



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals

ISSN 2349-7203



Human Journals

Review Article

January 2022 Vol.:23, Issue:2

© All rights are reserved by Rounak Munshi et al.

A Critical Review on Quintessential Site of Nasopharyngeal Carcinoma- Fossa of Rosenmuller



IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals



ISSN 2349-7203

Deepika Raina¹, Rounak Munshi*²

¹Senior resident, Department of Oncology, Dr. Rajendra Prasad Medical College, Kangra, H.P, India

²Assistant Professor, Department of Shalaky Tantra, Beehive Ayurved Medical College and Hospital, Dehradun, Uttarakhand, India

Submitted: 24 December 2021
Accepted: 31 December 2021
Published: 30 January 2022

Keywords: Nasopharyngeal, carcinoma, fossa of rosenmuller, diagnosis, treatment

ABSTRACT

Fossa of rosenmuller plays a consequential role in the development and treatment of nasopharyngeal carcinoma. It's the commonest site for nasopharyngeal carcinoma thus critical review on the fossa of rosenmuller was required to understand the correct anatomical location and mechanism of nasopharyngeal carcinoma. According to the recent research data, nasopharyngeal carcinoma mainly affects adults ranging in between age group of 40 to 60 years, also the comparative ratio of male to female, of 3:1 shows that it occurs more commonly in males as compared to females [1]. The study will provide significant knowledge about the fossa of rosenmuller which will help in the diagnosis of nasopharyngeal carcinoma. Thus, subsequently helping in its early detection and providing effective treatment to the patients suffering from nasopharyngeal carcinoma.



www.ijppr.humanjournals.com

INTRODUCTION

Nasopharyngeal carcinoma is one of the leading maladies in today's era. Cases are seen mostly in the Asian region. Though this is a fast-growing affliction, the fossa of rosenmuller remains the prime site of nasopharyngeal carcinoma. The fossa of the rosenmuller is a bilateral projection of the nasopharynx just below the skull base. The fossa is covered by nasopharyngeal mucosa and is the most common site of origin of nasopharyngeal carcinoma. The anatomy of the fossa of rosenmuller was first described in 1808 by Johann Christian Rosenmuller^[2].

Fossa of rosenmuller or lateral pharyngeal recess is located behind the torus tuberosus, a prominence caused by the medial cartilaginous end of the Eustachian tube. The torus is larger on the superior and posterior lips of the Eustachian tube, effectively hiding the fossa^[3]. The fossa of the rosenmuller is covered by nasopharyngeal mucosa and essentially extends through a defect between the fibers of the superior constrictor muscle and the base of the skull. The fibers of the superior constrictor muscle project from multiple parts of the lower oropharynx to the skull base, but the fibers only reach the skull base at the midline. The boundaries of the fossa of rosenmuller are defined anteriorly by the Eustachian tube and levator palatini muscle, posteriorly by the posterior wall of the nasopharynx and the retropharyngeal space, laterally by the para-pharyngeal space and the tensor veli palatini muscle, and inferiorly by the upper edge of the superior constrictor muscle. The fossa's superior boundary is the skull base with its various openings and prominences, including the foramen spinosum medially, the carotid canal, and the foramina spinosum and ovale.

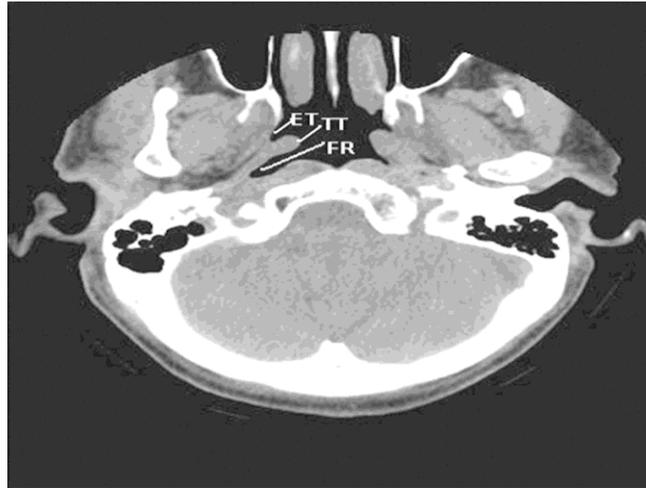


Fig. No. 1: Axial computed tomography scan showing the relationship between the Eustachian Tube (ET), Torus Tubarius (TT), and Fossa of Rosenmuller (FR) [4]

