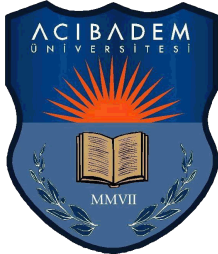




Gamma Knife Radiosurgery for Olfactory Groove Meningiomas
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Introduction

Due to the size of the tumors at the time of diagnosis, radiosurgery is rarely the primary treatment option for olfactory groove (OG) meningiomas. On the other hand anosmia is a common outcome after resection of OG meningiomas. In this study, the tumor control rates and the outcomes of with OG meningiomas who underwent Gamma Knife (GK) radiosurgery were evaluated.

Methods

We retrospectively reviewed 38 patients treated with GK for OG meningiomas at our institution between May 2006 and April 2014. The median age was 58 years old (range 25-73y). There were 14 males and 24 females. Nine patients underwent craniotomy before the date of GK treatment. Volume stage treatment was performed in two sessions to a patient because of the large tumor size. The median tumor volume was 4.6 cc (range 0.8-30.1 cc) and the median marginal dose was 12 Gy (range 10-15 Gy). Treatments before August 2012 were performed with Leksell Gamma Knife 4C unit and were delivered by Leksell Gamma Knife Perfexion thereafter.

Results

The median follow-up time was 41.5 months (range 12-106 months). Tumor control was achieved for all patients (100%). None of the patients experienced permanent side effects. Before the treatment, anosmia was present in 9 patients with recurrent/residual tumor and in 5 patients whom had no surgery. Remaining 24 patients were with intact olfaction. Only one patient in this group had loss of olfactory function. Ten patients had postradiosurgical peritumoral edema which responded well to short course of steroid treatment.

Discussion

Olfactory groove meningiomas are mostly surgically challenging. To improve the quality of life of the patient preserving the olfactory function is so important. Gamma knife radiosurgery is a very strong treatment option for this purpose. There is only one case series in the literature which specifically evaluates the results of gamma knife radiosurgery on olfactory function (1). Pittsburgh group reported their series with 41 patients. They found that the tumor growth control rate was 95% after median 76 months of follow-up. The olfactory function preservation rate was 100% for the patients with normal olfaction. Our series is an additional proof of success of gamma knife radiosurgery for these tumors.

Conclusions

Radiosurgery is an effective and safe treatment for small OG meningiomas. Radiosurgery can be considered as an initial treatment option for patients with small olfactory groove meningiomas.

References

1. Gande A, Kano H, Bowden G et al: Gamma Knife radiosurgery of olfactory groove meningiomas provides a method to preserve subjective olfactory function. J Neurooncol 116: 577-583, 2014

