Acta Clin Croat 2022; 61:177-184
doi: 10.20471/acc.2022.61.02.02

Original Scientific Paper



# THE ANATOMICAL AND MEASUREMENT STUDY OF ROSENMÜLLER FOSSA AND OROPHARYNGEAL STRUCTURES USING CONE BEAM COMPUTED TOMOGRAPHY

Gozde Serindere[1], Kaan Gunduz[2], Hakan Avsever[3] and Kaan Orhan[4]

[1]Hatay Mustafa Kemal University, Faculty of Dentistry, Department of Dentomaxillofacial Radiology, Hatay, Turkey;
[2]Ondokuz Mayıs University, Faculty of Dentistry, Department of Dentomaxillofacial Radiology, Samsun, Turkey;
[3]Health Sciences University, Gulhane Faculty of Dentistry, Department of Dentomaxillofacial Radiology, Ankara, Turkey;
[4]Ankara University, Faculty of Dentistry, Department of Dentomaxillofacial Radiology, Ankara, Turkey

SUMMARY – The objective of this study was to assess Rosenmüller fossa (RF) anatomy and neighboring structures using cone beam computed tomography (CBCT). A total of 1000 patients were analyzed using CBCT. The reference points were based on the spina nasalis posterior (Snp) and basion. The length between RF and neighboring structures were measured.The mean distance from Snp to the posterior pharyngeal wall was 17.7 mm. The mean distance from right to left torus levatorius was 25.69 mm. The mean depth of right RF was 5.54 mm while the mean depth of left RF was 5.26 mm. RF, also described as the lateral pharyngeal recess, is a source location of nasopharyngeal carcinoma development. Its location is on the lateral pharyngeal wall posterior to the cartilaginous part of the eustachian tube, the torus tubarius. The knowledge of RF is important to diagnose and perform treatment planning of nasopharyngeal carcinoma.

Key words: *Nasopharynx; Fossa of Rosenmüller; Nasopharyngeal carcinoma; Cone beam computed tomography*

## Introduction

The location of Rosenmüller fossa (RF), also known as the lateral pharyngeal recess, is in the superior-most side of the lateral surface of the nasopharynx[1]. In 1808, the RF anatomy was first mentioned by Johann Christian Rosenmüller[2]. RF is the most frequent region where nasopharynx carcinoma (NC) develops, which has a high degree of malignancy[3]. Early treatment increases survival rate and requires early diagnosis of lesion[4].

Rosenmüller fossa is generally evaluated with computed tomography in supine position; however, early lesions are frequently invisible[5]. The new cone beam computed tomography (CBCT) technology enables scans to be obtained with the patient in upright position. In dentistry, it is most commonly used for bone examination for implant surgery and orthodontic evaluation. Besides, it allows acquisition of noninvasive three-dimensional (3D) images with the patient in upright position and correct measurement of anatomical structures and spaces[6-9].

Regarding the lack of literature about RF, this study was undertaken to evaluate the anatomy of RF and neighboring structures in CBCT images.

Correspondence to: *Assoc. Prof. Gozde Serindere*, Department of Dentomaxillofacial Radiology, Faculty of Dentistry, Hatay Mustafa Kemal University, 31060 Hatay, Turkey
E-mail: gozdeserindere@mku.edu.tr

Received December 22, 2019, accepted October 1, 2020

## Materials and Methods

The images of 1000 patients who had undergone CBCT examination for several reasons were assessed. They were retrieved from the archives of the Health Sciences University, Gülhane Faculty of Dentistry, Department of Dentomaxillofacial Radiology. Patient gender and age were recorded. There were 437 (43.7%) females and 563 (56.3%) males, age range 13-77, mean age 37.1 years. Images with artifacts, low field of vision (FOV), and insufficient quality to observe oropharynx were excluded from the study.