INDAGATION OF FOSSA OF ROSENMULLER

Since fossa of the rosenmuller is closely related to the lateral pharyngeal recess. It is the most common site of origin of nasopharyngeal carcinoma. Hoe confirmed this in his review of computed tomography scans in 60 patients with nasopharyngeal carcinoma and also found that the earliest sign on computed tomography imaging of nasopharyngeal was asymmetry and blunting of the fossa [4]. Loh attempted to study the anatomy of the fossa of rosenmuller on 23 scans. They found that the fossa projects at about a 45-degree angle from the sagittal plane and ranges in length from 1.7 mm to 18.8 mm with a relatively narrow orifice. [5] This led them to conclude that the fossa was often too deep and narrow for clinical inspection with a pharyngoscope and could constitute a blind spot in the postnasal space, especially the floor of the fossa, which had clinical implications in the early detection of nasopharyngeal carcinoma. Hoe also found that deep infiltration of nasopharyngeal carcinoma was most commonly to the intracranial region, usually through the foramen lacerum and the foramen ovale [4]. Usually, intracranial infiltration suggests a very advanced disease with obliteration of what would be considered normal anatomy. Therefore, it would seem that knowledge of the anatomy of the fossa plays a more significant role during the early stages of the disease and in biopsy confirmation. Due to the close relationship of the Eustachian tube, the fossa of rosenmuller, and the internal carotid artery, there have been reports of serious complications where the fossa may have been mistaken for the Eustachian tube during treatment of some diseases of the Eustachian tube. One such case has been, the injection of Teflon for treatment of a patulous Eustachian tube was discontinued secondary to complications of cerebral

thrombosis and death when the paste was inadvertently injected into the internal carotid artery, likely because the injections were performed through the fossa instead of the Eustachian tube^[6].

DISCUSSION

An interesting finding outcome of this review is that it guides us about the limitations of the fossa of rosenmuller. Generally, the actual depth of fossa of rosenmuller is more than 10 mm while the width of the fossa of rosenmuller is mostly less than 5 mm, thus is very important to do nasopharyngoscopy to detect the correct location of rosenmuller fossa. Surgery of nasopharyngeal carcinoma is a very sensitive procedure as the nearby anatomical structures like the internal carotid artery have to be preserved during the procedure, so correct dimensions of the fossa of the rosenmuller have to be calculated for it. In this review article ways of detecting the correct dimensions of the fossa of rosenmuller have been described, which will be helpful in the study of the fossa of rosenmuller and surgical procedures related to it.

CONCLUSION

This article provides essential knowledge about the fossa of the rosenmuller, its exact location and gives details about the nearby anatomical structures which should be preserved during nasopharyngeal surgery. This article also provides descriptive knowledge to the students from the medical field to understand the relationship between the fossa of rosenmuller and nasopharyngeal carcinoma in a better way.

REFERENCES

- 1) Lester D. R. Thompson, MD Department of Pathology, Woodland Hills Medical Centre, Southern California, Ear, Nose and Throat Journal, Volume-84, no.-7. July 2005; pg 404-405.
- 2) Chiazo Amene, Maura Cosetti, Sudheer Ambekar, Bharat Guthikonda, Anil Nanda , Johann Christian Rosenmuller (1771-1820), A Historical Perspective on the Man behind the Fossa , ISSN-2193-6331, No.-187.
- 3) Gray H Anatomy of the Human Body. Philadelphia: Lea & Febiger, 1918; Bartleby.com, 2000, <http://www.bartleby.com/107/>: Accessed Sept. 2012.
- 4) Hoe J. CT of nasopharyngeal carcinoma: significance of widening of the pre-occipital soft tissue on axial scans. AJR Am J Roentgenol. 1989; 153(4):pg867–872.
- 5) Loh L E, Chee T S, John A B. The anatomy of the Fossa of Rosenmuller— its possible influence on the detection of occult nasopharyngeal carcinoma. Singapore Medical Journal. 1991; 32(3):pg154–155.
- 6) Bergin M, Bird P, Cowan I, Pearson J F. Exploring the critical distance and position relationships between the Eustachian tube and the internal carotid artery. Otol Neurotol. 2010; 31(9):pg.1511–1515.