CASE REPORT

Combination of AIDP and pyramidal signs associated with antecedent hepatitis A infection: a rare (co)occurrence

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SUMMARY

Guillain-Barré syndrome (GBS) is a postinfectious illness and commonly occurs in association with infective agents such as *Campylobacter jejuni*, cytomegalovirus, Epstein-Barr virus, *Mycoplasma pneumoniae*, HIV, shigella, clostridium, *Haemophilus influenzae*; occasionally with acute hepatitis B, C, E; and more rarely with hepatitis A, as documented in various case reports. Classically, GBS presents with hyporeflexia or areflexia, but preserved and brisk reflexes have been described in context with GBS variant, AMAN (acute motor axonal neuropathy), in approximately 33% of the cases. Preserved or exaggerated tendon reflexes with extensor plantar response is not usually seen in patients with acute inflammatory demyelinating polyradiculoneuropathy (AIDP). We report a rare case of AIDP with upper motor neuron signs in association with an antecedent hepatitis A infection.

BACKGROUND

Guillain-Barré syndrome (GBS) is a common and important peripheral nerve disorder in neurology practice. A high index of clinical suspicion needs to be maintained to facilitate early diagnosis and treatment and improve patient outcomes. GBS classically presents with hyporeflexia or areflexia, but brisk reflexes have been described mostly in association with acute motor axonal neuropathy (AMAN) variant. Our patient had acute inflammatory demyelinating polyradiculoneuropathy (AIDP) but had upper motor neuron signs, which is an atypical clinical finding in GBS. Also AIDP occurred in this case with antecedent hepatitis A infection, which is again a rare association. We report this case to emphasise the significance of suspecting GBS, even when it occurs in association with uncommon triggering infections and atypical clinical signs, which may unnecessarily delay the diagnosis initially and may worsen prognosis.

CASE PRESENTATION

A 25-year-old man presented with a one-month history of nausea, generalised weakness and yellowish discolouration of sclera. There was no history of fever or vomiting. Further examination revealed hyperbilirubinaemia and marked elevation of liver enzymes, in a pattern indicating a hepatocellular process. His serological titres for hepatitis B, C and E were negative but IgM anti-hepatitis A virus was positive (enzyme immunoassay). Malaria antigen was negative. He was treated symptomatically but

over the next 15 days he developed acute onset of progressive asymmetric weakness (left>right) of both upper limbs which subsequently progressed to involve lower limbs over the next 2 days. The weakness was non-progressive thereafter and there was no associated dysphagia, nasal regurgitation, neck weakness, facial weakness, breathing discomfort, bladder bowel involvement or any cardiac arrhythmias. Also there was no history of diarrhoea, immunisation, blood transfusion or indigenous drug intake.

On examination he had icterus, respiratory rate was 18/min and single breath count was 44. On neurological examination he was fully conscious, well oriented and his speech was normal as well. Bilateral fundi examination and all cranial nerves were normal. Motor system examination showed normal nutrition and tone and power was MRC grade 4/5 in both lower limbs proximally and distally, while in upper limbs power on the left side was 3/5 distally and 4/5 proximally and on the right side proximally and distally it was Medical Research Council (MRC) grade 4/5.

Curiously, all his deep tendon reflexes were brisk and plantars were bilaterally extensor. His superficial reflexes including abdominal reflexes were preserved. Sensory examination was normal and Romberg's sign was negative. He did not have cerebellar signs or signs of meningeal irritation either.

INVESTIGATIONS

Laboratory reports including haematology and biochemistry revealed normal blood counts with conjugated hyperbilirubinaemia and elevated liver enzymes (but in decreasing trends as compared with previous liver function tests). Serology for HIV, Venereal Disease Research Laboratory and vasculitic profiles was negative. His serum electrolytes, creatine kinase levels and kidney function tests were normal. Ultrasound abdomen was also normal. Nerve conduction studies in laterality with clinical picture showed pure motor demyelinating affection of both upper and lower limbs (left>right) with increased distal latencies and increased F wave latencies. Cerebrospinal fluid (CSF) analysis was suggestive of albuminocytological dissociation with elevated protein and normal cell count and sugar. Both electrophysiology and CSF examination were suggestive of AIDP. MRI brain and spine with contrast were normal. A clinical diagnosis of GBS with brisk reflexes (GBS disability score 3) was kept.

