Familial ossification of the stylohyoid ligament in a three generation family--a new clinical entity displaying autosomal dominant inheritance


Published in:
British Journal of Radiology

Document Version:
Publisher's PDF, also known as Version of record

Queen's University Belfast - Research Portal:
Link to publication record in Queen's University Belfast Research Portal

Publisher rights
© British Institute of Radiology 2014. This work is made available online in accordance with the publisher's policies. Please refer to any applicable terms of use of the publisher.

General rights
Copyright for the publications made accessible via the Queen's University Belfast Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy
The Research Portal is Queen's institutional repository that provides access to Queen's research output. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact openaccess@qub.ac.uk.

Open Access
This research has been made openly available by Queen's academics and its Open Research team. We would love to hear how access to this research benefits you. – Share your feedback with us: http://go.qub.ac.uk/oa-feedback

Download date: 31. Oct. 2023
SHORT COMMUNICATION

Familial ossification of the stylohyoid ligament in a three generation family—a new clinical entity displaying autosomal dominant inheritance

1,2P J MORRISON, MD, 3R J MORRISON and 4C S McKINSTRY, FRCP

1Regional Medical Genetics Centre, Belfast HSC Trust, Belfast, UK, 2Department of Medical Genetics, Queens University Belfast, Belfast, UK, 3School of Dentistry, Queen’s University Belfast, Belfast, UK, and 4Regional Neuroradiology Department, Royal Victoria Hospital, Belfast, UK

ABSTRACT. Ossification of the stylohyoid ligament is very common in the Caucasian population. More than 9000 descriptions of apparently isolated case reports on PubMed have been cited over the last 20 years, often associated with an incidental finding on imaging after neck trauma. No cases of familial ossification have been described. We document a family with several affected members, each with an ossified stylohyoid ligament, confirming that ossification may be hereditary in some families and is most likely due to an autosomal dominant gene.

Ossification of the stylohyoid ligament (Eagle syndrome) [1] is a common disorder in the Caucasian population. More than 9000 descriptions of apparently isolated case reports on PubMed have been cited over the last 20 years, often associated with neck trauma. Surprisingly, no cases of familial ossification have been described. We present a family with several affected members, each with an ossified stylohyoid ligament, confirming that Eagle syndrome may be hereditary in some families and is most likely due to an autosomal dominant gene.

Phenotype description

We identified a 56-year-old female (Figure 1 III.2) who was noted to have an ossified stylohyoid ligament on radiological imaging at the age of 30 years (Figure 2) when she developed a swallowing difficulty. She previously had a difficult intubation during anaesthesia for surgery when aged 22 years, which is thought to be coincidental. Radiological investigation of all the family members in generations III and IV confirmed that her identical twin sister (III.3) was affected along with her mother (II.5) (Figure 3) and her two children IV.1 (Figure 4) and IV.2 (Figure 1). All the imaging (including II.5’s films, which are a little fainter generally given her age and the film exposure) shows the same degree and extent of calcification of the stylohyoid ligament. This is consistent with a single autosomal dominant gene, with limited expression symptom-wise but consistent penetrance on imaging, and no evidence of anticipation (progressively earlier onset of a disorder owing to expansion of a gene in successive generations) [2].

All were asymptomatic with no particular history of trauma or throat or ear pain. An aunt (II.8) had throat trouble in her early 30s but no further clinical details or imaging was available as all relatives in generation II are deceased.

Discussion

Eagle syndrome is thought to be present in 4–28% of the population [3]. A similar condition—ossification of the posterior longitudinal ligament of the spine (OPLL)—is prevalent in 2–4% of the Japanese population, causing myelopathy and spinal stenosis, and COL6A1 gene polymorphisms have been associated, although no definitive genes have been identified [4]. Familial studies on

Figure 1. Pedigree showing three generations of affected cases (shaded) and those with a history of throat trouble (dot), and unaffected cases (unshaded).
OPLLs confirmed a higher increase in relatives, but it is unclear whether this is due to an autosomal dominant or autosomal recessive gene or both [5]. Ossification has been noted in other cervical spine ligaments including the flaval ligament [6], but the aetiology of the ossification process is unclear.

The inheritance in this family is clearly autosomal dominant, with three generations affected. A gene may therefore be responsible for some cases of familial ossification of the styloid ligament, and identification of further families may allow research in this area. Several members of this family were asymptomatic, suggesting limited expression of the disorder, although all had consistent features of calcification on imaging, suggesting that the effect of the gene is about the same in all cases. This condition may be more common in relatives of apparently sporadic cases than previously thought, as none of the relatives in whom an ossified stylohyoid ligament was detected had any symptoms or signs.

Conclusion

Familial ossification of the stylohyoid ligament is a discrete clinical entity and displays autosomal dominant inheritance. Not all cases of this condition may be sporadic as previously thought.

References