A 50-year-old male patient was admitted to our clinic with headache and a 6-month history of progressive deterioration of vision in the left eye. Vision from the right eye was normal and no bitemporal hemianopsia or symptoms of endocrine disturbance were observed. He had also suffered headache for the last month. The only abnormal findings on neurological examination were decreased perception of light and secondary optic atrophy in the left eye. Endocrine testing revealed normal levels of hormones produced by the pituitary and target glands.

Magnetic resonance imaging (MRI) of the brain revealed a huge regular-shaped lesion in the sellar-suprasellar region occupying the sella turcica and extending into the suprasellar cistern and planum sphenoidale. The lesion was completely excised by microsurgery via an ordinary left-sided pterional approach. Histopathology identified the lesion as a choroid plexus papilloma. Following the case report, literature on the origin, differential diagnosis, and treatment of this rare tumor is reviewed.

Key Words: Choroid plexus papilloma · Extraventricular · Sellar-suprasellar · Magnetic resonance imaging · Pathology.
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As CPP (Fig. 3, 4). Following surgery, the patient's vision in his left eye improved rapidly and he reported no adverse events or changes in neurological function. Postoperative MRI showed total excision of the tumor (Fig. 5). The patient is currently under outpatient observation.

DISCUSSION

Choroid plexus papillomas are rare tumors of the central nervous system, representing less than 1% of all verified intracranial neoplasms. These neoplasms are commonly confined to the ventricle system, where the choroid plexus is normally located; in the lateral ventricles in infants and children and in the fourth ventricle in adults. A few reports have described CPPs arising from extraventricular sites such as the posterior third ventricles was apparent.

Histopathological investigation revealed papillary structures with a delicate fibrovascular core lined by one or more layers of columnar epithelial cells. Immunohistochemistry found that tumor cells expressed pancytokeratin (pan-CK), but not glial fibrillary acidic protein (GFAP). The tumor was thus diagnosed as CPP (Fig. 3, 4). Following surgery, the patient's vision in his left eye improved rapidly and he reported no adverse events or changes in neurological function. Postoperative MRI showed total excision of the tumor (Fig. 5). The patient is currently under outpatient observation.
ventricle<sup>11,12,13</sup>, cerebellopontine angle<sup>12,13</sup>, posterior fossa<sup>14,15</sup>, brain stem<sup>16</sup>, sacral canal<sup>17</sup>, and cerebral parenchyma<sup>18</sup>.

CPPs rarely occur in the pituitary fossa and sellar/suprasellar region. To our knowledge, only five cases have been reported in the English-language literature, including our case<sup>19,21,27</sup>.

In Table 1 we summarize the important features of previously reported cases. The case reported by Winer et al.<sup>20</sup> was excluded from this table because of the possibility that the tumor arose in the third ventricle and extended downwards into the sella.

The exact mechanism by which CPPs arise in extraventricular sites remains unclear and is subject to some controversy. Most extraventricular CPPs are located at the cerebellopontine angle (CPA). Tumors in this location can result from herniation of the tumor through the foramen of Luschka or from de novo development in the choroid plexus lying outside the fourth ventricle at the CPA, referred to as Bochdalek’s flower basket<sup>4,6</sup>.

Two hypotheses have been suggested for the origins of extraventricular intraparenchymal CPPs by Azzam and Timperley<sup>1</sup>: first, that they might arise from primitive ectopic choroid plexus in the extraventricular site and second, that they may develop from epithelial tissue that migrated to extraventricular areas during brain development. In our case, neuroimaging and operative findings clearly showed that the CPP was not attached to the ventricular choroid plexus and had not metastasized from another CPP. Therefore, we infer that the CPP of the sellar region in our case arose from ectopic choroid plexus tissue as in the cases reported by Bian et al.<sup>4,9,11,17</sup>, Ma et al.<sup>11</sup>, and Sameshima et al.<sup>17</sup>.

Imaging characteristics were not sufficiently distinct to preoperatively diagnose CPP in our case, similar to other reports<sup>4,11,17</sup>. CPP typically appears on CT as a well-defined, homogeneous enhancing mass with lobulations and a frond-like irregular pattern, resulting in a cauliflower-like appearance<sup>9,10</sup>.

Other reported cases<sup>4,9,11,17</sup> appeared nearly identical; however, our case had completely different neuroimaging characteristics, including paraseptal cystic extension and a hypointense contrast-enhanced nodule. Overall, distinguishing a CPP from a pituitary adenoma or other pathologies is difficult based only on neuroimaging.

Complete microsurgical excision of the tumor is the recommended therapy and was achieved in our case using a left-sided pterional approach<sup>1</sup>. In other cases the most common neurosurgical procedure is an endonasal transsphenoidal approach<sup>4,11,17</sup>. The only report of excision via a pterional approach similar to ours is from Kimura et al.<sup>9</sup>. We chose the pterional approach for two reasons: first, the tumor had marked supra- and paraseptal extensions and second, it seemed the only safe means of avoiding the suprasellar internal carotid artery. Except for undifferentiated forms of the tumor, CPP does not metastasize through the cerebrospinal fluid<sup>9</sup>, so postoperative radiotherapy was not considered in our case, similar to previous reports<sup>4,11,17</sup>.

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**Table 1. Summary of previously reported cases**

| Authors            | Year | Age, sex | Symptoms                  | Tumor site           | Treatment                        |
|--------------------|------|----------|---------------------------|----------------------|----------------------------------|
| Bian et al.<sup>4</sup> | 2011 | 31, F    | Amenorrhea, galactorrhea  | Sellar region        | Endonasal transsphenoidal approach |
| Sameshima et al.<sup>17</sup> | 2010 | 51, F    | Headache                  | Sellar-suprasellar region | Endonasal transsphenoidal approach |
| Ma et al.<sup>11</sup>   | 2008 | 49, F    | Visual Deterioration      | Sellar region        | Endonasal transsphenoidal approach |
| Kimura et al.<sup>9</sup> | 1992 | 34, F    | Visual deterioration      | Suprasellar region   | Pterional approach               |
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