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Research Article

**ROLE OF MAGNETIC RESONANCE IMAGING
CEPHALOMETRY IN OBSTRUCTIVE SLEEP APNOEA (OSA)**¹Syed Safiullah, ²Qurban Ali, ³Umair Ahmad Sahi¹Rural Health Center Waan Bhacran, Mianwali, safishah15@gmail.com, ²Rural Health Center Waan Bhachran, Mianwali, dr.qurbanwahla@gmail.com, ³Tahsil Headquarter Hospital Daska, Sialkot, umairsahi007@gmail.com**Article Received:** October 2019 **Accepted:** November 2019 **Published:** December 2019**Abstract:**

Background- OSA is most widely recognized general problem that is found in adults. People who suffered in this problem are inclined for unreasonable fat tissues in the neck, that narrow down the upper airway route (UAR). There are a lot of ways for evaluating UAR specially MRI is seen as more helpful for characterizing the abnormalities of delicate tissue

Techniques- Strategies. 50 patients were tentatively concentrated giving obstructive sleep apnoea with 50 other typical controls to assess MRI cephalometry to analyze the problem of obstructive sleep apnoea by comparing the area of cross section and antero-back measurement of the UAR in the retro-palatal aviation route.

Findings- By comparing it was found that the MRI of patients indicates that the area of cross section is very small and also the diameter of antero posterior is considerably small.

Conclusion- It was concluded in this study that MRI is proved to be very useful techniques to diagnose obstructive sleep apnoea

Keywords: Magnetic resonance imaging cephalometry, Obstructive sleep apnoea.

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INTRODUCTION:

It is a kind of disorder portrayed due to longtime partial UAR deterrent and additionally discontinuous complete obstacle that disturbs the sleep timing and problem in normal breathing. The pathogenesis of this problem involves, abnormal sleep routine and UAR at the degree of pharynx on account of intraluminal negative weight produced by stomach furthermore, more luminal tissues around UAR. The anomalies related to morphological adding to the pathology incorporates sidelong pharyngeal divider thickening, macroglossia, extended uvula, delicate sense of taste, tonsil and intra-nasal deterrent, remaining being caudal relocation of hyoid inherent craniofacial dysplasia and hypoplasia of maxilla and mandible.

To diagnose OSA polysomnography is considered "highest quality level". But it isn't generally accessible, MRI of UAR has been considered as an elective examination for recognizing this problem.

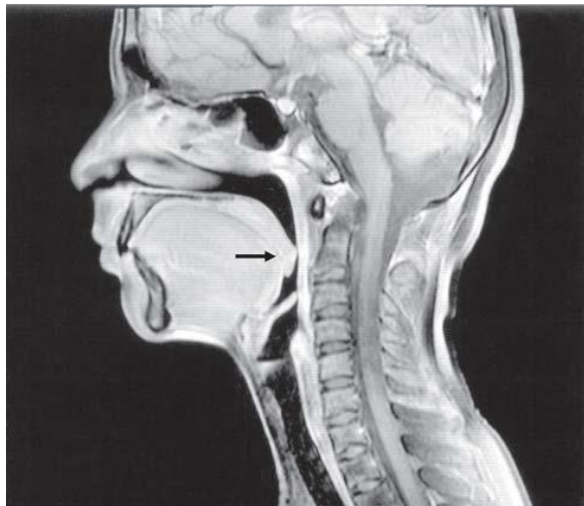


Figure 1. MRI demonstrating reduced anteroposterior diameter at retro-palatal level

MRI gives imaging of delicate tissue with god resolution and three dimensional recreation.

METHODS:

This research was done on 50 patients who have symptoms of OSA having age between up to 25 years in the Mayo Hospital Lahore. Every patients signed a written agreement. Every patient was subjected in to MRI scanning for neck and for this Avanto MRI scanner was used. After this the area of UAR was measured.

Statistical investigation:

All the collected data was stored or saved in excel sheet. By using the software of Epi- info 7 statistical investigation was carried out.

Findings:

A patient suffering in OSA has considerably very small area of cross section of UAR and the diameter of antero posterior.

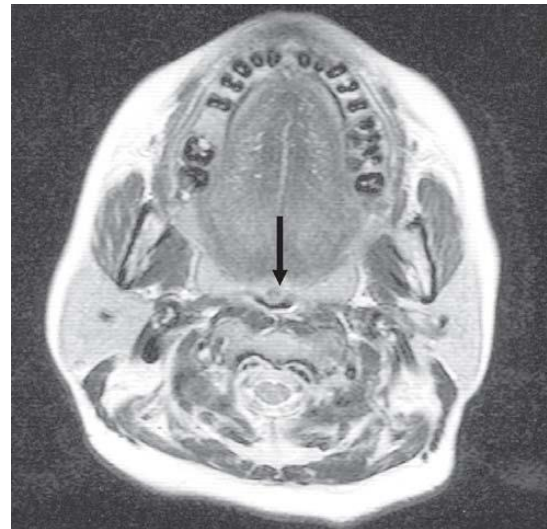


Figure 3. MRI showed reduced area of cross section at retro-palatal level

Comparison data of MRI is given below in the table.

