

Surgical Management of Tuberculum Sellae Meningiomas: Functional Outcome

Dr. Keval Sansiya¹, Dr. Bhagwati Salgotra², Dr. Pavan Kumar Tungala³

¹Senior Resident, Department of Neurosurgery, Smt. B. K. Shah Medical Institute & Research Centre, Sumandeep Vidyapeeth University, Piparia, Vadodara, India

²Professor & Head, Department of Neurosurgery, Smt. B. K. Shah Medical Institute & Research Centre, Sumandeep Vidyapeeth University, Piparia, Vadodara, India

³Junior Resident, Department of General Surgery, Smt. B. K. Shah Medical Institute & Research Centre, Sumandeep Vidyapeeth University, Piparia, Vadodara, India

Abstract: *Tuberculum sellae meningiomas are relatively common and are formidable surgical problem. Such as their relationship with Optic Nerves, Optic Chiasma, Anterior Cerebral and Internal Carotid Arteries they represent approximately 4 to 10% of all intracranial meningiomas. They have a relatively innocuous clinical presentation despite their commonly encountered large size. This lesion can often be misdiagnosed as a pituitary tumor because of its similar clinical and radiological presentation and location.*

Keywords: meningioma, tuberculosis, surgery

1. Introduction

Tuberculum sellae meningiomas are relatively common and are formidable surgical problem. Such as their relationship with Optic Nerves, Optic Chiasma, Anterior Cerebral and Internal Carotid Arteries they represent approximately 4 to 10% of all intracranial meningiomas. They have a relatively innocuous clinical presentation despite their commonly encountered large size. This lesion can often be misdiagnosed as a pituitary tumor because of its similar clinical and radiological presentation and location.

Aims and Objectives

Aim: Determine the functional outcome of the surgery in tubercular sellae meningioma

Objectives: comparing the outcome of improvement in visual disturbances

2. Materials and Methods

Patient selection was done based on the Medical history, radiological images and surgical records of 28 patients treated for Tuberculum sellae Meningioma between 2016–2019 retrospectively.

Mean age of the patient pool was 54 years

The presenting symptoms were visual disturbances in 23(82.14%), headache in 16(57.14%) , seizures in 3(10.17%) patients.

Ophthalmologic Assessment

A complete ophthalmologic examination revealed 20 patients showing decreased visual acuity (VA) ranging from 6/36 to hand movement at 2 meters.

12 had right eye decreased VA, 5 had left eye decreased VA, 3 had binocular decreased VA, 16 patients showed impaired visual field, 4 had right temporal hemianopia, 3 had left temporal hemianopia, 9 had bi-temporal hemianopia.

Endocrinologic Survey

Preoperative hormonal assay was done in all patients and Only 1 patient had hyperprolactinemia.

Radiological Survey

MRI and CT scans were done for all patients.

