Neuropsychiatric Cases: Diagnostic Dilemmas

Presented by: Brooke Wilkinson, CPNP and Jaime Panton, DNP, CPNP-PC/AC

Speaker Introductions

• Dr. Jaime Panton has been a PNP for 13 years and is dually certified. She is currently the PNP program director at Columbia University School of Nursing and practices at a large academic institution in New York City. Her background is in pediatric surgery, primary care and inpatient medicine. She is actively involved in NAPNAP serving as the current eChapter president, and is co-chair of the NAPNAP Continuing Education Committee. She is also on the PNCB Primary Care Updates Committee.

• Brooke Wilkinson is a CPNP-PC and with additional degrees in psychology and human development. Her love for the medical field was solidified during her time spent as a Peace Corps Volunteer in Ecuador, where she worked with individuals in the areas of HIV/AIDS education and midwifery. She then attended Columbia University School of Nursing where she discovered her passion for acute care and loves working as an inpatient hospitalist NP in a large academic children’s hospital. She also enjoys working with patients in the areas of sexual health and community outreach. Additionally, she is interested in integrative medicine, including aromatherapy and acupressure.

Disclosures

Nothing to disclose

Learning Objectives

• Review three neuropsychiatric cases that posed challenging diagnostic dilemmas
• Identify the etiology of these diagnoses
• Identify challenges that these diagnoses pose
• Describe treatment plan for these diagnoses

Case #1: The adolescent with an animal bite

“Jessica” is an adolescent female who initially presented to a local children’s hospital for complications related to a previous animal bite. She has PMH of ADHD and depression. Prior to arrival in the unit, she has had extensive workup and admission for complications of her initial bite. She was admitted to us approximately 15 months after initial bite.

HPI Timeline:
• October: Patient initially bit by squirrel on 3rd finger of left hand, presented to OSH with red streak from finger and up her arm. I&D of wound, IV antibiotics.
Case #1
HPI Timeline Continued

• **April:** Patient bit by dog on right thigh, presented to urgent care, took course of oral antibiotics. Developed worsening cellulitis, presented to OSH, I&D and IV antibiotics.

• **June:** Presented to urgent care with drainage from leg wound, site sutured, IV antibiotics. MRI R thigh-loculated fluid collection —> OR for I&D. Was admitted this time and during hospitalization, HEADSS concerning for self-injurious behavior. Psych consult documenting compulsive behavior, discharged home.

• **July:** readmitted to OSH for concerns for wound complications. CT femur- intramuscular abscess —> I&D and wound vac placed
  • Lab work up: CMV IgG positive, CRP 27.7, Sed rate 53
  • CT scan otherwise normal
  • Leukocyte scan: increased leukocyte accumulation to lateral aspect of mid thigh (infection vs granulation tissue)
  • MRI brain: nonspecific punctuate foci of T2 hyper intensity R frontal lobe white matter, otherwise normal

• **January:** arrives to our ED with open wound to right thigh

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**Case #1**

**Current Admission ROS**

• General: Fever, pain 4/10
  • ENT: denies rhinorrhea, tinnitus
  • CV: denies cyanosis
  • Resp: denies cough, difficulty breathing
  • GI: Denies vomiting, diarrhea
  • Derm: pain and bleeding to right thigh
  • Neuro: denies numbness, weakness, headache, change in neurological status
  • Psych: denies hallucinations/delusions, denies SI/HI

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**Case #1**

**Current Admission Physical Exam**

• General: Verbalizes pain, in no acute distress
  • ENT: Nares patient, MMM
  • CV: RRR, CR <2 secs, 2+ peripheral pulses
  • Resp: good aeration b/l, no wheezes or crackles
  • GI: Abd soft, tender, non-distended, no HSM
  • Derm: Tense swelling on R thigh, palpable fluid collection, open wound with active bleeding
  • Neuro: grossly normal
  • Psych: Clear, pressured speech; excessive eye contact

