

## Original Research Article

# Cervical spondylosis: a common finding in vertigo patients

Santosh Uttarkar Pandurangarao\*, Shraddha Subhash Bhojar,  
Aravind Darga Ramchandra, Sridurga Janarthanan

Department of ENT, JJM Medical College, Davangere, Karnataka, India

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### \*Correspondence:

Dr. Santosh Uttarkar Pandurangarao,

E-mail: [drsantoshup@gmail.com](mailto:drsantoshup@gmail.com)

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## ABSTRACT

**Background:** Vertigo or giddiness is a common symptom seen in patients attending ENT OPD. Vestibular and neurological pathologies being the known common causes. Cervical spondylosis is being established as a common condition leading to vertigo. Our aim is to evaluate the significance of cervical spondylosis as a cause in patients with vertigo.

**Methods:** Hundred patients of either sex, between the age group of 23-64 years, with vertigo were evaluated with complete history and clinical examination followed by PTA and impedance audiometry. All common causes of vertigo were ruled out and these patients were screened with digital x-ray cervical spine in lateral view to rule out cervical spondylosis. The results were analysed statistically using Chi square test and inference was drawn.

**Results:** Out of 100 (100%) patients evaluated, 58 (58%) were female patients and 42 (42%) male patients. Cervical spondylosis was found to be present in 47 (47%) patients.

**Conclusions:** Cervical spondylosis was found as a common finding in patients with vertigo. It can be ruled out easily using a simple investigation of cervical spine x-ray, in patients where other commoner causes cannot be established.

**Keywords:** Cervical vertigo, Vertebrobasilar insufficiency, X-ray cervical spine, Cervicogenic dizziness

## INTRODUCTION

Vertigo is one of the most common complaints encountered in ENT OPD. It is perceived as swaying or rotational movement either of one's own body or of the environment, or both.<sup>1,2</sup> Different causes of vertigo include those arising from disturbances of the ear; central nervous system (CNS); cardiovascular system; and benign positional paroxysmal vertigo (BPPV).<sup>3</sup>

Cervical pathologies as a cause for vertigo was first described in 1858 by Claude Bernard.<sup>4</sup> Cervical spondylosis develops in 25-50% of people, by the age of 50 and in at least 70% of elderly population by the age of 75 years.<sup>5</sup>

The aim of our study was to evaluate the clinical importance and significance of cervical spondylosis as a cause of vertigo.

## METHODS

A prospective descriptive study was conducted on 100 patients with complaints of vertigo attending ENT outpatient department at Bapuji hospital and Chigateri district hospital, teaching hospitals attached to J.J.M. Medical College, Davangere. After obtaining Ethical Committee clearance, the study was conducted during the period of January 2017 to April 2018.

After thorough history and ENT examination, PTA and impedance audiometry was performed to rule out any auditory pathology. Those patients with no specific cause

for vertigo and were willing to participate were included into the study after taking informed and written consent. These patients were later screened with a digital X-ray of cervical spine in lateral view and an orthopaedic opinion and in some, neurological opinion was taken (Figure 1). All the data was recorded in a proforma.

Patients with vertigo after ruling out vestibular and neurological causes, between 23 to 64 years of age of either sex were included. While, patients with vestibular and neurological causes were excluded from the study.



**Figure 1: X-ray cervical spine lateral view showing degenerative changes.**

**Statistical analysis**

Qualitative data was represented in the form of frequency and percentage. Association between qualitative variables was assessed by Chi square test. A p value of less than 0.05 was considered statistically significant. Statistical analysis was done with IBM SPSS Version 22 for windows.

**RESULTS**

A study was done on 100 (100%) patients, after ruling out vestibular and neurological causes of vertigo by doing thorough ENT examination and pure tone audiometry.

The patients of age group 23-64 years, of either sex were studied. Mean age being 40.34 years. Most of the patients 59 (59%), were between 30-49 years of age (Table 1).

