Schwannomas from Olfactory Nerve: A Rare Type

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Dear Editor,

I have read with curiosity the article entitled “A large extra cranial cystic trigeminal schwannoma of the parapharyngeal space – exploring the right approach” published in the *Indian Journal of Surgical Oncology* [1]. Krishnamurthy and his colleagues skillfully reported a 41 year old male with extra-cranial cystic schwannoma in the parapharyngeal space. This case-report is a helpful article for showing the rare type of the trigeminal schwannomas. The authors indicated that schwannomas may originate from cranial, autonomic or peripheral nerve with the exception of the olfactory nerve. However, I would like offer the authors that 48 cases with olfactory schwannoma have been reported in the world literature until date. Here I provide comments about olfactory schwannoma on different points.

The occurrence of schwannoma is approximately 8 % of all intracranial tumors and usually arise from any nerve containing Schwann cell layer of the vestibular portion of the eight cranial nerve and less commonly from the fifth nerve and lower cranial nerves. Nevertheless, olfactory nerve is not prone to schwannoma due to the lack of Schwann cell layer. On the other hand, anterior cranial fossa schwannoma are exceedingly rare lesion among several locations of schwannoma [2].

In this regard, several theories have been put forth about how anterior cranial fossa schwannoma occurs. The developmental hypotheses advocate these tumors primarily origin from aberrant Schwann cells within the central nervous system or arise from multipotential mesenchymal pial cells and transformation of neural crest cells into the brain parenchyma. On the other hand, non-developmental theories advocate that anterior cranial fossa schwannomas origin from Schwann cells normally represent in the anterior ethmoidal nerve, meningeal branches of the trigeminal nerve, perivascular nerve plexus, and olfactory groove. Moreover, reactive change after injury, for example, Schwann cell formation from multipotential mesenchymal cells in pateints with pathological changes like infarction or multiple sclerosis has been described [3, 4].

On the other hand, neural structures in the cribriform plate and olfactory groove include anterior ethmoidal nerves, branches of trigeminal nerve, nerve plexus of dural vessels, fila olfactoria, and olfactory nerve and bulb. Thus, they represent the possible origin of this subset of schwannomas. And, it has been suggested that olfactory schwannomas arise from the olfactory nerve and bulb [5].

As is obvious from above discussion, olfactory schwannomas are very rare tumors with 48 cases described so far [6]. Hence, their infrequency may partially represent that they have been underreported, overlooked, or misdiagnosed.

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