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Guillain-Barré Syndrome Revealed by Complete Atrioventricular Block: A Rare Indication for Pacemaker Implantation

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Abstract **Case Report**

Guillain-Barré syndrome is an acute autoimmune neuropathy that can present with autonomic dysfunction in up to 70% of cases. Cardiac manifestations, though often secondary, may rarely precede neurological symptoms. We report a rare case of GBS revealed by complete atrioventricular block, requiring pacemaker implantation before the diagnosis was established. Neurological symptoms appeared later, and GBS was confirmed by electrophysiological and cerebrospinal fluid findings. This case highlights the importance of considering GBS in the differential diagnosis of unexplained conduction disorders. Early identification of atypical presentations is essential for timely treatment and appropriate management.

Keywords: Guillain-Barré syndrome, atrioventricular block, pacemaker, autonomic dysfunction.

INTRODUCTION

Guillain-Barré syndrome is an acute polyradiculoneuritis of autoimmune origin, frequently triggered by infection or an abnormal immune response. It typically manifests as symmetrical ascending motor weakness, associated with areflexia and sometimes sensory disturbances. Autonomic nervous system involvement is reported in 66% of patients, and can lead to serious cardiovascular complications such as arrhythmias or conduction blocks [1].

The most recent data suggest that almost half of patients with Guillain-Barré syndrome develop clinically significant dysautonomia, lengthening hospital stays and increasing global morbidity [2]. In rare cases, autonomic manifestations may precede motor signs, making initial diagnosis difficult.

We report here an exceptional clinical case in which complete atrioventricular block was the first manifestation of Guillain-Barré syndrome, requiring pacemaker implantation before the neurological diagnosis was made.

CASE REPORT

A 64-year-old female patient, lacking significant medical history and residing in social isolation due to Diogenes syndrome, was admitted to the emergency department after an episode of syncope. The electrocardiogram revealed complete atrioventricular block with a ventricular escape rhythm at 38 bpm (Figure 1). In the absence of an identified reversible cause, and given the increased risk of infection, a leadless pacemaker (MICRA type) was implanted.