Between 2014 and 2017, CBCT images were obtained with 3D Accuitomo 170 machine (Morita Manufacturing Corp., Kyoto, Japan). The exposure parameters were 90 kV, 5 mA and 17.5 seconds. The CBCT machine had 140x100 mm FOV, voxel size 0.08 mm and 1-mm slice thickness. Software (i-Dixel one volume viewer 2.0) was used to analyze all images and provide reconstruction of sagittal, axial, coronal and 3D images. Each image was retrospectively assessed by a single oral and maxillofacial radiologist. It was ensured that the spina nasalis posterior (Snp) and basion (Ba) points were as symmetrical as possible. The measurement was performed where the RF was sharpest and widest.

Measurements were performed as follows based on the study by Sutthiprapaporn *et al.*[5]:

Snp-1: distance from Snp to the posterior pharyngeal wall

2-3: distance of right torus levatorius

4-5: distance of left torus levatorius

3-5: distance between right and left torus levatorius

Snp-3: distance between Snp and right torus levatorius

Snp-5: distance between Snp and left torus levatorius

Distance was measured between the RF end point and lateral edges of the triangle the base of which was 3-5 and peak point was Ba (RRF: depth of right RF; LRF: depth of left RF).

Some points on the oropharynx were determined based on another study[5] with reference points Snp and Ba. Distance of the determined points was measured and noted (Fig. 1). All evaluations and measurements were made using a 15.6-inch monitor at a screen resolution of 1366x768 pixels.

Study data were analyzed with IBM SPSS Statistics Version 22 package program. Shapiro-Wilk test, independent t-test, one-way ANOVA and Mann Whitney U test were used to analyze differences. The relationship between variables that did not come from normal distribution was defined by Spearman's correlation coefficient. The relationship between variables from normal distribution was denoted by using Pearson correlation coefficient. When interpreting the results, 0.05 was used as the level of significance; p<0.05 was considered statistically significant.

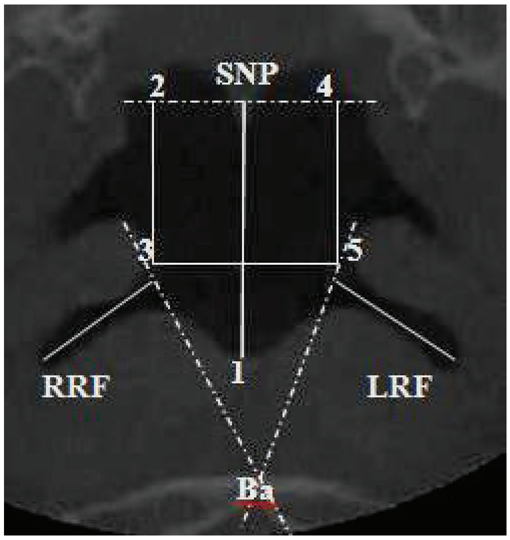


*Fig. 1. Diagram of the oropharynx based on the study of Sutthiprapaporn et al.*[5].

SNP-1: distance from the SNP to the posterior pharyngeal wall; 2-3: distance of the right torus levatorius; 4-5: distance of the left torus levatorius; 3-5: distance between the right and left torus levatorius; SNP-3: distance between SNP and the right torus levatorius; SNP-5: distance between SNP and the left torus levatorius; RRF: depth of the right RF; LRF: depth of the left RF.
SNP = spina nasalis posterior; RF = Rosenmüller fossa

## Results

By comparing distance between the reference points and depth of RF, the following was observed:

- distribution of age and measurement values is shown in Table 1. The mean patient age was 37.1. The highest mean distances of reference points were between 3 and 5;
- considering the results of one-way ANOVA test, there was a statistically significant difference between the groups and distances (p<0.05) (Table 2);
- Mann Whitney U test showed that difference between genders and age was not statistically significant (p>0.05) (Table 3);