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**Case #1**

**Current Admission Workup:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Result</th>
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<tbody>
<tr>
<td>WBC</td>
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<tr>
<td>Neutrophils</td>
<td>77%</td>
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<tr>
<td>BMP</td>
<td>All wnl</td>
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<td>ESR</td>
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<tr>
<td>CRP</td>
<td>16</td>
</tr>
<tr>
<td>RVP</td>
<td>Neg</td>
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<td>Urine pregnancy</td>
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</tbody>
</table>
Case #1

Current Admission Workup:
• Imaging: U/S -> fluid collection, MRI -> subcutaneous and perifascial edema along lateral aspect of mid and distal third of vastus lateralis muscle with 2 discrete complex perifascial fluid collections; no myonecrosis
• OR Course: I & D with wound vac placement
• Wound Culture from OR: streptococcus anginosus

Case #1

1 month hospitalization summary
• Concern for self-injurious behavior placed on 1:1 observation
• Went through 5 IVs in less than a 24-hour period
• Weight loss (3kg): refusing meals and restricting fluids
• Disclosure of sexual abuse/inappropriate behavior of male neighbor
• Family discourse: aggression towards sister and father

Case #1

• At this point, what are your top differentials for Jessica?

Case #1

• Family Meeting: ID, Peds Surgery, Pediatric Hospitalists, Psych

Discharge Plan/Final Outcome:
• Was discharged to inpatient psych/medicine facility out of state but as best as we are aware, this did not happen. Her lengthy admission in our institution was largely because of the lack of availability of facilities who could manage both her medical issues and psych concerns.

Case #1: Factitious Disorder

• Definition: occurs when a patient feigns illness in themselves or someone they are caring for in order to gain sympathy or attention
• Risk factors:
  - Other mental health disorders, chronic medical conditions, significant loss, abuse
• Occurrence: unknown. According to the DSM V, among hospitalized patients, estimated that 1% of those meet criteria for this disorder (not specific to pediatrics)
Case #1: Factitious Disorder

Identifying Factitious Disorder:
• Do the patient’s symptoms make sense?
• Can the information provided by the patient be confirmed with collateral sources?
• Does it appear that the patient is too willing to take the risk for more tests or procedures than most people in a similar situation?
• Are the treatments working in a way that would be commonly associated with this type of disorder?
• Does the patient have multiple providers? (McMillian, 2020)

Clinical Manifestations
• Exaggerating symptoms
• Fabricating symptoms
• Deliberately causing illness by ingesting substances or opening up wounds

Differential Diagnoses for “Jessica”
• Factitious Disorder by proxy
• Underlying immune deficiency

Differential Diagnoses for factitious disorder in general
• Conversion disorder
• Borderline personality disorder
• Somatic symptom disorder

Management
• No clear guidelines
• Early identification
• Monitor for suicidality and self-harm risk

Challenges
• Lack of documented cases in pediatrics
• Difficulty identifying patients with this disorder
• Differentiating factitious disorder from factitious disorder by proxy
• Large burden on healthcare system financially
• Lengthy hospital stay without clear underlying medical etiology
• Lack of long term follow up
• Staff feeling “duped”

Case #2: The EXTREME athlete

“Brandon” is a 14 year old male brought in to the ED by his parents for his concerning behavior

PMH
• Currently being treated for PANDAS
• Sister had similar episode two years ago, underwent treatment for PANDAS and had no residual symptoms
• Of note, no previous laboratory results available to our team indicated he had active or recent streptococcal infection prior to this admission or at the time he began treatment for PANDAS

For the past three months, Brandon has had bouts of extreme physical activity. Some nights, he stays awake all night to workout. He will get up to “use the bathroom” and then parents find him in the bathroom doing pushups. He is also experiencing increase in religious behavior and claims that he is punishing his body with exercise in order to make amends. Parents also report increase in compulsive behavior.
Case #2

ROS
• General: denies fever, + decrease in appetite, + in physical activity
• Resp: + cough for a few days
• GI: + occasional diarrhea, + encopresis
• GU: + enuresis
• Derm: + rash on his knuckles for a few weeks
• Neuro: denies h/a, seizures
• Psych: see HPI; denies SI/HI, denies obsessive thoughts, hallucinations

