

## Spindle Cell Oncocytoma, Rare Tumor of the Pituitary Gland Case Report and Literature Review

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**Abstract:** Spindle cell oncocytoma (SCO) is a rare pituitary tumor, it was subsequently recognized as a distinct entity in the 2016 WHO classification. as a new entity in the tumors originating from pituitary macroadenoma. In the present study, we report the recent case of SCO, a 46-year-old male; Which presents clinically severe headache and visual deficit. Tumor resection was achieved by endoscopic transsphenoidal approach but massive hemorrhagic events hampered surgery, the tumoralexerese been wide with an improvement of the visual acuteness, endangering the patient's life in this case, the tumoralexerese been wide with an improvement of the visual acuteness. The diagnosis of SCO was confirmed by a Histopathological examination. Extensive review of available literature, about 30 cases from 2002 to 2016, provided valuable clinical data for preoperative diagnosis and surgical removal of SCO tumors.

**Keywords:** Spindle cell oncocytoma, Oncocytoma adenohypophysis, Pituitary gland, Bleeding macroadenoma.

Date of Submission: 10-03-2018

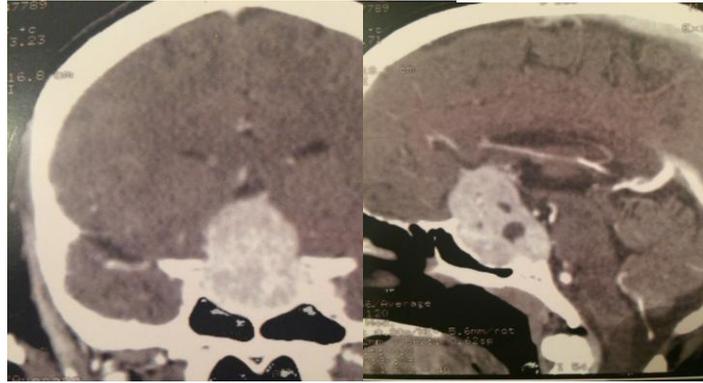
Date of acceptance: 02-04-2018

### I. Introduction

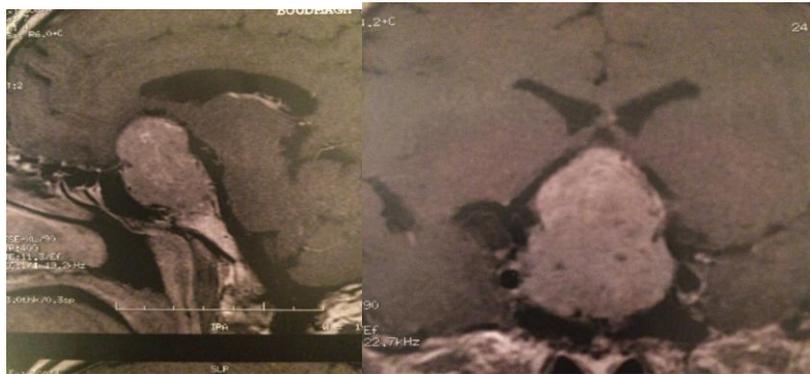
Spindle cell oncocytoma (SCO) is a rare pituitary tumor an incidence of about 0.1–0.4% of all pituitary neoplasms [1], that was first described by Roncaroli et al, in 2002 [2], and was lately included in the WHO Classification of tumors of the Central Nervous System in 2016 [3]. only 30 cases have been published in English literature. it was recognized as a distinct entity and assigned 'grade I', supporting the benign behavior of the lesion an oncocytic, that manifests in adults, with a peak incidence age 59.9 (age range 26–88), without any sex predilection [4]. Two main characteristics of SCO are the firm consistency and the high vascularization that may prevent complete surgical resection and account for a non-negligible risk of bleeding [5]. We report our experience in the management of one case of SCO with a different intraoperative and post-operative behavior.

### II. Case Report

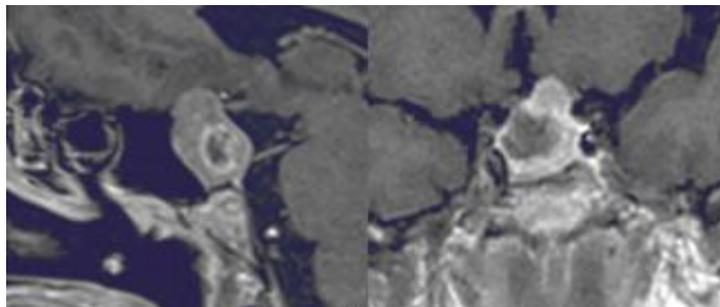
A 61-year-old man presented to our Neurosurgery Department in June 2017 with unremarkable past medical history, with severe headache and visual deficit. Her history started in March 2017, complaining of a headache and showing clinical signs of mild hypopituitarism. MRI scans showed a sellar-sovrasellar mass with a size of 50 mm 30 mm 35 mm (Fig. 1,2 ), with inhomogeneous contrast enhancement and erosion of dorsum sellar on T1-weighted MRI images, suggesting a pituitary macroadenoma (Fig. 2 ). MRI scans confirmed cavernous sinus involvement. In June 2017, MRI showed an increase of tumor size, with compression of the chiasm and a more extensive involvement of the right cavernous sinus compared to the previous MRI. At the time of presentation, the patient had no evidence of neurological deficit and hormone replacement therapy was prescribed. In June 2017, he underwent endoscopic transsphenoidal surgery. The tumor was firm, fibrotic and highly vascularized. Debulking was hampered by bleeding and the surgery was prematurely interrupted. Bleeding stopped only after several applications of hemostatic agents. Histopathological examination showed long fascicles of spindle cells with eosinophilic cytoplasm. Rare mitoses were observed (Fig. 4). Immunohistochemical analysis showed that the tumor was diffusely positive for Vimentin, S100 protein and TTF1; Ki67 was expressed in 8% % of neoplastic cells, (Fig. 4 and 5). postoperative brain CT-scan showed the presence of tumor residue, Fig.3 . The patient was discharged with no neurological deficits.



