Sarcouncil Journal of Medical Series

ISSN(Online): 2945-3550

Volume- 01| Issue- 01| 2022

Case Report **Received:** 06-03-2022 | **Accepted:** 16-03-2022 | **Published:** 23-03-2022

Paraneoplastic Guillain Barrè at the Department of Emergency: Case Report

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Abstract: Guillain-Barre syndrome (GBS) is a rare acute paralytic polyneuropathy, with an incidence of about 1 in 100,000. It occurs in adults and children. It is an autoimmune disorder of the peripheral nervous system often triggered by acute infections but there have been reports of GBS in different cancers but only few case reports have been reported in patients with colorectal cancer. Here we report a case of a 74 years-old patient affected with metastatic rectal cancer who was diagnosed for Guillain Barrè syndrome. We suggest that Guillain Barrè should be considered in patients with metastatic cancer evaluated at the Department of Emergency, after evaluating differential diagnosis.

Keywords: Guillain Barrè, Paraneoplastic, Rectal cancer.

INTRODUCTION

Guillain–Barré syndrome (GBS) is an inflammatory disease of the PNS and is the most common cause of acute flaccid paralysis, with an annual global incidence of approximately 1–2 per 100,000 person-years 1. GBS occurs more frequently in males than in females and the incidence increases with age, although all age groups can be affected (Sejvar, J. J. *et al*., 2011). Patients with GBS typically present with weakness and sensory signs in the legs that progress to the arms and cranial muscles, although the clinical presentation of the disease is heterogeneous and several distinct clinical variants exist. Diagnosis of GBS is based on the patient history and neurological, electrophysiological and cerebrospinal fluid (CSF) examinations (Sejvar, J. J. *et al*., 2011). Paraneoplastic syndromes refer to a broad array of illnesses that damage organs or tissues distal to the neoplasm. These syndromes are not directly caused by the malignancy but rather an off-target effect of the immune response generated against the malignancy (Darnell, R.B. *et al*., 2016). Currently, it is believed that most if not all paraneoplastic neurologic syndromes are immune-mediated. Paraneoplastic neurologic disorders can involve all portions of the nervous system (Darnell, R.B. *et al*., 2016). The presence of paraneoplastic GBS remains controversial but there are reports of GBS occurring in the presence of different types of cancers including lung cancer, non-lung squamous cell carcinoma, gastrointestinal cancers, bladder cancer, and lymphomas (Abbassi, N. *et al*., 2019). Here we report the case of a paraneoplastic induced Guillain Barrè Syndrome in a patient with rectal carcinoma diagnosed at department of Emergency of our hospital.

MATERIALS AND METHODS

We report the case of a 74-year-old male caucasian patient, with past medical history of arterial hypertension and monoclonal gammopathy of undetermined significance, previous myocardial infarction with severe cardiomiopathy, who was diagnosed for rectal cancer in January 2020, with liver, lung and cerebellar metastases. He received first-line chemotherapy for metastatic disease with oxaliplatin and capecitabin. treatment had been initially very well tolerated but, after the second cycle, he started to complain of progressive unsteadiness of gait, dysphagia, and weakness of both the upper and lower limbs. After ten day he was evaluated at our Department of Emergency. He denied acute infection diseases, surgical operation or recent vaccinations. The Neurological examination showed dysarthria, distal greater than proximal weakness of the upper and lower limbs, while sensory modalities were all preserved. He wasn't able to stand or walk and ankle jerks were absent while patellar, biceps and triceps reflexes were reduced. Brain computer tomography showed cerebellar metastatis (superimposed to the previous recently performed for staging). Full blood count, glucose, urea, creatinine, aminotransferases, bilirubin, sodium, potassium, calcium, PT, INR and APTT, CRP, creatin- phosphokinase were all within the normal range. Lumbar puncture wasn't performed due to the presence of cerebellar metastases. Naso-pharyngeal swab was negative for SARS-CoV2 infection. Nerve conduction studies revealed considerable reduction of the motor velocity of the median nerve bilaterally and right ulnar nerve (across the sulcus), with significant prolongation of the distal latencies of the median nerve bilaterally and right peroneal nerve. Sensory conduction wasn't slowed in most