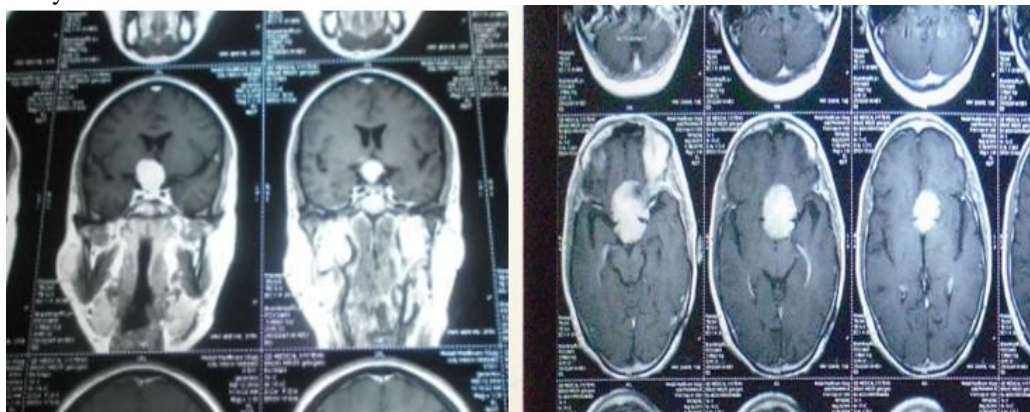


Figure 1: Preoperative images showing Planum Sphenoidale Meningioma

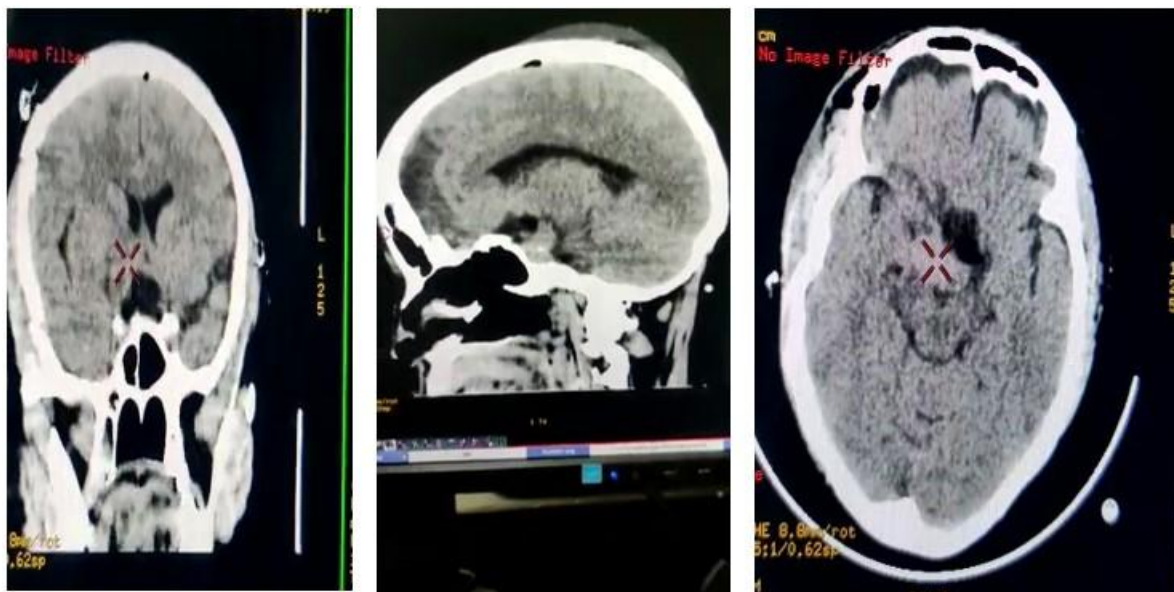


Figure 2: Post operative images showing complete removal of tumor

Surgical Approach

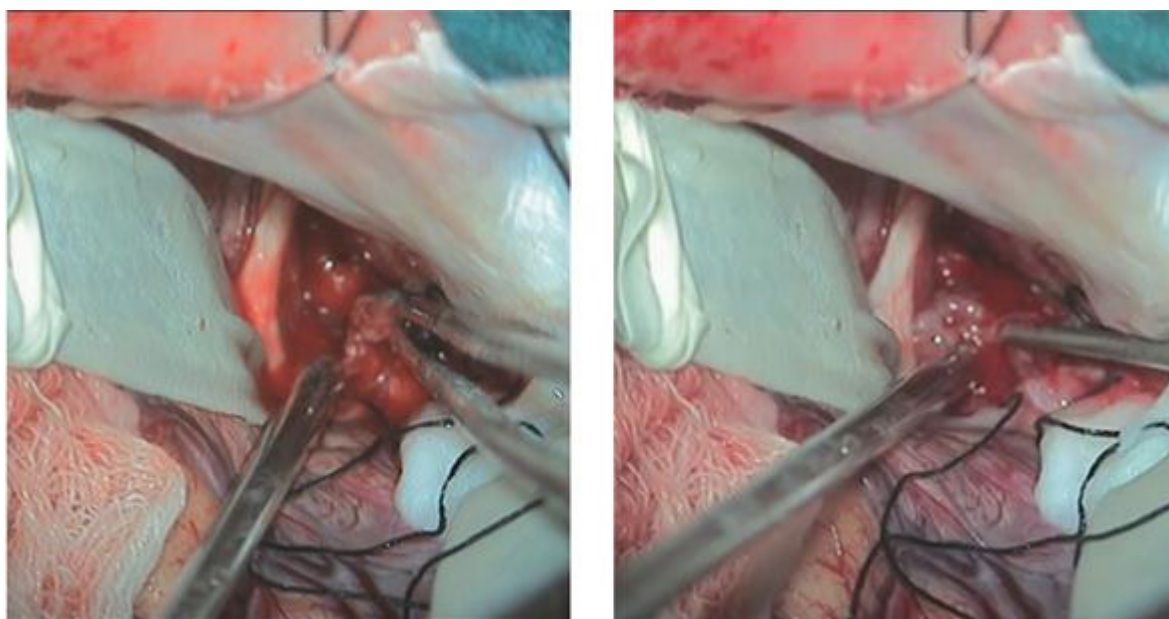
A pterional transsylvian approach was used.

In 20 patients, right sided approach ad done.

In 8 patients, a left pterional craniotomy was chosen either because the tumor mainly extended to the left side or patient had poor vision from left side.

Through pterional approach, Simpson grades I and II resections were achieved in 85.71% of the patients.

No mortality was observed in our case series.