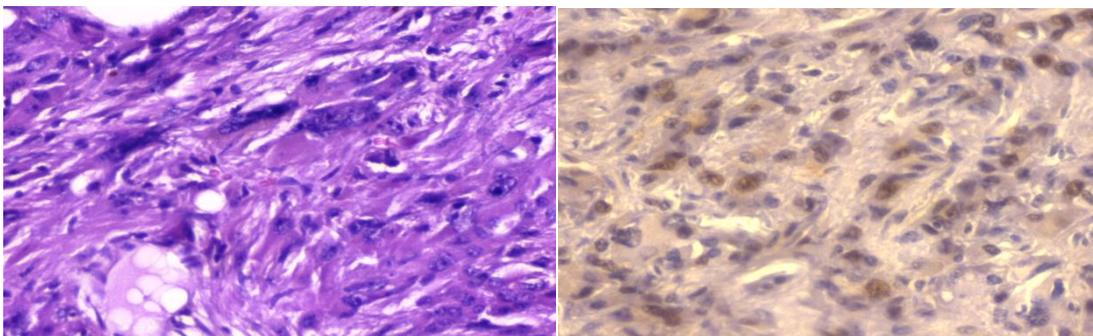
**Fig1: Ct- scans: sellar-suprasellar mass with homogeneous contrast enhancement**



**Fig2: preoperative sagittal and coronal T1-weighted contrast-enhanced**



**Fig.3: postoperative sagittal and coronal T1-weighted MRI: evidence of partial resection**



**Fig. 4: histological and immunohistochemical features: proliferation of spindle cells arranged in short fascicles with eosinophilic cytoplasm; Fig5: TTF-1 nuclear immunostaining**

### **III. Discussion**

Spindle cell oncocytoma (SCO) represents an extremely rare entity, only 30 cases have been reported in literature between 2002 and 2016 [1]. Based on a retrospective study conducted on a series of about 2000 pituitary tumors, only two cases have been diagnosed as SCO, estimating an incidence of about 0.1–0.4% of all pituitary neoplasms [2]. the diagnosis was confirmed by Histopathological examination. Considering the

singularity of this finding, we conducted an extensive review of the 30 already published cases (The results are summarized in Table 1 and Supplementary Table I). SCO occurs most commonly in middle and older age groups with mean age of mean age 59.9 (age range 26–88) years[5].2 The case under discussion also presented first at the age of 61 years. Clinically, the tumor is often confused with non-functioning pituitary adenoma/null cell adenoma and accordingly presents most commonly with , leading to a decreased or impaired visual acuity and headache; and hypopituitarism. Radiologically it presents: isointense in T1-weighted scans, with heterogeneous/homogeneous contrast enhancement due to the high vascularization, with some cases showing intratumoral hemorrhages and necrosisOn histopathological examination the tumors showed distinctive fascicles of spindle cells with eosinophilic granular cytoplasm, diffusely positive for S100, vimentin and TTF1 and lacking synaptophysin and GFAP expression [6].However, the most intriguing differential diagnosis was with pituicytoma [7,8]. While SCO is supposed to arise from the folliculostellate cells of the adeno-hypophysis, pituicytoma is considered to originate from neurohypophysis [7]. e underwent endoscopic transsphenoidal surgery; surgical excision was attempted by alternating bipolar coagulation and manual debulkingwith,Rothon micro dissector and aspirator, the high bleeding tendency, togheter with the narrow operative space, it would not have been a suitable choice for debulking in these tumors. Similar complications have been previously described, with the consequent impossibility to achieve gross total resection, increasing remarkably the risk of tumor regrowth [7,10]. When surgery is not a viable option, radiotherapy or proton beam protocols/therapy have been implemented as alternative treatments in literature [9–11].

#### IV. Conclusion

Spindle cell oncocytoma (SCO) of adenohypophysis is a rare pituitary tumor; The genesis, progression and prognosis of SCO remain uncertain and need to be documented further [7], the diagnosis was confirmed by Histopathological examination, this tumor is richly vascularized Whose exerèse can never be total, in selected cases (i.e. inoperable, recurrent, tumor with high risk of bleeding) a radiotherapy/proton beam therapy protocol as well as arterial embolization could be implemented.

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Bouali.D "Spindle Cell Oncocytoma, Rare Tumor of the Pituitary Gland Case Report and Literature Review."IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 3, 2018, pp 27-29.