*Table 1. Distribution of age and measurement values*

| | n | Mean | Median | Min | Max | ss |
|---|---|---|---|---|---|---|
| Age | 1000 | 37.1 | 37 | 13 | 77 | 17.83 |
| SNP-1 | 1000 | 17.7 | 17.6 | 4.2 | 31.1 | 3.55 |
| 2-3 | 1000 | 15.13 | 15.3 | 3.5 | 27.3 | 2.96 |
| 4-5 | 1000 | 14.9 | 15.1 | 4.4 | 25.2 | 2.76 |
| 3-5 | 1000 | 25.69 | 25.7 | 9.2 | 37.7 | 3.59 |
| SNP-3 | 1000 | 15.43 | 15.4 | 0 | 25.1 | 2.68 |
| SNP-5 | 1000 | 16.23 | 16.2 | 5.6 | 29.1 | 2.66 |
| RRF | 1000 | 5.54 | 4.45 | 0.6 | 18.8 | 4.1 |
| LRF | 1000 | 5.26 | 3.7 | 0.6 | 16.3 | 3.89 |

SNP = spina nasalis posterior; RF = Rosenmüller fossa; RRF = depth of the right RF; LRF = depth of the left RF

*Table 2. One-way ANOVA test results on difference between distance and groups*

| | | Group | | | | | | One-way ANOVA | | Multiple comparison |
|---|---|---|---|---|---|---|---|---|---|---|
| | | n | Mean | Median | Min | Max | ss | F | p | |
| Distance | SNP-1 | 1000 | 17.7 | 17.6 | 4.2 | 31.1 | 3.55 | 3958.612 | **0.001** | 2-1 3-1 5-1 6-1 7-1 8-1<br>7-2 8-2<br>7-3 8-3<br>5-4 6-4 7-4 8-4<br>7-5 8-5<br>7-6 8-6<br>1-4 2-4 2-6 3-4 3-5 3-6 5-6 |
| | 2-3 | 1000 | 15.13 | 15.3 | 3.5 | 27.3 | 2.96 | | | |
| | 4-5 | 1000 | 14.9 | 15.1 | 4.4 | 25.2 | 2.76 | | | |
| | 3-5 | 1000 | 25.69 | 25.7 | 9.2 | 37.7 | 3.59 | | | |
| | SNP-3 | 1000 | 15.43 | 15.4 | 0 | 25.1 | 2.68 | | | |
| | SNP-5 | 1000 | 16.23 | 16.2 | 5.6 | 29.1 | 2.66 | | | |
| | RRF | 1000 | 5.54 | 4.45 | 0.6 | 18.8 | 4.1 | | | |
| | LRF | 1000 | 5.26 | 3.7 | 0.6 | 16.3 | 3.89 | | | |
| | Total | 8000 | 14.49 | 15.2 | 0 | 37.7 | 7.01 | | | |

SNP = spina nasalis posterior; RF = Rosenmüller fossa; RRF = depth of the right RF; LRF = depth of the left RF

*Table 3. Mann Whitney U test results on gender and age differences*

| | | Gender | | | | | | Mann Whitney U test | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | n | Mean | Median | Min | Max | ss | Order average | z | p |
| Age | Male | 563 | 36.4 | 34 | 13 | 77 | 17.98 | 491.36 | -1.136 | 0.256 |
| | Female | 437 | 38.01 | 41 | 13 | 75 | 17.61 | 512.27 | | |
| | Total | 1000 | 37.1 | 37 | 13 | 77 | 17.83 | | | |

- according to the independent t-test results, there was no statistically significant difference between genders and Snp-1 distance ($p>0.05$). There was a statistically significant difference between genders and distance values of 2-3 ($p<0.05$). The distance of 2-3 was significantly lower in females than in males. No statistically significant differences were found between genders and 4-5 ($p>0.05$). No statistically significant differences were observed between genders and 3-5 either ($p>0.05$). There was a statistically significant difference between genders and Snp-3 ($p<0.05$). Snp-3 was significantly lower in females as compared with males. There was no statistically significant difference between genders and Snp-5 ($p>0.05$) (Table 4);

- Table 5 shows Mann Whitney U test results on differences between genders and depth of RRF and

