YASIR GILS SURGICAL HIGHWAY TO MANAGE CRANIOPHARYNGIOMA: EXPERIENCE AT LADY READING HOSPITAL PESHAWAR

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ABSTRACT

Objective: The objective of our study was to evaluate results of surgical management of Craniopharyngioma via Yasirgil surgical high way (pterional approach).

Material and Methods: This descriptive study was conducted at the department of neurosurgery at lady reading hospital Peshawar from Jan 2015 to December 2016 (2years). Total 16 patients were included in the study. All those patients who undergone craniotomy through yasirgils surgical high way (pterional craniotomy) for craniopharyngioma were included in the study irrespective of their gender and age. All the data was entered in a specially designed Performa. Patients' data was analyzed using SPSS version 21.

Results: We had total 16 patients during the study period who full fill the inclusion criteria. Male/female ratio was equal. Children with age 14 or below were 31.25% and adults with age more than 14 years were 68.75% of the total patients. The most common symptoms were headache (62.5%) followed by decrease vision (56.25%). Gross total resection (GTR) was achieved in 75% cases. After surgery improvement in vision was observed in 44.4% cases after one month and 55.5% at second months of follow up. Two (12.5%) patients had diabetes insidious and one (6.25%) with CSF leak after surgery. One patient (6.25%) died after surgery.

Conclusion: we conclude from our study that yasirgils surgical highway (pterional approach) provide wider exposure for craniopgaryngioma. It is effective and safe approach because gross total resection (GTR) is possible in most of the cases with acceptable complications (18.75%) which are treated conservatively.

Key words: Craniopharyngioma, personal approach, craniotomy, skull base lesions.

INTRODUCTION

Pterional approach via transylvian fissure is also called Yasirgils surgical high way and was 1st introduced by Yasirgil in 1969[1]. This is a unique approach that provide wide access to skull base pathologies that involves anterior and middle cranial fossa seller and parasellar areas, aneurysm of anterior and posterior circulation. Tumors of skull base which can be removed through this approach are meningioma, dermoid/epidermoid, arachnoid cyst, schwanomas, and gliomas[2].

Craniopharyngioma is the most common intracranial non glial tumor especially in pediatric age [3-5]. Although benign lesions of central nervous system but because of its location and close proximity to vital neurovascular structures makes it difficult case for radical resection[6]. Also post op complications as endocrine imbalance, hypothalamic injury are high after craniopharyngioma surgery[7]. The pterional approach minimizes brain retraction and provides the shortest distance and wider exposure to much of the superficial skull base and brain. Additionally, it offers a multidirectional view of the lesion which can allow for safer surgical manipulation[2]. As there is limited local study on this approach our study will have good effect on the surgical management of patients with craniopharyngioma.

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MATERIAL AND METHODS

This descriptive study was conducted at the department of neurosurgery at lady reading hospital Peshawar from Jan 2015 to December 2016 (2years). Total 16 patients were included in the study. All those patients who undergone craniotomy through yasirgils surgical high way (pterional craniotomy) for craniopharyngioma were included in the study irrespective of their gender and age. Those patients who undergone other surgical approaches or had redo surgery were excluded from our study. After approval from ethical committee informed consent was taken from patients or their relatives. Hospital record of the patients were evaluated for patients data regarding gender, age, signs/symptoms, radiology, operative notes. Post operatively the patients were followed up for improvements of symptoms, extent of tumor removal (CT scan/MRI) and post op complications. All the data was entered in a specially

designed Performa. Patients' data was analyzed using SPSS version 21.

RESULTS

In our study 16 patients full fill the inclusion criteria during Jan 2015-december 2016 (2years).

Age distribution of patients: The age of patients ranged from 4 years to 55 years, with mean age of 29.5 years. Those with pediatric age (14 years and below) were 31.25% (5/16) and above 14 years were 68.75% (11/16).

Clinical features: The most common symptoms were headache in 62.5% (10/16) cases followed by decrease vision in 56.25% (9/16) patients. Diabetes insipidus in 6.25% (1/16) cases and anterior pituitary deficiency in 18.75% (3/16) cases.

