

# Surgical Management of Adult Intrinsic Brainstem Tumors Charles Teo MD Centre for Minimally Invasive Neurosurgery Sydney, AUSTRALIA



#### Learning Objectives

The importance of distinguishing focal from diffuse brainstem lesions.

The surgical approach to brainstem intra-axial tumors.

The survival advantage of an aggressive surgical treatment algorithm

#### Introduction

Much of the nihilism associated with primary brainstem tumors in children has been reduced in the last decade through the promising results of a few pediatric series. The same cannot be said for the attitudes of adult neurosurgeons faced with a primary, intrinsic brainstem tumor. The literature is sparse and pessimism is prevalent. This large series of adult brainstem tumors underscores the importance of distinguishing focal from diffuse and the encouraging surgical results seen with an aggressive treatment algorithm.

## Methods

A retrospective study was conducted of all adult patients who presented with an intrinsic brainstem tumor and who underwent surgery between January 2000 and December 2010. Patient records were used and data was updated after telephone. interviews. Any patient who was subsequently proven to have an extra-axial tumor was excluded from this study.

### Results

In the 10 year period 136 patients underwent surgery for a presumed intrinsic brainstem tumor. All patients younger than 18 years of age at time of presentation (n=104) were excluded and only one patient was found to have a secondary neoplasm. Of the 31 patients, 8 have died of their disease and 4 were significantly worse after surgery. Mean follow-up is only 26 months which reflects the rise in referrals in the last few years with increasing awareness of surgical intervention with these tumors. All other patients were either stable or improved neurologically after surgery. The overall survival (OS) rate is 74% and progression free survival (PFS) is 65% at 5 years. The results of histopathology were: JPA (n=4), ganglioglioma (n=1), low grade astrocytoma (n=14), anaplastic astrocytoma (n=5), GBM (n=7).

## Conclusions

An aggressive surgical approach to patients with presumed intrinsic brainstem tumors significantly improves OS and PFS compared to adult non-surgical series. Although complications may be incapacitating, they are relatively uncommon and certainly acceptable.

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2. Mursch K et al. Intrinsic brainstem tumor in adults: results of microneurosurgical treatment of 16 consecutive patients Br J Neurosurg 19(2) 2005

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Post-op axial MRI