*Table 4. Independent T test results on differences between gender and measurement values*

| | | Gender | | | | | | Independent T test | |
|---|---|---|---|---|---|---|---|---|---|
| | | n | Mean | Median | Min | Max | ss | t | p |
| SNP-1 | Male | 563 | 17.62 | 17.6 | 4.2 | 31.1 | 3.82 | -0.855 | 0.393 |
| | Female | 437 | 17.81 | 17.7 | 6.4 | 29.7 | 3.18 | | |
| | Total | 1000 | 17.7 | 17.6 | 4.2 | 31.1 | 3.55 | | |
| 2-3 | Male | 563 | 15.3 | 15.6 | 3.5 | 25.8 | 3.22 | 2.143 | **0.032** |
| | Female | 437 | 14.91 | 14.9 | 6.3 | 27.3 | 2.58 | | |
| | Total | 1000 | 15.13 | 15.3 | 3.5 | 27.3 | 2.96 | | |
| 4-5 | Male | 563 | 15.02 | 15.1 | 4.4 | 23.4 | 3 | 1.565 | 0.118 |
| | Female | 437 | 14.75 | 14.9 | 6.7 | 25.2 | 2.42 | | |
| | Total | 1000 | 14.9 | 15.1 | 4.4 | 25.2 | 2.76 | | |
| 3-5 | Male | 563 | 25.78 | 25.7 | 9.2 | 37.7 | 3.79 | 0.936 | 0.35 |
| | Female | 437 | 25.57 | 25.7 | 16.1 | 37.6 | 3.32 | | |
| | Total | 1000 | 25.69 | 25.7 | 9.2 | 37.7 | 3.59 | | |
| SNP-3 | Male | 563 | 15.6 | 15.5 | 6.2 | 25.1 | 2.76 | 2.18 | **0.03** |
| | Female | 437 | 15.22 | 15.3 | 0 | 24.8 | 2.56 | | |
| | Total | 1000 | 15.43 | 15.4 | 0 | 25.1 | 2.68 | | |
| SNP-5 | Male | 563 | 16.22 | 16.3 | 5.6 | 29.1 | 2.77 | -0.103 | 0.918 |
| | Female | 437 | 16.24 | 16.2 | 9.2 | 25.5 | 2.51 | | |
| | Total | 1000 | 16.23 | 16.2 | 5.6 | 29.1 | 2.66 | | |

SNP = spina nasalis posterior

*Table 5. Mann Whitney U test results on differences between genders and RRF and LRF values*

| | | Gender | | | | | | Mann Whitney U test | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | n | Mean | Median | Min | Max | ss | Order average | z | p |
| RRF | Male | 563 | 5.11 | 3.8 | 0.6 | 17 | 3.98 | 470.69 | -3.705 | **0.001** |
| | Female | 437 | 6.1 | 5.8 | 0.8 | 18.8 | 4.2 | 538.9 | | |
| | Total | 1000 | 5.54 | 4.45 | 0.6 | 18.8 | 4.1 | | | |
| LRF | Male | 563 | 4.77 | 3.2 | 0.7 | 16.2 | 3.76 | 463.8 | -4.562 | **0.001** |
| | Female | 437 | 5.9 | 5.4 | 0.6 | 16.3 | 3.98 | 547.78 | | |
| | Total | 1000 | 5.26 | 3.7 | 0.6 | 16.3 | 3.89 | | | |

RF = Rosenmüller fossa; RRF = depth of the right RF; LRF = depth of the left RF

LRF. Statistically significant results were found between genders and depth of RRF ($p<0.05$). RRF depth was significantly lower in males than in females. There was a significant difference in LRF depth between genders ($p<0.05$). LRF depth was significantly lower in males than in females; and

- Table 6 shows correlation coefficient test results.

- The relationship between age and Snp-1 was statistically significant. This relationship was weak and in the same direction ($r=0.090$). As age values increased, Snp-1 increased.
- The relationship between age and Snp-5 was statistically significant. This relationship was weak and inverse ($r=-0.064$). Snp-5 decreased as age increased.
- The relationship between Snp-1 and 2-3 was statistically significant. This relationship was moderate and in the same direction ($r=0.523$). As Snp-1 increased, 2-3 increased.