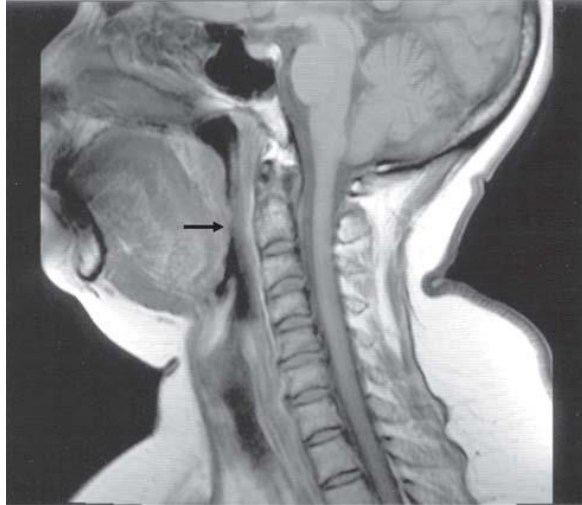


Figure 2. MRI showed reduced anteroposterior diameter at retro-palatal level

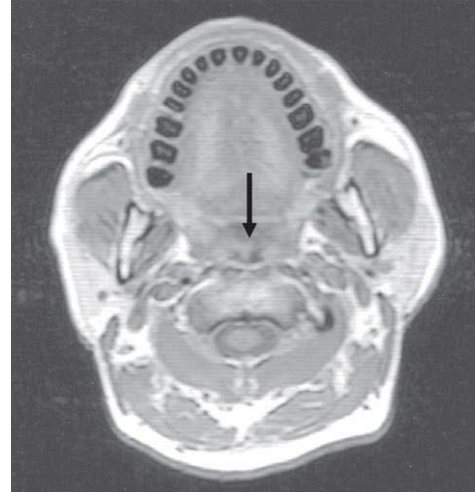


Figure 4. MRI showed reduced area of cross section at retro-glossal level

Table. Comparison table for area of cross section and diameter of antero posterior of UAR

Variable	Cases (n=50)	Controls (n=50)	p-value		
Retro-palatal airway					
Diameter of antero posterior in cm	0.44±0.17	1.	13±1.21	0.	048
Area of cross-sectional in cm	0.38±0.21	0.	92±0.35	0.	02
Retro-glossal airway					
Diameter of antero posterior in cm	0.75±0.37	1.	1±0.22	0.	005
Area of cross-sectional in cm	0.68±0.36	1.	2±0.44	0.	015

DISCUSSION:

OSA patient had reduced area and diameter in retro palatal and retro glossal level as shown in above figure 3 and figure 4. In this study a comprehensive research was done to evaluate the area and diameter in retro palatal and retro glossal level with MRI scanning. In comparison table it was showed that with how much mean deviation the area and diameter in retro palatal and retro glossal level changes. A researcher Galvin et al. 1 researched that the area of cross section is significantly reduced in OSA syndrome and he explained it through computed tomography. Lkede et al. 2 estimated area of cross section through MRI in OSA syndrome.

He saw that unconstrained sleepiness can be caused of noteworthy obstruction with reduced area at different locales of the pharyngeal aviation route in the disease of OSA, however in the non-OSA syndrome it did not happen. In other study³ the researchers explored the relationship between dentofacial qualities

of patients with the obstructive locales in OSAS. Volumetric investigation procedures through MRI was done in another study⁴ to distinguish the UAR anatomic hazard factors for OSA in 48 patients. These researchers found that after covariate changes the volume of the horizontal pharyngeal dividers ($p < 0.0001$), tongue ($p < 0.0001$), and complete delicate tissue ($p < 0.0001$) was essentially bigger in subjects with OSA.

The job of medical procedure in the treatment of OSA has been questionable and successful careful administration relies on accurately deciding block at distinctive levels.⁷ Hence, MRI cephalometry has been abused to survey the different destinations of block in OSA in order to manage the specialist to pick the best careful and healing alternative. There are a few kinds of medical procedures like nasal remaking, uvulopalatopharyngoplasty (UPPP), progression genioplasty, mandibular osteotomy, with genioglossus progression, hyoid myotomy and suspension,

maxilomandibular progression with headway genioplasty, and so on., that can be completed. Our perceptions propose that patients with OSA have tight retro-palatal and retro-glossal territory. We feel that MRI cephalometry might be helpful in recognizing the subset of OSA patients who will be profited by therapeutic careful intercession. There is a requirement for further research to create standardizing information for these parameters in the network.

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