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nerves of both the upper and lower limbs. F waves were abnormal. He wasn't treated with intravenous immunoglobulins or plasmapheresis due to severe cardiopathy; methylprednisolone IV (1g/kg/day) was administered with mild benefit (neurological examination didn't worsen). Oncologists decided to stop chemotherapy due to increase of metastases and radiotherapists excluded radiotherapy for brain metastasis. Palliative therapy was started and to date he is still in-hospitalized.

DISCUSSION AND CONCLUSION

Guillain-Barre syndrome (GBS) is an autoimmune disorder of the peripheral nervous system often triggered by acute infections – the most common being gastrointestinal or respiratory – leading to an immune mediated response of producing antibodies to antigens which react with the myelin sheath of the peripheral nerves, resulting in demyelination and/or axonal injury. In severe cases, GBS may lead to respiratory failure, and even death. Current treatment options include treatment with intravenous immunoglobulin and/or plasmapheresis, which are aimed at neutralising, and removal of circulating antibodies from the bloodstream respectively, alongside supportive measures to maintain motor function (Abbassi, N. *et al*., 2019).

As possible differential diagnosis, considering recent chemotherapy treatment, we considered chemiotherapy induced polyneuropathy (CIPN) (Staff, N.P. *et al*., 2017), particularly oxaliplatin polyneuropathy (OIPN) (Kang, L. *et al*., 2012). Oxaliplatin is certainly one of the most neurotoxic anticancer drugs, alongside Vinca alkaloids, taxanes, bortezomib and thalidomide (Balayssac, D. *et al*., 2011). More than 90% of patients experience acute symptoms which are however resolved within a few days and 30–50% of patients suffer from chronic oxaliplatin-induced peripheral neuropathy (OIPN) (Beijers, A.J.M. *et al*., 2014). OIPN grade and symptom duration can be variable between studies. However, although these symptoms seem to decrease with time, OIPN can last for several years after the end of the chemotherapy (Beijers, A.J.M. *et al*., 2014). The great majority of studies have demonstrated a link between a cumulative dose above 850 mg/m2 oxaliplatin and the onset of neuropathy (Beijers, A.J.M. *et al*., 2014). OIPN presents specific sensory disturbances, with cold and warm triggered pain and a decrease in vibratory perception in the hands and feet (Attal, N. *et al*., 2009). In the longer term, OIPN has a deleterious impact on cancer survivors, often being associated with sleep disturbance, depressive symptoms and impaired health-related quality of life (HRQOL) (Tofthagen, C. *et al*., 2013). Considering the absence of pain or sensory symptoms in our patient, the disto-proximal spreading with axonal motor nerves involvement we excluded OIPN. We also excluded a possible role of cerebellar metastasis or the appearance of spinal cord metastases (that, however, couldn't have explained bulbar symptoms). Unfortunately lumbar puncture couldn't be performed and so we couldn't verify the presence of albumin-cytological dissociation. However electromyography and electroneurography pattern, together with clinical symptoms and signs, allowed us to perform diagnosis of acute motor axonal neuropathy (AMAN). According to moderate quality evidence (following Cochrane guidelines) (Hughes, R.A. *et al*., 2016), corticosteroids given alone do not significantly hasten recovery from Guillain Barrè syndrome or affect the long-term outcome. However in the case of our patient methylprednisolone blocked neurological worsening typical of GBS.

In conclusion, we suggest and recommend that Guillain Barrè should be considered in patients with metastatic cancer evaluated at the Department of Emergency, after evaluating differential diagnosis.

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Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Bonetti, S., Cotelli, M.S. and Manelli, F. "Paraneoplastic Guillain Barrè at the Department of Emergency: Case Report." *Sarcouncil Journal of Medical Series 1*.1 (2022): pp 8-10

Publisher: SARC Publisher