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DIFFERENTIAL DIAGNOSIS

Non-compressive myelopathy.

TREATMENT

Already, 2 weeks had passed and there was no further progression so the patient was managed conservatively and physiotherapy was started.

OUTCOME AND FOLLOW-UP

On follow-up after 15 days the patient had improved clinically and the GBS disability score was 2.

DISCUSSION

GBS is an acute polyradiculoneuropathy presenting, in its classical form, as a rapidly evolving symmetric and ascending motor paralysis with hypotonia and areflexia accompanied by an acellular CSF response with elevated protein level. In over two-third of the cases, an infection precedes the onset of neuropathy by 1–4 weeks.¹

Clinical evidence suggests that GBS is an organ-specific, immune-mediated disorder caused by synergistic interaction of cell-mediated and humoral immune responses to still incompletely characterised peripheral nerve antigens.² The syndrome is considered to be an autoimmune disease triggered by a preceding bacterial or viral infection through ‘molecular mimicry’. The most commonly identified triggering agents are *Campylobacter jejuni*, followed by cytomegalovirus, Epstein-Barr virus, *Mycoplasma pneumoniae*, HIV, shigella, clostridium and *Haemophilus influenzae*.³ Very often association with hepatitis B, C or E⁴ is noticed but association with hepatitis A is still infrequent with only a few case reports in literature.^{5–6}

Progression is rapid, with about 50% of patients reaching clinical nadir by 2 weeks and more than 90% by 4 weeks.⁷ Current diagnostic criteria include <4 weeks of progression to clinical nadir. Widespread areflexia or hyporeflexia is the rule.^{7–8} In most patients, after a brief plateau, improvement begins with a gradual resolution of paralysis which lasts from weeks to months.

Urgent spinal cord or cauda equina imaging may be indicated in atypical cases, especially in those with prominent sensory signs and bladder bowel involvement, in order to exclude acute myelopathy resembling GBS as corticospinal tract signs such as hyper-reflexia or extensor plantars may not be evident in the acute phase of myelopathies, for example, transverse myelitis, acute spinal cord compression or spinal cord infarct.

Deep tendon reflexes may be preserved throughout the disease course in patients with AMAN and have been considered indicators of rapid clinical recovery.⁹ Also there are case reports with GBS with retained and sometimes exaggerated reflexes. Our case too had GBS with hyper-reflexia and extensor plantar response with prior hepatitis A infection, which is rare as per our knowledge.

The incidence of hyper-reflexia in patients in a Chinese study in AMAN was 33%,⁹ whereas McKahn et al¹⁰ found that 48% of Chinese patients with AMAN showed hyper-reflexia. Van der Mech et al¹¹ found that, in patients with pure motor GBS, tendon reflexes were preserved up to MRC grade 3 paresis. In Indian context, there have been case reports by Singhal et al¹² where they described a case of AMAN with brisk reflexes in a 10-year-old patient while Somarajan et al¹³ had similar findings in a 14-year-old boy with electrophysiology showing conduction blocks. But none of the reports have association with antecedent

hepatitis A infection with AIDP where hyper-reflexia and extensor plantar response could be found.

Hyper-reflexia is also seen in chronic neuropathies with high titres of anti-GM1 antibodies.¹⁴ As sensory nerve involvement in AIDP contributes to areflexia, the selective involvement of motor axons in AMAN could account for the relative preservation or earlier appearance of reflexes¹⁵; but it does not account for hyper-reflexia and reflex spread to other segments. The mechanism that causes hyper-reflexia in GBS is unknown.

