

MRCP Part II Courses
3-7 June 1991, Royal Free Hospital, London
Further details from: Dr D Geraint James, Royal Free Hospital, Pond Street, London NW3 2QG
(Tel: 071-794 0500, ext 3931)

Strengthening Community Capacity to Prevent and Control Disease: Implementing Treatment and Prevention Programs for Children
12-14 June 1991, Carter Presidential Centre, Atlanta, Georgia
Further details from: INMED, 103 Loudoun Street, SW, PO Box 4200, Leesburg, VA 22075, USA (Tel: 703 771 0011)

Advanced Training Program in Biomedical Research Management
16-17 June 1991, Elsinore, Denmark
Further details from: Prof. T Agersnap, Institution of Organization, Copenhagen School of Economics, Blagardsgade 23 B, DK-2200 Copenhagen N, Denmark (Tel: 45 31 37 05 55)

Thyroid '91
4-5 July 1991, Newcastle upon Tyne
Further details from: Dr Petros Perros, Department of Medicine, The Medical School, University of Newcastle, Newcastle NE2 4HH

Institute of Medical Ethics Conference on The Ethics of Using Animals in Biomedical Research
9-11 July 1991, Birmingham University, UK
Further details from: The Conference Secretary, Department of Biomedical Science and Biomedical Ethics, The Medical School, Birmingham B15 2TT, UK