

# Ossicle of the Second Cervical Vertebra Anterior to the Posterior Arch; A Case Report.

Reda Sheta<sup>1</sup><sup>1</sup>Department of orthopedic, Al Ahrar teaching hospital, Zagazig, Egypt.

Received: September 2017

Accepted: September 2017

**Copyright:** © the author(s), publisher. Annals of International Medical and Dental Research (AIMDR) is an Official Publication of "Society for Health Care & Research Development". It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

The ossicle of the posterior arch of the atlas is quite rare and has been described in the literature by only few articles. However, these articles haven't show clear radiograph in relation to posterior C2 arch only included developmental dysplasia in the description. In our case, the above ossicle is illustrated in two imaging modalities, CT and MRI imaging. The importance of this ossicle lies in its recognition as only an anatomical variant and not to be confused with other pathological conditions such as a fracture, from traumatic spondylolisthesis, or hangman's fractures and are more problematic neurocentral synchondrosis.<sup>[1,3]</sup>

**Keywords:** Ossicle, atlas, the posterior arch.

## INTRODUCTION

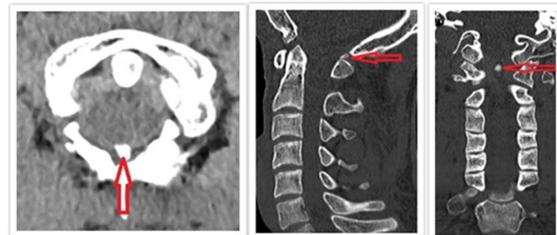
Accessory ossicle of the anterior arch of atlas is a normal variant and is best appreciated on lateral or sagittal study.<sup>[1,2]</sup> Whereas ossicle of the posterior arch of the atlas is quite rare and very few cases has been reported in literature. Atlas is formed from 3 primary ossification centres: an anterior ossification centre that forms the anterior tubercle and 2 lateral masses extend posteromedially to form the posterior arch usually in 4<sup>th</sup> year. In about 2% of the population, the 4<sup>th</sup> ossification centre forms a posterior tubercle between 2 neural arches around the 2<sup>nd</sup> year of life. Different anomalies can develop during these ossification periods.

## CASE REPORT

A 26-year old male presented with pain in upper cervical spine after road traffic accident. The physical examination revealed diffuse tenderness in the upper cervical spine. Rest Neurological examination was normal. A plain radiograph was obtained and showed no obvious fracture therefore; a CT scan examination of the cervical spine was requested. The CT images showed a well corticated bone fragment anterior to central part of posterior arch C2 [Figure 1].

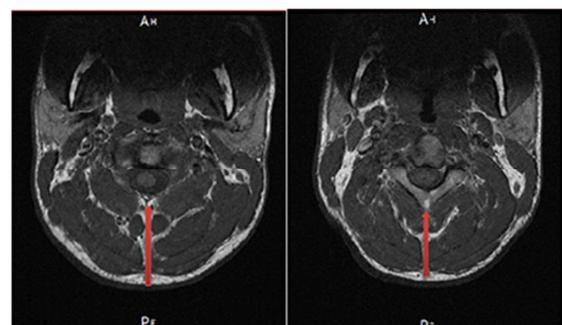
### Name & Address of Corresponding Author

Dr. Reda Sheta  
Dr Reda Sheta  
Department of orthopaedic, Al Ahrar teaching hospital,  
zagazig, Egypt.



**Figure 1:** CT cervical spine axial, sagittal and coronal image shows location of the posterior accessory ossicle of C2 anterior to posterior arch of C2. Which Extending from C1 downward in front of posterior arch of C2.

This was thought to represent an avulsion fracture; or osteophytes, but an oval shape, well corticated bone fragment with smooth border of posterior arch of C2 in young patient, the MRI [Figure 2,3] cervical show no soft tissue swelling to suggest a fracture. The location and appearance are typical of the accessory ossicle of the Posterior arch of atlas.



**Figure 2:** Multiple axial cuts of MRI (T1) at level C1-C2 shows the accessory ossicles.

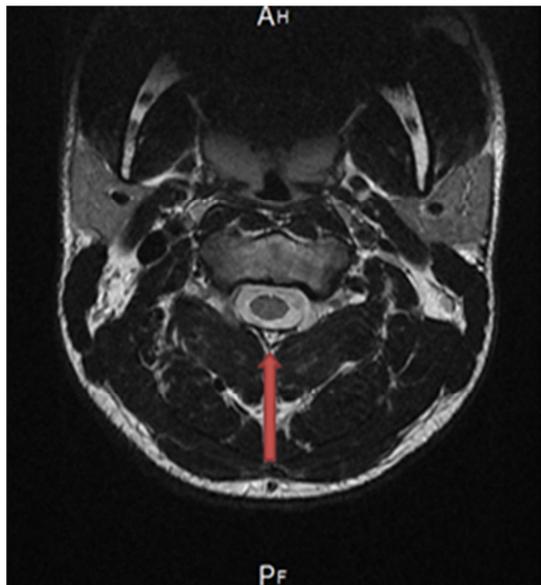


Figure 3: axial cut of MRI (T2) at level C1-C2 shows the accessory ossicles.

3. Paraskevas, G.K., et al., Sesamoid ossicles within the nuchal ligament: a report of two cases and review of the literature. *J Radiol Case Rep.* 5(8): p. 22-9.
4. Carli, A.B., et al., Sesamoid ossicle of the nuchal ligament. *Spine J.* 14(5): p. 852.
5. Keats, T.E., The inferior accessory ossicle of the anterior arch of the atlas. *Am J Roentgenol Radium Ther Nucl Med*, 1967. 101(4): p. 834-6.

**How to cite this article:** Sheta R. Ossicle of the Second Cervical Vertebra Anterior to the Posterior Arch. *A Case Report. Ann. Int. Med. Den. Res.* 2017; 3(6): OR01-OR02.

**Source of Support:** Nil, **Conflict of Interest:** None declared

## DISCUSSION

The Sesamoid ossicles related to the posterior aspect of cervical spine can be an incidental finding during lateral radiographs or other imaging of the neck and usually in relation to the nuchal ligament. The exact pathogenesis of such ossicles is unknown but is believed that they are classic sesamoid ossicles formed within ligamentous or tendinous structures.<sup>[3,4]</sup> However, the ossicle of posterior arch of the atlas is probably quite rare and there are no articles in the literature regarding that site which describe this ossicle. The prevalence and clinical significance of this ossicle is an area, which has been particularly under-explored in the literature to date.<sup>[1,3]</sup>

The midline location of ossicles in upper cervical spine was initially suggested by Keats and also confirmed by Meeran which match with our case presentation.<sup>[2,5]</sup>

## CONCLUSION

Our case represents ossicles anterior to central part (midline) of posterior arch of C2 inside spinal canal. Without tissue swelling surrounding so excluding fracture, and with smooth round margin in young age male supporting an ossicle.

## REFERENCES

1. Klimo, P., Jr., G. Rao, and D. Brockmeyer, Congenital anomalies of the cervical spine. *Neurosurg Clin N Am*, 2007. 18(3): p. 463-78.
2. Naji, M.F. and R. Bhat, The typical appearance of the inferior accessory ossicle of the anterior arch of the atlas. *Surg Radiol Anat*, 2009. 31(1): p. 69-71.