Paracondylar process of the occipital bone of the skull: a rare congenital anatomical variant

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DESCRIPTION

A 35-year-old male polytrauma patient's cervical spine was evaluated by CT. Coronal (figure 1), axial (figure 2) and volume rendered (figure 3) CT images showed conical bony protuberances arising from the paracondylar area on both sides of the occiput and extending inferiorly to articulate with the superior aspect of the transverse process of atlas bilaterally. The imaging findings are typical of paracondylar processes.

A paracondylar process is a developmental variation owing to incomplete assimilation of proatlal somite into the occiput.¹ It is a rare developmental anomaly with only a few cases reported in the medical literature.² It can be unilateral or bilateral and is usually asymptomatic.³ It is often detected incidentally, as in our case.

Large paracondylar processes can sometimes be symptomatic, especially when they fuse or articulate with the transverse process of atlas and limit

Figure 2 Axial CT showing bilateral paracondylar process (P) articulating (white arrows) with the transverse process (T) of the atlas.

the atlanto-occipital motion. The process may sometimes act as a shim and manifest as skeletal torticollis.³ It is in close proximity to the C1 cervical nerve root and can potentially lead to compression and occipitocervical pain.⁴

The anomaly is often missed on anteroposterior and lateral cervical radiographs because of superimposed anatomical structures. However, on coronal-reformatted CT images, the extent and location of this anomalous bridge is well depicted.³ A calcified stylohyoid ligament can mimic this anomaly, but is typically a more slender structure and is directed medially.³

Figure 1 Coronal-reformatted CT showing bilateral paracondylar processes (P) arising from the paracondylar area of the occiput and extending inferiorly to articulate (white arrows) with the superior aspect of transverse process (T) of atlas.

Learning points

- ▶ A paracondylar process of the occipital bone of the skull is a rare developmental anomaly.
- ▶ When symptomatic, this anomaly can present with limitation of neck movements, skeletal torticollis or occipitocervical pain.
- ▶ Although it is often missed on conventional cervical radiographs due to superimposed anatomical structures, it is well depicted on coronal-reformatted CT images.

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Figure 3 Volume rendered CT demonstrating bilateral paracondylar processes (P) articulating with the transverse processes (T) of the atlas.

Competing interests None.

Patient consent Obtained.

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REFERENCES

- 1 Kaushal P. Epitransverse process: a rare outgrowth from atlas vertebra. *Int J Anat Variations* 2010;3:108–9.
- 2 Nolet PS, Friedman L, Brubaker D. Paracondylar process: a rare cause of craniovertebral fusion: a case report. *J Can Chiropr Assoc* 1999;43: 229–35.
- 3 Guebert GM, Rowe LJ, Yochum TR, *et al*. Congenital anomalies and normal skeletal variants. In: Yochum TR, Rowe LJ, eds. *Essentials of skeletal radiology*. 3rd edn. Lippincott Williams & Wilkins, 2005:262–4.
- 4 McCall T, Coppens J, Couldwell W, *et al*. Symptomatic occipitocervical paracondylar process. *J Neurosurg Spine* 2010;12:9–12.

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