*Table 6.Correlation test results on the relationship between measurement values*

| | | Age | SNP-1 | 2-3 | 4-5 | 3-5 | SNP-3 | SNP-5 | RRF |
|---|---|---|---|---|---|---|---|---|---|
| SNP-1 | r | 0.090** | | | | | | | |
| | p | 0.004 | | | | | | | |
| | n | 1000 | | | | | | | |
| 2-3 | r | 0.032 | 0.523** | | | | | | |
| | p | 0.317 | 0.001 | | | | | | |
| | n | 1000 | 1000 | | | | | | |
| 4-5 | r | 0.008 | 0.534** | 0.769** | | | | | |
| | p | 0.804 | 0.001 | 0.001 | | | | | |
| | n | 1000 | 1000 | 1000 | | | | | |
| 3-5 | r | -0.032 | 0.280** | 0.336** | 0.366** | | | | |
| | p | 0.307 | 0.001 | 0.001 | 0.001 | | | | |
| | n | 1000 | 1000 | 1000 | 1000 | | | | |
| SNP-3 | r | -0.055 | 0.538** | 0.659** | 0.616** | 0.592** | | | |
| | p | 0.084 | 0.001 | 0.001 | 0.001 | 0.001 | | | |
| | n | 1000 | 1000 | 1000 | 1000 | 1000 | | | |
| SNP-5 | r | -0.064* | 0.553** | 0.511** | 0.617** | 0.599** | 0.739** | | |
| | p | 0.043 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | | |
| | n | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | | |
| RRF | r | -0.025 | 0.277** | 0.068* | 0.124** | 0.220** | 0.177** | 0.216** | |
| | p | 0.431 | 0.001 | 0.031 | 0.001 | 0.001 | 0.001 | 0.001 | |
| | n | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | |
| LRF | r | -0.016 | 0.287** | 0.077* | 0.115** | 0.176** | 0.165** | 0.178** | 0.824** |
| | p | 0.621 | 0.001 | 0.015 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| | n | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

*Significant at 0.05 level ($p<0.05$); **significant at 0.01 level ($p<0.01$); SNP = spina nasalis posterior; RF = Rosenmüller fossa; RRF = depth of the right RF; LRF = depth of the left RF

- The relationship between Snp-1 and 4-5 was statistically significant. This relationship was moderate and in the same direction (r=0.534). As Snp-1 increased, 4-5 increased.
- The relationship between Snp-1 and 3-5 was statistically significant. This relationship was weak and in the same direction (r=0.280). As Snp-1 increased, 3-5 increased.
- The relationship between Snp-1 and Snp-3 was statistically significant. This relationship was moderate and in the same direction (r=0.538). Snp-3 increased with increasing Snp-1.
- The relationship between Snp-1 and Snp-5 was statistically significant. This relationship was moderate and in the same direction (r=0.553). As Snp-1 increased, Snp-5 also increased.
- The relationship between Snp-1 and RRF was statistically significant. This relationship was weak and in the same direction (r=0.277). As Snp-1 increased, RRF also increased.
- The relationship between Snp-1 and LRF was statistically significant. This relationship was weak and in the same direction (r=0.287). As Snp-1 increased, LRF increased.
- The relationship between 2-3 and 4-5 was statistically significant. This relationship was strong and in the same direction (r=0.769). As 2-3 increased, 4-5 increased.
- The relationship between 2-3 and 3-5 was statistically significant. This relationship was weak and in the same direction (r=0.336). As 2-3 increased, 3-5 increased.