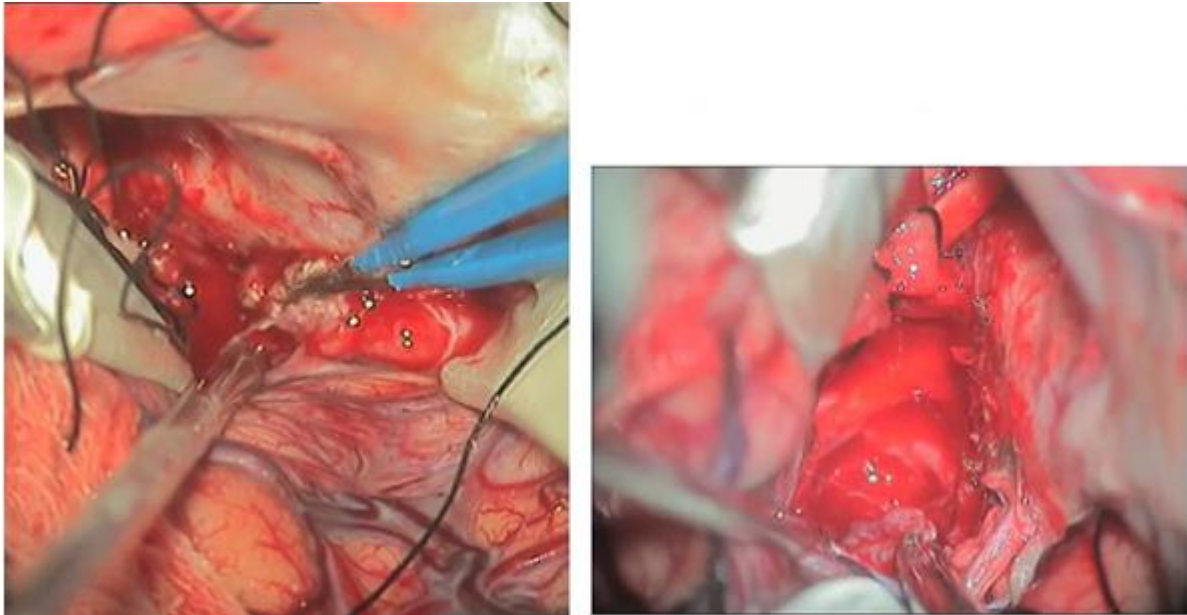


Figure 3: Intra operative images showing resection of tumor

Immediate Post-Op

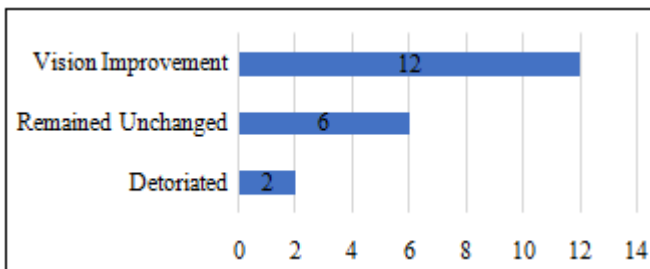
2 patients had developed transient diabetes insipidus. One patient experienced one seizure episode in post-operative period.

3. Results

The follow-up for all the patients were done for period between 6 months to 1 year.

Postoperatively, follow-up ophthalmologic examination was done.

The intraoperative finding predicting an unfavorable visual outcome was a thin atrophic optic nerve, encasement of the nerve, or tumor adhesion to its under surface.



After a mean follow-up period of 1 year, 78.57% of the patients resumed normal life activity.

2 recurrent tumors were observed (7.14%).

One after 18 months and another after 20 months from first surgery, presented with same vision disturbances.

After completed re-assessment, patients we re-operated.

4. Discussion

In the table below comparison of the outcome of similar studies with our current study. Grisoli et al., [1] showed that there is a improvement in visual outcome in 55% of patients after complete resection,, Andrew and Wilson et al., [2] showed improvement in 73%, Gokalp et al., [3] showed improvement in 53.5%, Fahlbusch et al., [4] showed improvement in 80% of cases.

In our study 60% of patients have improved visual outcome, 30% have no change in visual outcome and 10% of patients have worsened visual outcome.

Series	No. of cases	Surgical approach	Complete resection	Visual Outcome		
				Improved	Unchanged	Worse
Grisoli et al,1986	28	Pterional	93	55	38	7
Andrews and Wilson, 1988	11	Unilateral sub-frontal	72	73	9	18
Gokalp et al,1993	88	5 bifrontal, 9 frontotemporal, 36 sub-frontal, 38 pterional	67	53.5	27.5	19
Fahlbusch and Schott, 2002	47	Pterional	98	80	-	20
Present Study	28	Pterional	85.71	60	30	10

Figure 4: Table showing comparison between various studies

5. Conclusion

Standard pterional microsurgery is a safe and effective approach for the treatment of tuberculum sellae meningiomas. The following factors were found to be of significance for a better visual outcome: Patient age, duration of visual symptoms, severity of visual symptoms, predominantly vertical growth potential, presence of significant peri-tumoredema, presence of an intact arachnoid plane and extensive removal.

References

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