(15). Interestingly, the patient also experienced within the first year after adrenalectomy, a stoke episode, associating neurological complications that were remitted. The risk of stroke is, of course, higher pre-operatory, but certain persistent endothelial effects and lack of adequate control regarding the blood pressure values may contribute to further cardiovascular events (16). This chapter of pheochromocytoma complications also include cardiac events like acute damage of myocardial tissue and arrhythmia (17). Exceptionally, Takabuso syndrome has been described (18). Moreover, immediately after tumour manipulation during surgical procedure, hypotension, and cardiac arrest are described unless the patient's pre-operative and intra-operative preparation is adequately done (19). Approximately 20% of subjects with pheochromocytoma do not have high blood pressure; the risk of cardiovascular damage is closely related to hormonal excess which is rather associated with certain gene mutations, and less with the aggressively of the tumour (20). A mild vitamin D deficiency was also confirmed in our patient that most probably it is not related to the adrenal condition itself. The abdominal scans also identified kidney stones but the patient did not experience hypercalcemia or high parathormone levels, neither calcitonin, so a type 2A multiple endocrine neoplasia syndrome was excluded.

CONCLUSIONS

Patients with a prior adrenalectomy for a pheochromocytoma need to be reconsidered in order to address the changes of scoring systems, thus to have a better prognostic score and an improvement of long term surveillance protocol. Reconsidering immunohistochemistry profile which was not a criterion of PASS score is essential in addition to re-asses the adrenaline versus noradrenaline secretor type that is regarded as a more severe prognostic. Overall, except for identifying the metastasis, no single criteria work as a definitive prognostic feature in this complex and challenging condition.

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REFERENCES

1. Valea A, Carsote M, Ghervan C, Georgescu C. Glycemic profile in patients with acromegaly treated with somatostatin analogue. *J Med Life.* 2015;8(Spec issue):79-83.
2. Sandru F, Dumitrascu MC, Albu SE, Carsote M, Valea A. Hyperpigmentation and ACTH – an overview of literature. *Ro Med J.* 2019;66(4):309-312.
3. Valea A, Ghervan C, Carsote M, Morar A, Iacob I, Tomesc F, Po DD, Georgescu C. Effects of combination therapy: somatostatin analogues and dopamine agonists on GH and IGF1 levels in acromegaly. *Clujul Medical.* 2015;88(3):310-313.
4. Paduraru DN, Ion D, Carsote M, Andronic O, Bolocan A. Post-thyroidectomy Hypocalcemia – Risk Factors and Management. *Chirurgia.* 2019;114(5):564-570.
5. Sandru F, Carsote M, Albu SE, Valea A, Petca A, Dumitrascu MC. Glucagonoma: From skin lesions to the neuroendocrine component (Review). *Exp Ther Med.* 2020;20(4):3389-3393.
6. Thompson LDR, Gill AJ, Asa SL, Clifton-Bligh RJ, de Krijger RR, et al. Data set for the reporting of pheochromocytoma and paraganglioma: explanations and recommendations of the guidelines from the International Collaboration on Cancer *Reporting.Hum Pathol.* 2021;110:83-97.
7. Yen K, Lodish M. Pheochromocytomas and paragangliomas. *Curr Opin Pediatr.* 2021 Aug 1;33(4):430-435.
8. Sbardella E, Grossman AB. Pheochromocytoma: An approach to diagnosis. Best Pract Res Clin Endocrinol *Metab.* 2020 Mar;34(2):101346.
9. Sandru F, Dumitrascu MC, Valea A, Albu SE, Dumitrascu A, Carsote M. Flush after unilateral adrenalectomy. *Ro J Med Pract.* 2020;15(1):101-4.
10. Valea A, Carsote M, Albu SE, Dumitrascu MC, Sandru F. From transitory erythema to phepocromocytoma. *Ro Med J.* 2019;66(4):412-5.
11. Sandru F, Carsote M, Valea A, Albu SE, Petca RC, Dumitrascu MC. Somatostatinoma: Beyond neurofibromatosis type 1 (Review). *Exp Ther Med.* 2020;20(4):3383-3388.
12. Juhlin CC. Challenges in Paragangliomas and Pheochromocytomas: from Histology to Molecular Immunohistochemistry. *Endocr Pathol.* 2021;32(2):228-244.
13. Barber B, Ingram M, Khan S, Bano G, Hodgson S, Vlahos I. Clinicoradiological manifestations of paraganglioma syndromes associate with succinyl dehydrogenase enzyme mutation. *Insights Imaging.* 2011;2(4):431-438.
14. Carsote M, Ghemigian A, Terzea D, Gheorghisan-Galateanu AA, Valea A. Cystic adrenal lesions: focus on pediatric population (a review). *Clujul Medical.* 2017;90(1):5-12.
15. Abe I, Islam F, Lam AK. Glucose Intolerance on Phaeochromocytoma and Paraganglioma-The Current Understanding and Clinical Perspectives. *Front Endocrinol* (Lausanne). 2020 Nov 26;11:593780.
16. Y-Hassan S, Falhammar H. Cardiovascular Manifestations and Complications of Pheochromocytomas and Paragangliomas. *J Clin Med.* 2020;9(8):2435.
17. Zhou J, Xuan H, Miao Y, Hu J, Dai Y. Acute cardiac complications and subclinical myocardial injuries associated with pheochromocytoma and paraganglioma. *BMC Cardiovasc Disord.* 2021 Apr 21;21(1):203.
18. Y-Hassan S, Falhammar H. Pheochromocytoma- and paraganglioma-triggered Takotsubo syndrome. *Endocrine.* 2019;65(3):483-493.
19. Mamilla D, Araque KA, Brofferio A, Gonzales MK, Sullivan JN, Nilubol N, Pacak K. Postoperative Management in Patients with Pheochromocytoma and Paraganglioma. Cancers (Basel). 2019 Jul 3;11(7):936.
20. Canu L, Parenti G, De Filpo G, Mannelli M. Pheochromocytomas and Paragangliomas as Causes of Endocrine Hypertension. *Front Endocrinol (Lausanne)*. 2019 Jun 4;10:333.