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Pituitary Tumors: An Audit Of Patients Presented In Radiotherapy Department

Sharma MK

Owais A

Agarwal A

Patneedi B

Resident, Department of Radiotherapy, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, U.P.

Kumar P

Professor and Head, Department of Radiotherapy, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, U.P.

Abstract: ***Pituitary adenomas are common benign tumors that may cause visual defects, hypopituitarism, and respective endocrine symptoms, constitute about 10% of all adult intracranial neoplasms. Transsphenoidal resection is considered as primary treatment of choice for non-prolactin secreting pituitary adenomas, as well as medical treatment commonly with bromocriptine for prolactin secreting pituitary adenomas. External beam radiotherapy (RT) is essential part of successful management preventing recurrence and reducing symptoms. RT produced long-term tumor control rates with either postoperatively or radically, usually from 80-97%. Hypopituitarism has occupied most common late complication of RT with occurrence of 20-80%. Retrospective analysis of patients of pituitary tumors were analysed who were treated in the department of radiotherapy (14 patients were registered between 2008 and 2013). Clinical profiles and management techniques along with outcome was analysed.***

Fourteen patients were presented in our OPD between 2008-2013 with median age of 25 years (range 9 yrs- 50 yrs). Male to female ratio was 1.3:1. Craniopharyngioma (55%) and pituitary adenoma (45%).All cases presented with symptoms of diminution of vision and headache. Surgical approach i.e open craniotomy was done in 75% of cases and transphenoidal approach in 25% cases.All cases presented with suprasellar extension with median size of 4.6 cm^2 (range 2.1 – 9 cm^2) post operatively .Adjuvant radiotherapy was planned and delivered dose of 50.4Gy/28# as 1.8Gy/# over 6 weeks. One case of craniopharyngioma presented with recurrence after 4 months of completion of treatment. None of patients in this study present with dementia after completion of treatment. Despite major advances in diagnostic and surgical techniques, the results of trans-sphenoidal surgery alone are poor. RT is an important adjuvant treatment in the management of nonfunctioning pituitary tumours'. Hypopituitarism is a frequent and significant complication of pituitary RT.

I. INTRODUCTION

Pituitary adenomas are common benign tumors that may cause visual defects, hypopituitarism, & respective endocrine symptoms, constitute about 10% of all adult intracranial neoplasms.

Asymptomatic adenomas may be found frequently, with incidence of 10% radiologically in normal population and as many as 20% in autopsy findings. Treatment options for patients with pituitary adenomas vary depending on clinical situations and have changed with improvements in radiologic imaging, surgical techniques, radiation therapy and the medical approach including dopamine agonists and somatotropine. Transsphenoidal resection is considered as primary treatment of choice for non-prolactin secreting pituitary adenomas, as well as medical treatment commonly with bromocriptine for prolactin secreting pituitary adenomas. External beam radiotherapy (RT) is essential part of successful management preventing recurrence and reducing symptoms. RT produced long-term tumor control rates with either

postoperatively or radically, usually from 80-97%. Damage to optic apparatus is rare with conventional RT scheme, while most cases reported are in patients treated with relatively higher dose (>50 Gy) or greater fraction (>2 Gy). Hypopituitarism has occupied most common late complication of RT with occurrence of 20-80%.

II. MATERIALS AND METHODS

Retrospective analysis of patients of pituitary tumors were analysed who were treated in the department of radiotherapy (14 patients were registered between 2008 and 2013). Clinical profiles and management techniques along with outcome was analysed.

III. RESULTS

Fourteen patients were presented in our OPD between 2008-2013 with median age of 25 years (range 9 yrs- 50 yrs).Male to female ratio was 1.3:1. Craniopharyngioma (55%) and pituitary adenoma (45%). All cases presented with symptoms of diminution of vision and headache. Surgical approach i.eopen craniotomy was done in 75% of cases and transphenoidal approach in 25% cases. All cases presented with suprasellar extension with median size of 4.6 cm^2 (range 2.1 – 9 cm^2) post operatively. Adjuvant radiotherapy was planned and delivered dose of 50.4Gy/28# as 1.8Gy/# over 6 weeks. One case of craniopharyngioma presented with recurrence after 4 months of completion of treatment. None of patients in this study present with dementia after completion of treatment. (see Table)

Gender	Number of cases	Total percentage
Male	8	58
Female	6	42
Age	Number of cases	Total percentage
0-9	2	14
10-19	2	14
20-29	4	29
30-39	2	14
40-49	4	29
Histopathology	Number of cases	Total percentage
Craniopharyngioma	8	58
Pituitary Adenoma	6	42
Mass effect symptoms	Number of cases	Total percentage
Visual disturbance	14	100
Headache	14	100
Cranial nerve palsy	0	0
Loss of consciousness	0	0
Type of surgery	Number of cases	Total percentage
Trans sphenoidal	4	29
Open craniotomy	10	71
Tumor extension	Number of	Total
	cases	percentage
None	0	0
Suprasellar extension	14	100
Cavernous sinus extension	0	0
Sphenoidal sinus extension	2	14
Not accessible	0	0
Recurrence	Number of cases	Total percentage
Present	2	14.5
Absent	12	85.5

Table 1

IV. DISCUSSION

Oruckaptan et al. reported on 684 patients, who were surgically treated for pituitary adenomas, and, too, found visual dysfunction to be the predominant symptom leading to hospitalization in 39 to 62% of all patients. Weber et al. described 27 patients undergoing either adjuvant or radical RT for pituitary adenomas with a median follow-up of 6 years and found local control rates above 95% at 5 years. All patients received doses >45 Gy, which are known to render control rates >90%. Gittoes et al. compared treatment outcomes of pituitary adenomas after surgery alone and after surgery and postoperative RT. The 10-year progression free survival rates were 68% in surgery alone group and 93% in surgery and postoperative RT group.

In regard of prognostic factors influencing tumor control, Grigsby et al. reported that the total radiation doses greater than 45 Gy as an only significant prognostic factor. McCord et al. denoted that doses greater than 45 Gy showed no benefit on tumor control. Brada et al. denoted that the dose of RT was an independent prognostic factor of cerbrovascular accidents of treated pituitary adenoma cases. Supravoltage RT is given in daily doses of 200 cGy 4±5 times per week over a 5±6-week period up to a total dose of 4500±5000 cGy (4, 36, 57). From surgical-alone series, the rate of tumor progression or recurrence is approximately 50% for sub totally resected tumors and as high as 10– 25%for gross totally resected adenomas at 10yr. Ciric et al. reported recurrence rate of 50% after subtotal resection and 21% after total resection.

V. CONCLUSION

Despite major advances in diagnostic and surgical techniques, the results of trans-sphenoidal surgery alone are poor. RT is an important adjuvant treatment in the management of nonfunctioning pituitary tumours'. Hypopituitarism is a frequent and significant complication of pituitary RT.

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