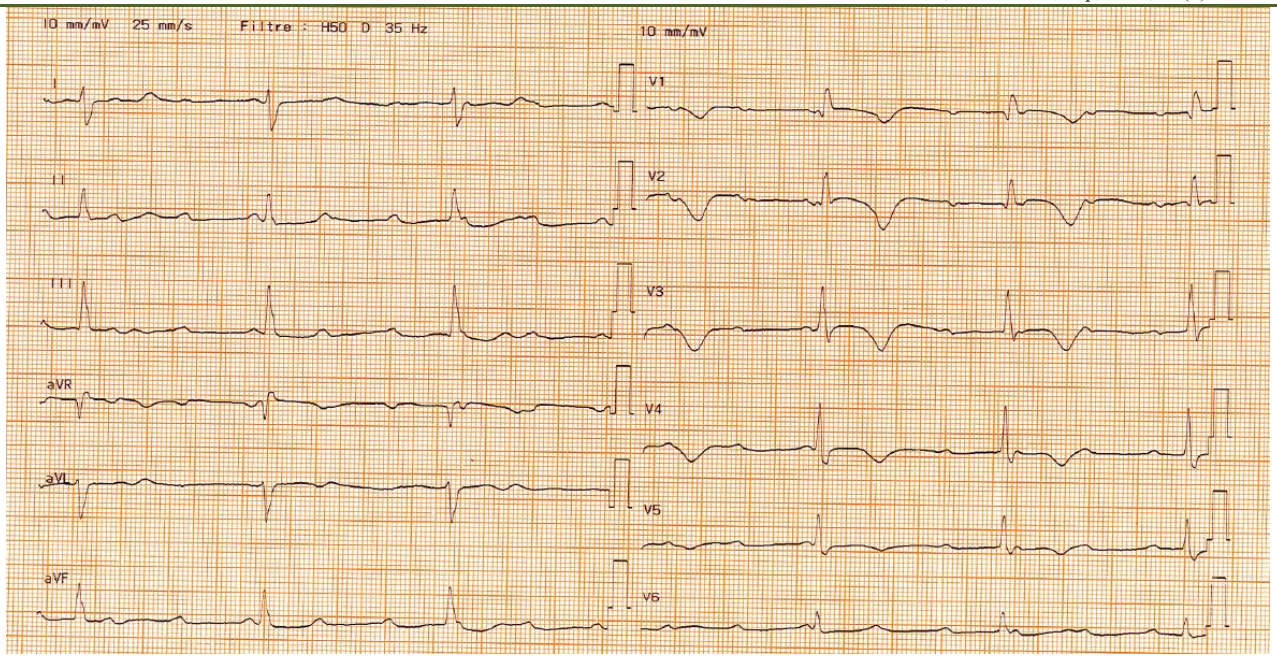

Figure 1: Electrocardiogram demonstrating a complete atrioventricular block

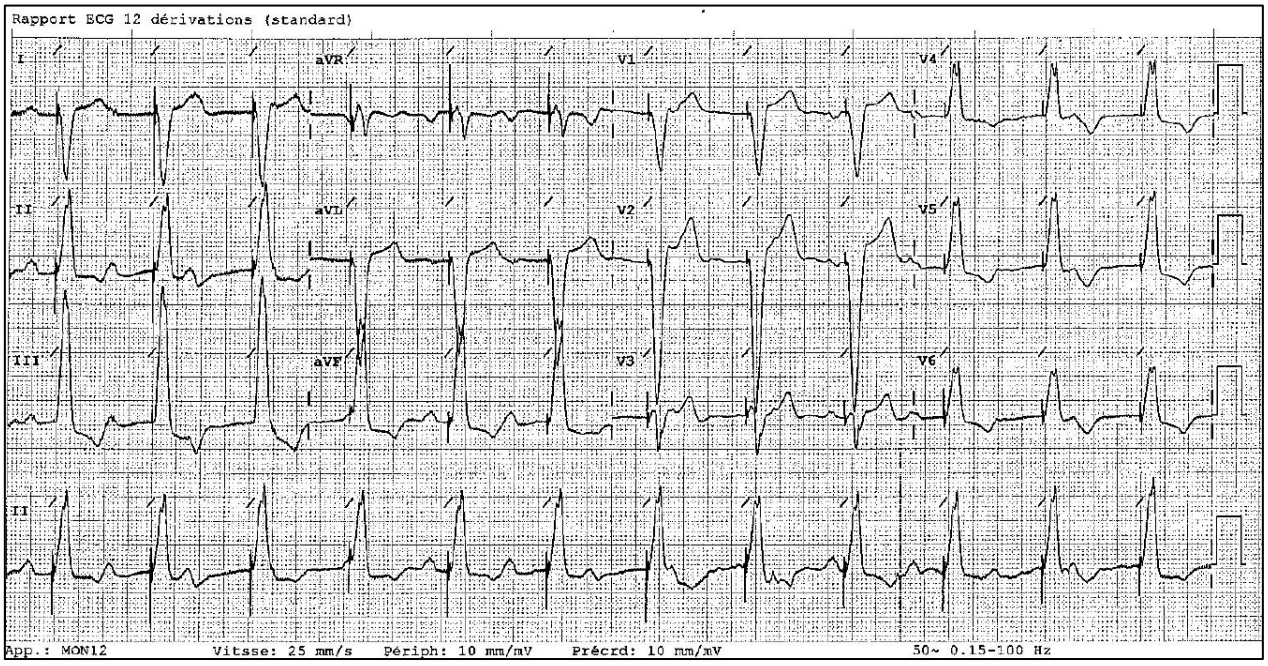

Figure 2: Electrocardiogram showing an electro-entrained rhythm due to implantation of pacemaker

Over the following two weeks, the patient developed ascending paresthesias of the lower limbs, rapidly followed by flaccid tetraparesis with osteotendinous areflexia. Spinal cord magnetic resonance imaging was normal. Cerebrospinal fluid analysis revealed albumin-cytological dissociation, and the electromyogram showed demyelinating damage compatible with Guillain-Barré syndrome. Treatment with intravenous immunoglobulins led to a progressive improvement in neurological status.

DISCUSSION

This case illustrates an atypical presentation of Guillain-Barré syndrome, in which cardiac dysautonomia precedes the classic neurological signs. While most cardiovascular involvement occurs secondary to motor deficits, complete atrioventricular block as an inaugural presentation remains rare, but well documented in the literature [3, 4].

Guillain-Barré syndrome is often preceded by an infection likely to trigger an immune response [5]. The most frequently identified triggering agent is Campylobacter jejuni. Various degrees of autonomic

nervous system involvement are observed in up to 70% of patients with Guillain-Barré syndrome [6].

Dysautonomia in Guillain-Barré syndrome results from immune damage to autonomic fibers, particularly those of the vagus nerve and sympathetic system. This can result in cardiac rhythm and conduction disorders ranging from tachycardia to asystole [1].

Dysautonomia is often underestimated. A recent study showed that almost 50% of patients present with autonomic abnormalities, particularly cardiovascular [2]. Another publication reports that around 20% of cases develop severe dysautonomia, associated with a poor prognosis, particularly in cases of severe bradyarrhythmias [7].

In the present case, the absence of initial motor signs delayed the diagnosis of Guillain-Barré syndrome. The urgency of the atrioventricular block led to immediate cardiological management, even before a full neurological assessment had been carried out. This raises an important question : in the presence of an unexplained conduction disorder, should we systematically consider a neurological origin?

It's important to highlight that dysautonomia in Guillain-Barré syndrome is generally reversible under immunomodulatory treatment, and that in some cases, temporary cardiac stimulation may suffice [8]. However, this patient's clinical instability and high-risk infectious profile justified definitive implantation.

Recent studies indicate that recovery of autonomic function may occur within six weeks of treatment with intravenous immunoglobulin [9]. This possibility of reversibility argues in favor of cautious evaluation before implanting a definitive pacemaker, except in cases of severe hemodynamic instability.

Although rare, inaugural presentations of Guillain-Barré syndrome with complete atrioventricular block have been described. Okada *et al.,* [4] reported three similar cases, all of which required cardiac stimulation, sometimes with spontaneous recovery. These data are a reminder of the importance of increased vigilance in the presence of unexplained conduction disorders, especially when subtle neurological signs are present.

Interdisciplinary collaboration between cardiologists, neurologists and internists is essential for optimal management of these complex clinical pictures.

CONCLUSION

This case illustrates an atypical presentation of Guillain-Barre syndrome, in which severe cardiac dysautonomia precedes the classic neurological signs. It underlines the importance of considering Guillain-Barre syndrome in the differential diagnosis of unexplained conduction disorders. Early recognition may allow an adapted therapeutic approach and avoid excessively invasive interventions.

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