- The relationship between 2-3 and Snp-3 was statistically significant. This relationship was moderate and in the same direction (r=0.659). Snp-3 increased as 2-3 increased.
- The relationship between Snp-5 and 2-3 was statistically significant. This relationship was moderate and in the same direction (r=0.511). Snp-5 increased as 2-3 increased.
- The relationship between 2-3 and RRF was statistically significant. This relationship was weak and in the same direction (r=0.068). RRF increased as 2-3 increased.
- The relationship between 2-3 and LRF was statistically significant. This relationship was weak and in the same direction (r=0.077). LRF increased as 2-3 increased.
- The relationship between 4-5 and 3-5 was statistically significant.This relationship was weak and in the same direction (r=0.366). As 4-5 increased, 3-5 increased.
- The relationship between 4-5 and Snp-3 was statistically significant.This relationship was moderate and in the same direction (r=0.616). Snp-3 increased as 4-5 increased.
- The relationship between 4-5 and Snp-5 was statistically significant.This relationship was moderate and in the same direction (r=0.617). Snp-5 increased as 4-5 increased.
- The relationship between RRF and 4-5 was statistically significant.This relationship was weak and in the same direction (r=0.124). RRF increased as 4-5 increased.
- The relationship between LRF and 4-5 was statistically significant.This relationship was weak and in the same direction (r=0.115). LRF increased as 4-5 increased.
- The relationship between Snp-3 and 3-5 was statistically significant. This relationship was moderate and in the same direction (r=0.592). Snp-3 increased as 3-5 increased.
- The relationship between Snp-5 and 3-5 was statistically significant.This relationship was moderate and in the same direction (r=0.599). Snp-5 increased as 3-5 increased.
- The relationship between RRF and 3-5 was statistically significant.This relationship was weak and in the same direction (r=0.220). RRF increased as 3-5 increased.
- The relationship between LRF and 3-5 was statistically significant.This relationship was weak and in the same direction (r=0.176). LRF increased as 3-5 increased.
- The relationship between Snp-3 and Snp-5 was statistically significant.This relationship was moderate and in the same direction (r=0.739). Snp-5 increased with increasing Snp-3.
- The relationship between Snp-3 and RRF was statistically significant.This relationship was weak and in the same direction (r=0.177). RRF increased as Snp-3 increased.
- The relationship between Snp-3 and LRF was statistically significant.This relationship was weak and in the same direction (r=0,165). As Snp-3 increased, LRF also increased.
- The relationship between Snp-5 and RRF was statistically significant.This relationship was weak and in the same direction (r=0.216). As Snp-5 increased, RRF increased.
- The relationship between Snp-5 and LRF was statistically significant. This relationship was weak and in the same direction (r=0.178). LRF increased as Snp-5 increased.
- The relationship between RRF and LRFwas statistically significant. This relationship was strong and in the same direction (r=0.824). As RRF increased, LRF increased.

## Discussion

There is a recess named RF behind the torus tubarius. It is a process arising from the medial cartilaginous end of the eustachian tube[10]. The torus is bigger on the upper and lower lips of the eustachian tube, and the fossa is hidden. The fossa is encased in nasopharyngeal mucosa and fundamentally extends by way of a defect between the superior constrictor muscle fibers and the cranial floor. The superior constrictor muscle fibers project from several pieces of the lower oropharynx to the cranial floor, however, the fibers only arrive the cranial base in the midline[11].

The borders of RF[11] are as follows: anterior – eustachian tube, levator palatini muscle; posterior – posterior wall of the nasopharynx and the retropharyngeal space; lateral – parapharyngeal space and tensor veli palatini muscle; inferior – upper edge of the superior constrictor muscle; and superior – skull base with several structures involving foramen spinosum, carotid canal, foramina spinosum and ovale. Laterally, RF is located behind the pharyngeal orifice of the eustachian tube (approximately 1.5 cm in adults). The mucosa of

RF apex is separated by a thin fibroconnective tissue from the cervical internal carotid artery[11].

Rosenmüller fossa appears in posterior location on axial scans and in superior location on coronal scans to the eustachian tube orifice because of the inverted J shape of the torus tubarius[12].There are many forms of RF[13]. The size and shape vary according to the amount of adenoid tissue and the prevertebral muscle[14]. With increasing age, the prevertebral muscle atrophy causes a shallow and wide fossa. In childhood, the RF can be obliterated by adenoid tissue. So, RF can be asymmetric because lymphoid tissue amount or air distension may not be equal[15].

