

Clinical Study on Lesions Causing Cavernous Sinus Syndrome

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ABSTRACT

Background: The naming of cavernous sinus was in the year 1732 due to its resemblance to the corpus cavernosum. The present study was conducted with the aim to determine the etiologies of cavernous sinus thrombosis.

Materials and Methods: The present retrospective cross sectional study was performed in the Department of Medicine, SP Medical College, Bikaner, Rajasthan (India) and Department of Eye, Government District Hospital, Bikaner, Rajasthan (India). The type of management received was also taken into consideration. Patients with incomplete records were not enrolled in the study. Subjects belonging to ASA grade 4, patients with significant co morbidities were excluded from the study. All the data thus obtained was arranged in a tabulated form and analysed using SPSS software. Data was expressed in percentage.

Results: The mean age of the subjects was 41.73+/- 3.56 years. The most common cause was tumour followed by trauma. Least number of cases was of diabetes (3.3%). There were 13.3% cases of inflammation. Surgery was attributed in

10.7% cases. There were 6 and 6.7% cases of infection and aneurysm respectively.

Conclusion: The most frequent cause of cavernous sinus thrombosis in our study was trauma.

Keywords: Cavernous, Thrombosis, Retrospective, Etiologies.

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Article History:

Received: 27-11-2019, Revised: 21-12-2019, Accepted: 19-01-2020

Access this article online	
Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2020.6.1.040	

INTRODUCTION

The naming of cavernous sinus was in the year 1732 due to its resemblance to the corpus cavernosum.¹ Clinical notice of the cavernous sinus syndrome came much later, because of the belief in "nuclear ocular palsy" as principal reason of monocular ophthalmoplegia.

Wernicke² explained "polio-encephalitis superior hemorrhagica" in the 1881, that enhanced interest in the central etiologies of diplopia and forced a final research for a brain-stem origination of "nuclear palsy" and "asthénie bulbar palsy" now known as myasthenia.³

However, by the year 1888, Gowers⁴ was aware that the nerves to eye may get compressed in the wall of cavernous sinus by an aneurysm of the internal carotid or due to growth in this location. A decade later, it was established that complete unilateral ophthalmoplegia is normally because of a gross lesion at the basilar region⁵ and paralysis of the oculo-motor nerves along with the ophthalmic branch of the trigeminal nerve is responsible for

combination of nerve palsies characteristic of condition of the anterior part of the middle fossa, chiefly the cavernous sinus."⁶ The present study was conducted with the aim to determine the etiologies of cavernous sinus thrombosis.

MATERIALS AND METHODS

The present retrospective cross sectional study was performed in Department of Medicine, SP Medical College, Bikaner, Rajasthan (India) and Department of Eye, Government District Hospital, Bikaner, Rajasthan (India).

The study was approved by the institutional ethical board and all the subjects were informed about the study and a written consent was obtained from them in case follow up was done personally. The complete demographic profile of all the patients like age, gender and socioeconomic strata was obtained. The type of management received was also taken into consideration. Patients with incomplete records were not enrolled in the study.

Subjects belonging to ASA grade 4, patients with significant co morbidities were excluded from the study. All the data thus obtained was arranged in a tabulated form and analysed using SPSS software. Data was expressed in percentage.

RESULTS

There were a total of 150 patients enrolled in the study with cavernous sinus syndrome. The mean age of the subjects was

41.73+/- 3.56 years. There were 60% (n=90) males and 40% (n=60) females in the study. (Table 1) Table 2 illustrates the most common etiologies associated with cavernous sinus thrombosis. There were 33.3% cases of tumour and 25.3% cases of trauma. The most common cause was tumour followed by trauma. Least number of cases was of diabetes (3.3%). There were 13.3% cases of inflammation. Surgery was attributed in 10.7% cases. There were 6 and 6.7% cases of infection and aneurysm respectively.

Table 1: Distribution of patients according to gender

Gender	Frequency	Percentage
Male	90	60
Female	60	40
Total	150	100

Table 2: Distribution of patients according to cause

Cause	Frequency	Percentage
Tumour	50	33.3
Trauma	38	25.3
Aneurysm	10	6.7
Infection	9	6
Surgery	16	10.7
Inflammation	20	13.3
Diabetes	5	3.3
Unknown	2	1.3
Total	150	100

DISCUSSION

The knowledge of location of the cavernous sinus has enhanced, and gives more information in the topographic features of its structures. In the year 1872, Bartholow was the first person to give insight of the clinical aspects of cavernous sinus syndrome⁷. Some of the earliest clinicopathological illustrations of lesions of cavernous sinus are aneurysms that were described by Adams in the year 1869,⁸ Bartholow in the year 1872,⁹ and Hutchinson in the year 1875.¹⁰ Their subjects had a prolonged and extremely painful course with involvement of several cranial nerves. Jefferson⁹ showed 16 personal cases in the year 1938 and, by the year 1953, his series had increased to 29 cases.¹⁰ In a recent study, myasthenia gravis was an initial reason amongst 4 of 9 patients with aneurysmal cavernous sinus syndrome, and 2 were positive for Tensilon test outcome.¹¹ An ipsilateral smaller sized pupil was common finding, but pharmacologically proven sympathetic problems were quite rare. There were 16 out of 59 cavernous aneurysms with oculomotor involvement,¹² had Nasopharyngeal malignant neoplasms with the involvement of the sixth nerve and the mandibular branch of the fifth nerve, and lateral extension of pituitary adenoma involved the third nerve and the ophthalmic branch of the fifth nerve.^{13,14} Although idiopathic sinusitis of cavernous sinus is more frequent in Southeast Asia,¹⁵ it is observed frequently in the entire world. In our present study, there were 33.3% cases of tumour and 25.3% cases of trauma. The most common cause was tumour followed by trauma. Least number of cases was of diabetes (3.3%). There were 13.3% cases of inflammation. Surgery was attributed in

10.7% cases. There were 6 and 6.7% cases of infection and aneurysm respectively. Even though infection is nowadays is not a common reason of cavernous sinus involvement, fungal spread or bacterial infection, commonly from the sphenoid sinus, remains a life threatening etiology.¹⁶

CONCLUSION

The most frequent cause of cavernous sinus thrombosis in our study was trauma. Appropriate radiological examination and clinical course of the disease are important in identification of the condition. Immediate management is needed amongst all the patients for good prognosis.

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Source of Support: Nil. **Conflict of Interest:** None Declared.

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Cite this article as: Kiran Bareth, Mahendra Singh Sisodiya. Clinical Study on Lesions Causing Cavernous Sinus Syndrome. Int J Med Res Prof. 2020 Jan; 6(1):163-65.
DOI:10.21276/ijmrp.2020.6.1.040