In endemic areas where hepatitis A, (a cause of infective hepatitis), is common, an index of suspicion for GBS should always be high in an appropriate clinical scenario. Moreover, the presence of corticospinal tract signs, after an adequate negative neuroimaging, should not deter clinicians from making a diagnosis of GBS, as it has therapeutic implications.

Our case was not a candidate for treatment with intravenous immunoglobulins as he was clinically stable and ambulatory, so was managed conservatively. But if the patient had a more severe quadriparesis or respiratory or bulbar involvement with similar electrophysiological and CSF findings with normal neuroimaging, suggestive of GBS, he would have to be treated with intravenous immunoglobulins rather than intravenous high-dose methylprednisolone, which is the treatment of choice in case of acute transverse myelitis.

Learning points

- Association of Guillain-Barré syndrome (GBS) with corticospinal tract signs, though infrequent, is well documented in literature.
- GBS being a postinfectious illness, hepatitis A infection can be considered as an emerging trigger.
- Clinicians should have a high index of suspicion for GBS in the appropriate clinical and investigational setting, as it is a treatable disorder.

Contributors All the authors contributed in writing the manuscript and in review of the literature.

Competing interests None.

Patient consent Obtained.

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REFERENCES

- 1 Govoni V, Granieri E. Epidemiology of Guillain-Barre syndrome. *Curr Opin Neurol* 2001;14:605–13.
- 2 Kieseier BC, Hartung HP, Wiendl M. Immune circuitry in the peripheral nervous system. *Curr Opin Neurol* 2006;19:437–45.
- 3 Grygorczuk S, Zajkowska J, Kondrusik M, et al. Guillain-Barré syndrome and its association with infectious factors. *Neurol Neurochir Pol* 2005;39:230–6.
- 4 Sharma B, Nagpal K, Sannegowda R Bakki, et al. Hepatitis E with Guillain-Barré syndrome: still a rare association. *J Neurovirol* 2013;19:186–7.
- 5 Khan I, Badshah A. Guillain-Barre syndrome in association with hepatitis A infection and nephritic syndrome. *J Postgrad Med Inst* 2012;26:226–8.
- 6 Çomoğlu S, Cesur M. Guillain-Barré syndrome due to hepatitis A. *Turk J Med Sci* 2006;36:185–6.
- 7 Asbury AK, Cornblath DR. Assessment of current diagnostic criteria for Guillain-Barre' syndrome. *Ann Neurol* 1990;27:S21–4.
- 8 Asbury AK. Diagnostic considerations in Guillain-Barre syndrome. *Ann Neurol* 1981;9:1–5.
- 9 Kuwabara S, Mori M, Ogawara K, et al. Indicators of rapid clinical recovery in Guillain-Barre syndrome. *J Neurol Neurosurg Psychiatr* 2001;70:560–2.
- 10 McKahn GM, Cornblath DR, Griffin JW, et al. Acute motor axonal neuropathy: a frequent cause of acute flaccid paralysis in China. *Ann Neurol* 1993;33:333–42.

- 11 Van der Meché FG, Meulstee J, Vermeulen M, *et al*. Patterns of conduction failure in the Guillain-Barré syndrome. *Brain* 1988;111:405–16.
- 12 Singhal V, Bhat KG. Guillain-Barre syndrome with hyperreflexia: a variant. *J Pediatr Neurosci* 2011;6:144–5.
- 13 Somarajan A. Guillain Barre syndrome with brisk reflexes—another variant. *Neurol India* 2006;54:215–16.
- 14 Pestronk A, Cornblath DR, Ilyas AA, *et al*. A treatable multifocal motor neuropathy with antibodies to GM1 ganglioside. *Ann Neurol* 1988;24:73–8.
- 15 Asbury AK, Cornblath DR. Preserved tendon reflexes in Campylobacter neuropathy [reply to letter]. *Ann Neurol* 1998;43:547.

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