Extent of tumor removal: Gross total resection (GTR) was achieved in 75% (12/16) cases. While in rest 25% (4/16) partial or incomplete removal was possible.

Visual improvement: After surgery improvement in vision was observed in 44.4% (4/9) cases after one month of followed up and 55.5% (5/9) cases at second months of follow up.

Post op complications: Two new (12.5%) patients

Gender: Male and female distribution given in table

Gender	Number	%age	Ratio
Male	8	50	1
Female	8	50	1

developed diabetes insipidus and one (6.25%) with CSF leak after surgery. One patient (6.25%) died after surgery.

DISCUSSION

Treatment of craniopharyngioma remains challenging[8]. In our study we had total 16 patients with craniopharyngioma who undergone surgery through the yasirgils surgical highway approach, of which 50% were male and 50% female male /female ratio of 1:1. The male / female ratio vary in different studies. In a study of 19 patients who undergone pterional craniotomy for Craniopharyngioma, 10 were female and 9 male with male / female ratio of 1: 1.1[8]. In another study of 284 patients', shi xe and colleagues[9], reported the male / female ratio of 1: 0.9. The exact reason for this difference in gender distribution is not clear.

Craniopharyngioma has bimodal age distribution, with peaks in children aged 5–14 years and in adults aged 50–74 years [10, 11]. In our study we had 31.25% patients with age 14 years or below (children) and 68.75% patients were adults. Almost same results were published in other studies. In one study 79.6% patients were adults with age above 15 years and 20.4% were in the pediatric age group with age 14 or below[9].

Due to the anatomic location, craniopharyngioma may present with endocrinologic dysfunction, visual disturbances and raised intracranial pressure [8, 12, 13]. In our study the most common symptoms were headache (62.5%) followed by decrease vision (56.25%). Almost the same results were reported by tamasauskas and colleagues[8]. They studied 19 patients with craniopharyngioma who underwent pterional approach of which 63% had visual deterioration and 52.6% had headache. Robert and colleagues[14] study revealed that in their patients the most common presentation was headache (61%), followed by vision loss (22%).

Generally, total surgical removal of craniopharyngioma results in satisfactory outcome with a low recurrence rate, however, the location of the tumor and its adherence to the hypothalamic structures can make the operation difficult [8]. Therefore, gross total resection (GTR) may still be associated with a significant risk of endocrinopathy and neurologic morbidity. In our study gross total resection (GTR) was achieved in 75% cases while the rest had incomplete removal. Regarding the extent of surgical excision of craniopharyngioma via pterional approach the results vary in different studies. Shi and colleagues in their two different studies reported that gross total removal was 83.5%[8] and 89.3%[15]. Of the 462 patients who underwent surgical resection (71.7%), 216 (33.5%) received GTR.[16]. Elliott and colleagues [14] studied 19 patients of which eighteen (95%) underwent gross-total resection (GTR), confirmed by intra-operative inspection and postoperative imaging.

In our study two (12.5%) patients developed diabetes insidious and one (6.25%) with CSF leak after surgery. So total morbidity was 18.75%. One patient (6.25%) died after surgery. The patients with CSF leak and diabetes insipidus responded to conservative treatment. The results vary in different studies regarding morbidity and mortality. In a study of nineteen patients who undergone pterional craniotomy (yasirgils surgical highway) for removal of craniopharyngioma, one patient (5.3%) died due to medical complications, 12 (63.2%) patients developed diabetes insipidus and eight patients (42%) developed anterior pituitary dysfunction[8]. In other studies surgical mortality reported were 3.4%[17], 3, 9%[15] and 4.2%[9]. In one study New-onset diabetes insipidus occurred in 50% of patients while none of the patients had mortality[14]. So we have comparatively lower complication rate than other studies.

CONCLUSION

We conclude from our study that yasirgils surgical highway (pterional approach) provide wider exposure for craniopgaryngioma. It is effective and safe approach because gross total resection (GTR) is possible in most of the cases with acceptable complications (18.75%) which are treated conservatively.

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