Available online at www.sciencedirect.com
ScienceDirect
journal homepage: http://www.elsevier.com/locate/pjnns

Original research article

Case series of trigonal meningiomas

Shyam Sundar Krishnan *, *Pulak Nigam*, *Veeraraghavalu Sudhakar Sathish Anand*, *Madabushi Chakravarthy Vasudevan*

Post Graduate Institute of Neurological Surgery, Achanta Lakshmipathi Neurosurgical Centre, Voluntary Health Services, TTTI Post, Taramani, Chennai 600113, Tamil Nadu, India

ARTICLE INFO

Article history:
Received 15 May 2018
Accepted 10 August 2018
Available online xxx

Keywords:
Trigonal meningiomas
Intraventricular meningiomas
Surgical approaches
Meningioma
Intraventricular tumours

ABSTRACT

Background: Trigonal meningiomas have unique clinical presentation, unlike those in other areas of brain. Situated deep in the brain, the surgical nuances of this tumour are distinctive. We present our experience with this tumour including a discussion of surgical corridors that may be employed.

Methods: At our centre, 12 trigonal meningiomas were operated over past two decades. A retrospective analysis of case records of these cases was undertaken as regards age, sex clinical presentation, imaging and surgical approach.

Results: Mean time from heralding symptom to presentation was 10.4 months. At presentation, the most commonly encountered symptoms were those of non-localising symptoms attributable to raised ICP. Majority of lesions were more than 6 cm and on left side and the preferred surgical approach was inferior temporo-parietal. Most symptoms were relieved on long-term follow-up except homonymous hemianopia.

Conclusion: The incidence of deficit is low on employing the ''shortest route'' approach, even in the dominant hemisphere and through eloquent area. This may be secondary to possible shift of eloquent area function due to longstanding lesion and may thus be a ''workable'' surgical option, especially in resource-limited centres where such resources as neuronavigation and tractography may be unavailable.

1. Introduction

Although meningiomas form a large share—up to 15%—of intracranial tumours, intraventricular meningiomas are rare and account for only 0.5–3% of meningiomas. Delandsheer (1965) and Nakamura (2003), among others have analysed large case series of these tumours [1,2]. Nakamura, in his case series reported 81.3% of intraventricular meningiomas to be located in lateral ventricle [2]. Several key points underlined by such studies are characteristic delay in presentation, female preponderance, and preferential location in left hemisphere and unique clinic-radiological appearance. The tumour is most commonly located in trigone, which is a triangular region of the ventricle that opens, anteriorly into body of lateral

* Corresponding author at: Achanta Lakshmipathi Neurosurgical Centre, Voluntary Health Services, Multi-specialty Hospital and Research Centre, Rajiv Gandhi Salai, TTTI Post, Taramani, Chennai 600113, Tamil Nadu, India.
E-mail addresses: shyamsundarkrishnan76@gmail.com, alncvhs@gmail.com (S.S. Krishnan).
https://doi.org/10.1016/j.pjnns.2018.08.005

Please cite this article in press as: Krishnan SS, et al. Case series of trigonal meningiomas. Neurol Neurochir Pol (2018), https://doi.org/10.1016/j.pjnns.2018.08.005

ventricle and temporal horn, above thalamus and below thalamus, respectively and posteriorly into occipital horn [3]. Various approaches to the tumour have been described, each with own merits and demerits [2–5].

2. Materials and methods

A total of 122 cases of meningiomas were operated at our centre between 1990 and 2013. Of these, 12 were trigonal meningiomas. A retrospective analysis of case files, imaging, outpatient charts as well as postal and electronic communication during follow up was done regarding demography, clinical features, surgical technique and immediate post-operative and long-term outcome.

Following parameters were taken into consideration:

1 Preoperative status
   a. The first symptoms that could be ascribed to this pathology
   b. The symptom that caused the patient to seek medical attention
   c. Deficits at the time of presentation
   d. Radiological parameters
2. Postoperative status (immediate follow up)
   Postoperative assessment was done at 1 week following surgery. This included:
   a. Deficits persisting at the time of follow up
   b. Radiological parameters on CT brain plain and contrast.
3. Postoperative assessment (long-term)
   Postoperative assessments were done at regular intervals. For the purpose of this study, postoperative assessment done at 1 year from surgery was taken into account at which time following parameters were assessed.
   a. Deficits persisting at the time of follow up
   b. Radiological parameters on MRI brain plain and contrast.
   c. Quality of life index.

Institutional Ethical Committee Acceptance:

As this was a retrospective analysis of patient records, no ethical committee acceptance was required.

3. Results

The mean age of presentation was 44.25 years. There was an equal sex distribution among the cases. The time taken from the first symptom that could be ascribed to this pathology to the point of clinical presentation was variable from 6 months to 24 months and the mean duration was 10.4 months (Fig. 1). The most common first symptom was headache (58.3%) followed by memory disturbances (50%) and persistent giddiness (33.3%). Unexplained ipsilateral hearing loss was noted in 2 patients. Social apathy was also noted in 2 (16.6%) of our patients. These patients had disinterest in social events and family interactions. CSF rhinorrhoea was first symptom in one patient. However, one year later, at time of presentation the patient had spontaneous resolution of this symptom. These first symptoms were usually mild and/or transient and hence were usually ignored till the more pressing presenting symptoms came upon.

Among the symptoms that caused the patient to seek medical attention, gradual onset hemiparesis (50%) and visual field defects (25%) were most common in patients who sought medical attention electively, whereas seizures (41. 6%) and altered sensorium (25%) were the most common emergency presentations. Parietal lobe syndromic features were noted in only one patient.

MRI, the investigation of choice, was done in all patients except in three where a CT was done. The lesions on MRI were iso- or hypo-intense on T_1 weighted images and hyperintense on T_2 weighted images with diffuse enhancement with contrast. Two patients had signal voids suggestive of peripheral calcification. One meningioma had a variable intensity. Margins of all lesions were well defined, lobulated, except for 2 lesions were the margins were ill-defined. There was thalamic extension with oedema noted in one lesion and one had a temporal lobe extension. The size of the lesion was variable with

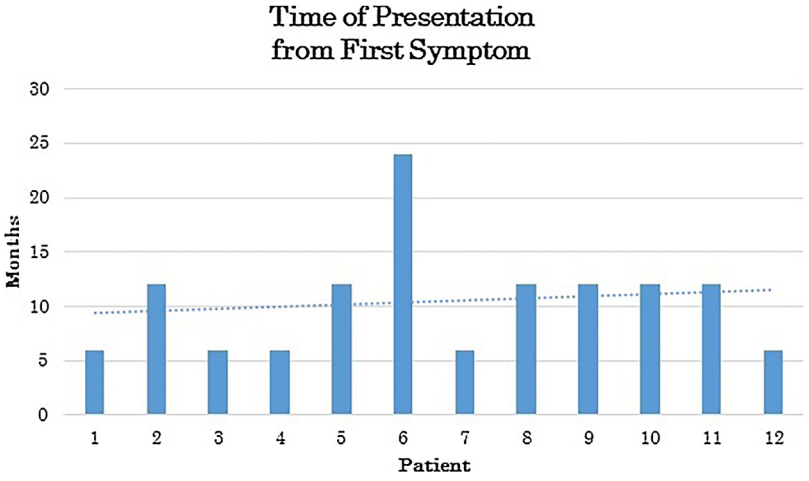

Fig. 1 – Time for presentation from the onset of first symptom.

Please cite this article in press as: Krishnan SS, et al. Case series of trigonal meningiomas. Neurol Neurochir Pol (2018), https://doi.org/10.1016/j.pjnns.2018.08.005