

ENDOSCOPIC SURGERY FOR PITUITARY ADENOMAS – A 3 YEARS EXPERIENCE AT TERTIARY HEALTH CENTRE

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Abstract

Pituitary adenomas are benign neoplasms of hormone secreting cells of the anterior pituitary. Pituitary adenomas are classified according to size into 2 types: micro adenomas which are less than 1 cm and macro adenomas which are more than 1 cm in diameter.

Endoscopic pituitary surgery is useful in both micro and macro adenomas. The endoscope provides a close up, a multi-angled view with excellent illumination and magnification permitting complete excision of tumor with preservation of normal pituitary. The gradual transition from microscopic to endoscopic approach will minimize the complications following surgery.

Keywords: Pituitary adenoma, TNTSEPS: Transnasal transsphenoidal endoscopic pituitary surgery

Introduction

The surgical management of pituitary tumors has evolved over time from the transcranial to endonasal transsphenoidal approach[1]

Since the initial description of the transnasal approach in 1907, endoscopic surgery has undergone continuous evolution marked by close cooperation between neurosurgeons and otolaryngologists. The first completely endoscopic transsphenoidal approach for pituitary tumors was reported in 1992 by Jankowski et al[2]. It was further refined and advanced by collaborative teams of Sethi and Pillai in Singapore[3] and by Jho and Carrau in Pittsburgh[4]

TNTSEPS is increasingly being used for pituitary lesions. Preoperative CT scan, MRI scan and endoscopic visualization can provide useful anatomical information. Endoscopic surgery is indicated in sellar, suprasellar, intraventricular, retro-infundibular and invasive tumors[5]

With experience, there is an improvement in endocrinal remission and extent of tumor resection. There has been a reduction in postoperative hypopituitarism due to preservation of normal pituitary gland. There is reduction in duration of surgery, post operative visual deterioration, trauma causing post operative discomfort, hospital stay and cerebrospinal fluid leak[6]

This article is aimed to review the cases of pituitary adenomas operated by TNTSEPS technique in the Neurosurgery department of PBM and Associated Group of Hospitals over a 3 year period.

Material and Methods

This study has been conducted on patients of pituitary adenoma who were admitted in the Department of Neurosurgery, S.P. Medical College and Associated Group of Hospitals, Bikaner and were operated by TNTSEPS during the time period from January 2018 to December 2020. It is a retrospective study. The total number of cases of pituitary adenoma operated by TNTSEPS was 14 in this 3 year period in our institution.

The patients in the study group were subjected to detailed history taking, physical examination, haematological, biochemical and radiological examination pre-operatively and to histopathological examination of the biopsy post-operatively.

Observations

Table 1: Distribution of cases according of sex

S.No.	Male	Female	Total
1	8	6	14

Table 2: Distribution of cases according to age

S. No.	Age Range	Male	Female	Total
1	20 to 40 years	4	1	5
2	40 to 60 years	2	3	5
3	>60 years	2	2	4

Table 3: According to the complications

S. No.	Complication	No. Of Cases
1	Anosmia	1
2	Nasal Crusting	3
3	Sinusitis	1
4	CSF Leak	1



Figure 1: Preoperative MRI showing pituitary adenoma

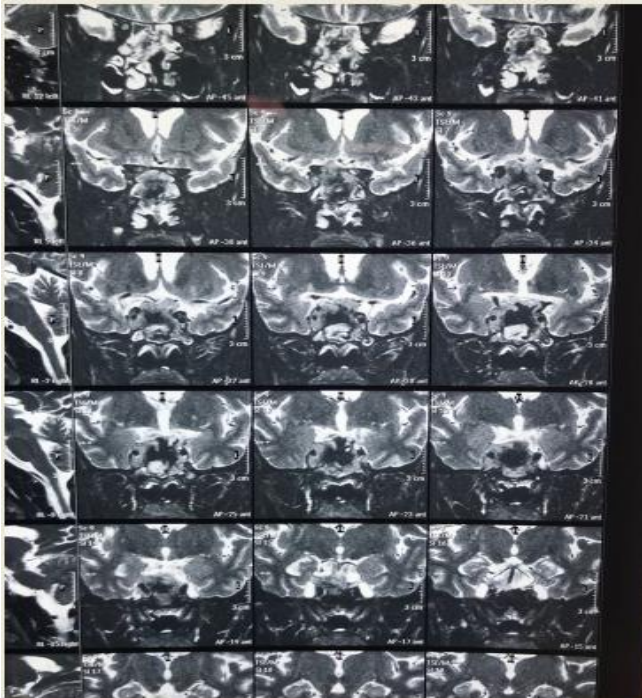


Figure 2: Postoperative MRI following excision of pituitary adenoma

Discussion

Pituitary tumours and related hormonal disorders are complex in their diagnosis and treatment. Hence a team approach of experienced specialists is desirable to achieve optimal outcomes.

Although pituitary adenomas are benign, a significant number behave aggressively with local invasion, repeated recurrences, significant morbidity and persistent symptoms requiring long term medication and on occasion radiation therapy for disease control[7].

The endoscopic transnasal transsphenoidal surgery is increasingly being used and is gaining wide acceptance for pituitary adenomas. This is due to major technical advances over the last 2 decades in high definition endoscopy, surgical navigation techniques and due to more effective skull base closure methods.

TNTSEPS is a safe procedure. This approach to pituitary gland closely resembles the transseptal transsphenoidal technique originally described by Cushing[8]

TNTSEPS has the following advantages:

- 1 No part of brain is touched during surgery. So chance of damaging the brain is low.
- 2 There is better illumination and superior visualization as the light source is close to the target [9]
- 3 There is a wide angle view.
- 4 High image resolution permits more accurate differentiation between normal and neoplastic tissue.
- 5 There is no visible scar mark.
- 6 Less post-operative discomfort and early return to work [10]

TNTSEPS has the following disadvantages-

The endoscope provides a two dimensional vision[11]. So spatial distortion of the periphery of images occurs and operating time is longer in initial phases.

The overall complication rate of TNTSEPS is 3.3% to 9.3%

Conclusion

Surgical removal of pituitary adenoma via TNTSEPS is a major advance in neurosurgery. It is the treatment of choice for most patients with pituitary adenoma. This approach is designed for tumor resection with least harm to the patients considering the anatomic variations and tumor invasion into adjacent areas. TNTSEPS is a safe and effective technique for removal of pituitary adenomas.

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