CLINICAL VIGNETTE

Vertigo and Headache as an Initial Presentation of Von Hippel-Lindau

Kritika Reddy, MD and Biayna Zelimkhanian, DO

Case Part 1

A 22-year-old female with no significant past medical history presented to the emergency room with 3 months of vertigo and three weeks of worsening headache. She had tried the Epley maneuver as well as meclizine which both helped some symptoms though her vertigo worsened to the degree that she now must keep her head still and only look directly forward. She also reported a worsening headache over the past three weeks, described as a constant pressure at the front of her head, worse with laughing, coughing, or straining. She denied any fevers, chills, chest pain, shortness of breath, nausea, vomiting, abdominal pain or dysuria. She denied any tobacco use, and only rare alcohol use with no recent alcohol use over the past three months, and no substance abuse. Family history was negative and takes no prescription medications.

Her vitals in the ER were unremarkable. Her physical exam was remarkable for an anxious appearance and left-beating horizontal nystagmus. Finger to nose testing and RAM were normal. Her initial labs included normal CBC, BMP, LFTs, and PTT/INR.

CT Head without contrast showed two cystic cerebellar masses with associated vasogenic edema and significant mass effect with near complete effacement of the 4th ventricle without hydrocephalus. CT chest with contrast showed scattered pulmonary nodules with the largest measuring 6mm in the right lower lobe. CT Abdomen and pelvis with contrast showed multiple pelvic enhancing masses, with peritoneal carcinomatosis, numerous pancreatic low-attenuation lesions, with the largest, a pancreatic head lesion of 2.2cm, and a 1.2cm left renal exophytic lesion

Given the presence of multiple tumors, she was suspected to have non-familial Von Hippel-Lindau and neurosurgery, ob/gyn, and genetics were consulted. Further imaging of the cerebellar masses with MRI was recommended by the neurosurgery team which revealed posterior fossa hemangioblastomas with compression of the brainstem and 4th ventricle. As part of treatment for her symptomatic lesions, she was recommended to undergo a suboccipital craniotomy with possible C2 laminectomy for resection of hemangioblastomas/decompression of cysts.

Discussion

Von Hippel-Lindau (VHL) is a rare inherited cancer syndrome which follows an autosomal dominant inheritance pattern.[1] It is caused by loss of both alleles of the VHL tumor suppressor gene subsequent inactivation of the VHL protein which then leads to increased production of the growth factors VEGF, PDGF, and TGF-a.[2] As a result, patients present with increased incidence of vascular tumors such as CNS hemangioblastomas, retinal hemangioblastomas, renal cell carcinomas, pancreatic islet cell tumors, and pheochromocytomas.[2]

The incidence of VHL is 1 in 36,000-45,000 live births, with the mean presentation occurring in the second decade of life. The most common presentation is cerebellar hemangioblastoma.[3]

The following elements of the clinical diagnostic criteria: 1) CNS hemangioblastoma 2) endolymphatic sac tumors 3) renal cell carcinoma 4) pheochromocytoma, paraganglioma, and/or glomus tumor 5) neuroendocrine neoplasm and/or multiple cysts of the pancreas. The diagnosis can be made with a combination of the diagnostic criteria and family history with: 1) at least two CNS hemangioblastomas 2) at least one CNS hemangioblastoma and one of the above manifestations 3) at least one of the above clinical manifestations and a mutation in the *VHL* gene or a first degree relative with diagnosed VHL.[1,3]

Once a diagnosis has been made, therapy is targeted towards management of symptomatic tumors as well as continued surveillance for specific tumors. Patient with retinal angiomas should undergo annual ophthalmic exams.[1,4] Repeat brain MRI are recommended every 12-36 months.[1,4] Abdominal MRIs are advised annually to screen for renal cell carcinoma and pancreatic tumors.[1,4] Lastly, checking blood pressure annually as well completing a 24hour urine sample for catecholamines can help to screen for pheochromocytomas.[1,4]

Case Part 2

The patient underwent a suboccipital craniotomy and C1 laminectomy for resection of the left cerebellar hemangioblastoma. Her post-operative course was complicated by CSF leak and meningitis after which she underwent redo bilateral suboccipital craniectomy for CSF repair. The initial pancreatic lesion detected on abdominal CT had grown to 3.3cm over a year. GI consultation with endoscopic ultrasound with FNA and FNB revealed a benign cystadenoma. Additionally, urology

has followed the left renal mass which has remained stable in size. She currently remains asymptomatic and is being monitored by multiple specialists per the established screening guidelines.

Conclusion

This patient's presentation revealed a rare diagnosis of VHL. Her initial presentation, though, was not unusual as the symptoms resulting from a cerebellar hemangioblastoma are often the first manifestation of VHL.[1] This case illustrates the importance of early diagnosis, continued surveillance, and the coordination of multi-specialty care which has so far resulted in a favorable patient outcome.

REFERENCES

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