VHL Patient Case Panel Discussion

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• I do not intend to discuss an unapproved or investigative use of a commercial product/device in my presentation.

Panelists

• Kevin Lillehei, MD:
  • Professor and Chair of Neurosurgery, Director, Neuro-Oncology Program, University of Colorado, School of Medicine
• Kami Schneider, MS, CGC:
  • Genetic Counselor, Senior Instructor, Pediatrics – Pediatric Oncology, University of Colorado, School of Medicine
• Lauren Fishbein, MD, PhD:
  • Assistant Professor, Medicine – Endocrinology, University of Colorado, School of Medicine
• Lindsey Hoffman, DO:
  • Assistant Professor, Pediatrics – Pediatric Oncology, University of Colorado, School of Medicine
• Scott Oliver, MD:
  • Associate Professor, Ophthalmology, Director, Eye Cancer Program, University of Colorado, School of Medicine

Case 1

• 34yo M who presents to ED with hematuria
• Work up in ED for presumed kidney stone noted:
  • Elevated blood pressure
  • Imaging discovered:
    • Bilateral renal masses
    • Right adrenal mass
  • Intermittent headaches, palpitations
Case 1

- Urology was consulted from ED
  - Catecholamines drawn and were elevated
  - Epididymal cysts noted on exam
- Dr. Fishbein was consulted

Case 1

- Dr. Fishbein
  - What do you recommend in this acute setting for stabilization of BP?

Case 1

- Audience
  - Obviously we are concerned for VHL at this point.
  - How is this discussion best received from a patient perspective?

Case 1

- Hypertension
  - Controlled using alpha blockers and Lisinopril
- Renal Masses
  - Right partial nephrectomies and right partial adrenalectomy
    - 3 renal masses – all RCC (4.5cm, 3.5cm and 1.5cm)
    - Adrenal mass – 3.5cm Pheochromocytoma (PASS 6/20)
    - Staged left partial nephrectomies
      - 5 renal masses – all RCC (ranged from 1 to 4.5cm)
Case 1

- Renal lesions and adrenal lesions resected
- Now being monitored with serum catecholamines and imaging

Case 1

- Genetic testing
  - c.422dupA mutation in the VHL gene was identified

  Kami Schneider:
  - Does this information help you with this patient’s risk?
  - What is the ideal timing in this scenario for genetic testing?

Case 1

- Ophthalmologic Work Up
  - Right hemangioblastoma

  Dr. Oliver
  - Risk of vision loss?
  - Urgency?
  - Approach?

Case 1

- Brain/Spine work up
  - Enhancing nodules in the posterior fossa, largest 1.3cm. Also, 1cm lesion in the 4th ventricular obex resulting in mild lateral/3rd ventricular enlargement.
  - C2-C3 cord lesion up to 3cm
Case 1

• Dr. Lillehei
  • How do these findings affect the patient’s need for other surgeries (retinal and renal/adrenal surgery)?
  • How do you assess the urgency of intervention?

• Patient had preoperative embolization of the cerebellar and cervical lesions
  • Followed by Neurosurgical Resection
  • All consistent with Hemangioblastomas, WHO Grade I

Case 1

• ENT Work up
  • No ELSTs
  • No hearing loss

• Patient has an 8yo son
  • Dr. Hoffman and Kami Schneider
    • How do you handle this initial encounter?
    • What are the benefits of genetic screening at this age?
Case 1

• In summary, in **ONE** year
  • Newly diagnosed with VHL
  • Multiple and extensive surgeries
    • Bilateral partial nephrectomies
    • Right partial adrenalectomy
    • Focal laser ablation of right retinal hemangioblastomas
    • Suboccipital craniotomy and C1-C2 laminectomy

• How can we expect anyone to handle this stress?
• How can we do better as providers for our patients?

Questions?

• Comments?

Case 2

• 5yo M presents to PCP with complaints of abdomen being “hot”
  • In clinic with high blood pressure
  • Hypertension was first noted 3mo prior at Well Child Check
    • Thought to be anxiety related to “shots”
    • Now with sweating and some upper abdominal pain

• CXR
• MRI
• Right Para-spinal Mass
  • VMA and Catecholamines elevated
Case 2

- Alpha blockade initiated to control BP
- VATS Resection of Right Para-spinal Mass
  - Extra-adrenal paraganglioma

Case 2

- Kami Schneider
  - What are the thoughts on genetic testing at this time?
  - VHL mutation identified
    - Missense mutation: c.293A>G (p.Y98C)
  - Kami Schneider
    - How does this impact your risk assessment?

Case 2

- Dr. Hoffman
  - How do you handle discussing this with a child diagnosed due to having a VHL associated tumor as opposed to being screened due to a parent’s diagnosis?
  - Does your follow up differ?

Case 2

- Patient followed in the interim
  - At 7 years of age found to have a hemangioblastoma of the right optic nerve head
  - Dr. Oliver
    - What are the difficulties in managing such this specific type of lesion?
Case 2

- Initially, he initially received half-fluence Photodynamic Therapy
  - Followed 2 months later by full-fluence PDT
- 3mo later, started intravitreal avastin therapy x 2
  - Then transitioned to q6 week intravitreal Eylea (aflibercept - VEGF inhibitor)
- Dr. Oliver
  - What are your thoughts on these intravitreal therapies?

Case 2

- At 11yo on screening imaging found to have two retroperitoneal masses and 3 small right lung nodules
  - Catecholamines are elevated

Case 2

- Alpha blockade started
- Dr. Fishbein consulted
  - Any specific concerns about alpha-blockade in children vs. adults?

Case 2

- Bilateral retroperitoneal mass resection
  - Right lesion – adjacent to limb of R adrenal (even though on L side of IVC)
    - Resected - Pheochromocytoma
  - Left lesion – in the adrenal
    - Partial adrenalectomy – Pheochromocytoma
  - All 3 right lung lesions – VATS resection
    - All 3 = para-gangliomas
Case 2

- Dr. Hoffman
  - As an oncologist, do you consider these lung lesions to be metastatic disease or residual tumor from VATS resection at age 5?
  - Clinical options going forward?
    - Chemotherapy
    - Observation
    - Clinical trials

Case 2

- Patient diagnosed at a young age
  - Specific considerations for children
  - Repeated surgery at a young age
  - Ongoing, chronic therapy for retinal lesion

Summary

- All cases are difficult cases
- Audience
  - How can we do better?

Conclusions

- Thank you!
  - Special thank you these patients
  - Thank you to all of our patients
  - Thank you to the panelists
  - Thank you to the audience
- Questions?
- Comments?