A lot has been learned since RF was been described by Rosenmüller. Thus, RF was decribed as the most common region for NC formation[11]. Loh *et al*.[4] evaluated the anatomy of RF on 23 computed tomography scans. The depth was found to range between 1.7 mm and 18.8 mm. In our study, the range of depth was 0.6-18.8 mm for RRF and 0.6-16.3 mm for LRF while the mean depth of RF was 5.4 mm. So, these results were quite close to those reported by Loh *et al*.[4]

Sutthiprapaporn *et al*.[5] evaluated several distances in the sitting upright and supine positions using CBCT and multidetector helical computed tomography. From upright to supine position in inferior conchae plane, Snp-1, Snp-3 and Snp-5 distances were 28.0±2.3, 15.2±2.5 and 16.3±2.7, respectively. In Snp-basion plane, Snp-1, Snp-3 and Snp-5 distances were 27.5±1.3,19.2±2.2 and 19.5±2.7, respectively. In our study, Snp-1 was lower while Snp-3 and Snp-5 were quite similar in both studies. Additionally, from supine to upright position in inferior conchae plane, 3-5, RRF and LRF were 22.1±3.1, 12.0±7.7 and 9.4±7.2, respectively. From supine to upright position in Snp-basion plane, 3-5, RRF and LRF were 22.8±4.1, 9.8±6.6 and 6.8±6.5, respectively[5]. In our study, 3-5 was higher while RRF and LRF were lower as compared to the results reported by Sutthiprapaporn *et al*.[5] It was concluded that CBCT images of RF provided in upright position were better than multidetector helical computed tomography images provided in supine position[5]. So, we preferred using CBCT when assessing the oropharyngeal structures.

Wei *et al*.[16] suggested that RF should be carefully evaluated because of being the most common region for NC. If the RF had been evaluated incorrectly as eustachian tube during eustachian tube treatments, various complications have been reported due to the proximity of RF to the eustachian tube and the internal carotid artery[11]. The most common finding for NC is blunting or wall thickening of the RF[17-19]. The 18F-FDG positron emission tomography/CT technique may be used for differential diagnosis of benign and malignant diseases of RF, however, false-positive results may be obtained[19]. The survival rate increases with early diagnosis of lesions in RF [5].

In conclusion, RF is the most common region for NC and is adjacent to a number of important anatomical structures. The knowledge of anatomy and awareness of findings are very important for early diagnosis of NC.This is possible with careful assessment and increased anatomy knowledge. From this point of view, we found a few articles that are relevant to this subject, so we wanted to conduct this study on a greater sample and much more detail. To the best of our knowledge, this work is the first to evaluate RF with large sample size presenting comprehensive information. Further studies will be useful to assess the RF.

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Sažetak

## ANATOMIJA I MJERNE VRIJEDNOSTI ROSENMÜLLEROVE JAME I STRUKTURA OROFARINKSA POMOĆU *CONE BEAM* KOMPJUTORIZIRANE TOMOGRAFIJE

*G. Serindere, K. Gunduz, H. Avsever* i *K. Orhan*

Cilj istraživanja bio je procijeniti anatomiju Rosenmüllerove jame (RJ) i okolnih struktura pomoću *cone beam* kompjutorizirane tomografije (CBCT). Ukupno je 1000 bolesnika analizirano ovom tehnikom. Referentne točke bile su *spina nasalis posterior* (Snp) i basion. Mjerena je duljina između RJ i okolnih struktura. Srednja udaljenost od Snp do stražnje faringealne stijenke bila je 17,7 mm. Srednja udaljenost od desnog do lijevog torusa levatoriusa bila je 25,69 mm. Srednja dubina desne i lijeve RJ bila je 5,54 mm odnosno 5,26 mm. RJ, poznata i kao lateralno udubljenje farinksa, izvorno je mjesto za razvoj nazofaringealnog karcinoma. Smještena je na lateralnoj stijenci farinksa iza hrskavičnog dijela eustahijeve cijevi, tj. *torus tubarius*. Poznavanje RJ važno je za dijagnosticiranje i planiranje liječenja nazofaringealnog karcinoma.

Ključne riječi: *Nazofarinks; Rosenmüllerova jama; Nazofaringealni karcinom; Cone beam kompjutorizirana tomografija*