

# Bevacizumab and irinotecan treatment for progressive diffuse brainstem glioma: case report

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**Abstract** Diffuse brainstem glioma carries a dismal prognosis. The current cornerstone of treatment is radiation therapy. Chemotherapy appears to be ineffective and the role of this treatment in the recurrent or progressive setting is not known. Bevacizumab and irinotecan have been reported to have shown radiographic response and improvement in progression-free survival among patients with malignant supratentorial gliomas. In this paper, we report our experience in an adult patient with progressive diffuse brainstem glioma treated with bevacizumab and irinotecan.

**Keywords** Brainstem · Glioma · Diffuse chemotherapy · Bevacizumab · Irinotecan

## Introduction

Brainstem gliomas have been reported to make up 2.4% of all intracranial tumors in adults [1, 2]. Common clinical

presentation can be summarized as constituting a triad of cranial nerve deficits, long tract signs, and ataxia [3]. Magnetic resonance imaging (MRI) is the diagnostic test of choice and typically, biopsy and/or surgery are not required for diagnosis or treatment of diffuse intrinsic pontine or tectal gliomas [4–8]. Brainstem gliomas have relatively poor prognoses with the overall median survival time of 44–74 weeks. The best results have been attained with fractionated focal radiation therapy which is the cornerstone of treatment [9]. The role of chemotherapy for brainstem gliomas up front or at relapse is unclear [10–12]. There is no documented benefit from the use of chemotherapy for these fatal tumors [13, 14]. Recently, there has been a published report on the use of irinotecan and bevacizumab for patients with recurrent supratentorial malignant gliomas showing significant radiographic response with improved progression-free survival [15–17]. The phase II study with the use of bevacizumab and irinotecan in pediatric patients with recurrent malignant glioma and diffuse brainstem glioma was negative [18]. In this paper, we report our experience with irinotecan and bevacizumab in an adult patient with progressive diffuse brainstem glioma.

## Clinical data

We reviewed the medical record of a patient with diffuse brainstem glioma from the Hermelin Brain Tumor Center Database. This 43-year-old woman presented in 2006 with progressive headaches, hoarseness, dysphagia, and ataxia. MRI with gadolinium demonstrated a diffusely enlarged pons extending into the medulla with minimal area of contrast enhancement (Figs. 1 and 2). Biopsy was not recommended and she was treated with fractionated

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