Amongst 100 (100%) patients in our study, 58 (58%) were female patients and 42 (42%) male patients.

**Table 1: Age distribution of patients.**

Age (in years)	Frequency
<30	16
30-39	34
40-49	25
50-59	22
60-69	3
<b>Total</b>	<b>100</b>

Out of 100 (100%) patients, 47 (47%) patients had cervical spine degenerative changes and 53 (53%) patients had normal X-ray cervical spine.

The patients with vertigo in age group 50-59 years were found to have highest incidence of cervical spondylosis (Table 2).

**Table 2: Presence of cervical spondylosis in various age groups.**

Age (in years)	Cervical spondylosis Present	
	Yes (n=47)	No (n=53)
< 30	2	14
30-39	10	24
40-49	16	9
50-59	17	5
60-69	2	1

Cervical spondylosis was present in 28 (48.28%) out of total 58 (100%) females and in 19 (45.24%) out of total 42 (100%) males. This was compared and found to be statistically insignificant (Table 3).

**Table 3: Presence of cervical spondylosis in either sex.**

Gender	Presence of cervical spondylosis (detected in x-ray)		Chi square test
	Yes (n=47)	No (n=53)	
<b>Male</b>	19	23	NS
<b>Female</b>	28	30	p>0.05

NS: not significant.

Amongst 100 (100%) patients, 47 (47%) patients had cervical spondylosis. Vertigo in these patients could be attributed to the cervical spine pathologies.

**DISCUSSION**

Ryan and Cope first termed “cervical vertigo”, the condition of combined symptoms of neck disorders and vertigo (1955). Dizziness due to cervicogenic causes was theorized to be a result of abnormal afferent input to vestibular nuclei from damaged receptors in the cervical spine.<sup>6</sup>

Schenk et al attributed three mechanisms to the cause of cervicogenic dizziness: irritation of the cervical sympathetic nervous system, vertebral artery compression due to mechanical stress or stenosis, and functional disorders in C0 to C3 involving proprioceptors.<sup>7</sup>

While clinical evaluation, it is necessary to rule out neurologic, vestibular, and psychosomatic disorders before a disorder of the craniovertebral junction is to be looked for.<sup>8</sup> In our study we have included patients with vertigo, after exclusion of these causes.

A condition worth mentioning here, is an ischemia caused by compression of cervical sympathetic nerves leading to dizziness is seen in a rare syndrome, called Barre-Lieou syndrome, which presents with symptoms of head or neck pain, tinnitus, vertigo, blurred vision, dilated pupils, nausea or vomiting.<sup>9</sup>

Mazloumi et al conducted a study on evaluation of patients with vertigo secondary to cervical spondylosis, where the mean age group was 62.5 years.<sup>10</sup> In a study by Karlberg et al, it was 37 years.<sup>11</sup> The mean age of patients in our study was 40.3 years, with 59 (59%) patients (maximum) in 30-49 years age group.

In our study, male patients were 42 (42%) and female patients 58 (58%). With no significant difference found in incidence of cervical changes in male and female groups.

Karlberg et al found that in patients with dizziness of suspected cervical origin physiotherapy reduces neck pain, dizziness and also improves postural performance. Hence, they concluded that, although other diagnoses are common for patients with dizziness, neck disorders should also be considered.<sup>11</sup>

Rieke et al found the prevalence of vertigo, dizziness, or feelings of imbalance in patients with cervical spine abnormalities to be greater than that found in the general population.<sup>12</sup> Similarly our study showed presence of cervical spondylosis in 47 (47%) patients with vertigo (Significant), which was not attributable to any other causes.

#### **Limitations of study**

The limitations of our study are its sample size.

#### **CONCLUSION**

Cervical spondylosis as a cause for vertigo can be easily ruled out, even with simple and less expensive investigation like digital X-ray of cervical spine lateral view, as it is easily available. Early diagnosis will definitely help in effective treatment. Thus, preventing

progression of episodes of vertigo, by treating cervical spondylosis early.

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