Case #2

Admission Physical Exam:
• General: alert (see psych)
• ENT: TMs clear, nares patent, OP pink without exudates, tonsils +1
• CV: RRR, no murmurs, Pulses +2
• Resp: clear throughout
• GI: abd soft, flat, active bowel sounds
• Derm: Multiple skin lesions on both hands on dorsum and palmar areas, many ulcerations with open skin over knuckles area, no heliotrope rash - multiple excoriations on arms and legs bilaterally with one large healing ulceration R knee and erythema over tips of toes + nail necrosis of R big toe
• Neuro: MAEW, equal tone and strength bilaterally, No focal deficits
• MSK: unusually defined abdominal musculature for his age
• Psych: anxious appearing, psychomotor agitation

Case #2

Current Medications Prescribed by PCP:
• Prednisone 20 mg bid
• Clarithromycin 500 mg bid
• Celebrex 200 mg bid
• Pepcid 20 mg bid
• Xanax 0.5 mg prn bedtime for insomnia
• Vitamin B12
• Probiotic

Case #2

ED workup:
Labs
• CBC, CMP, LFTs unremarkable except BUN 32
• TFTs: normal
• RVP: + coronavirus
• UDS: + benzodiazepines
• Initial CPK: 1049 (HIGH)

Case #2

Echo:
• 1. Prominent appearing left coronary at the very top of normal for BSA.
• 2. The LV mass appears prominent in this hyperdynamic heart-measurements are
• normal in diastole- The LV size is increased but not on MMode.
• 3. Borderline dilated left ventricle.

Case #2

Initial Plan of Care
1) Rhabdomyolysis
   -IVFs
   -Monitor serial CMP and CPK (which by discharge had normalized)
2) Abnormal behavior
   -Psych consult
   -Continue home SSRI
   -PANDAS/PANS treatment +/-
   -1:1 for safety
   -Restrict exercise
Case #2

- Final outcome: transferred to an inpatient psychiatric facility in another county
- Further medical workup also revealed he has hypogammaglobulinemia (likely unrelated to this admission)
- Has been closely followed up by psych and neurology. Most recent medical records indicate he is being worked up for postinfectious encephalitis

Case #2: Obsessive Compulsive Disorder

- Definition: characterized by obsessions and compulsions.
- According to DSM V criteria, obsessions are “recurrent and persistent thoughts, urges, or images that are experienced as intrusive and unwanted” and compulsions are “repetitive behaviors or mental acts that an individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly”
- Risk factors:
  - temperamental
  - environmental
  - genetic
- Occurrence: 1.2% overall. In childhood, males more affected than females
- 25% of cases develop by age 14 years but 40% of those who develop OCD in childhood are in remission by adulthood

Clinical Manifestations:

- Compulsions are more common in children because they are observable behaviors. Obsessions are persistent intrusive thoughts so are more difficult to identify in children.
- Compulsions include repetitive behaviors such as praying, cleaning, counting, checking

Differentials:

- anxiety disorder
- major depressive disorder
- tic disorders

Case #2: Obsessive Compulsive Disorder

- DSM V Diagnostic Criteria (Paraphrased)
  - Presence of obsessions, compulsions or both
  - A. Obsessions- are recurrent and persistent, the individual attempts to ignore or suppress thoughts or urges
  - B. Compulsions- repetitive behaviors that the individual feels driven to perform in response to the obsession
  - The behaviors or acts are aimed at decreasing anxiety or preventing a dreaded situation
  - Compulsions are time-consuming or causes significant distress/impairment in social, occupations or other areas of functioning
  - Symptoms are not related to another disorder or substance

Management for "Brandon":

- Treat his underlying rhabdomyolysis: IVFs, trending labs
- For his OCD-monitored for safety with 1:1
- Final disposition was transferred to inpatient psychiatric facility

General OCD management:

- Psychotherapy (CBT)
- Pharmacological (SSRIs)
- Interdisciplinary approach
Case #2: Obsessive Compulsive Disorder

- Management for “Brandon”:
  - Treat his underlying rhabdomyolysis
  - For his OCD was transferred to inpatient psychiatric facility
  - General OCD management: CBT, SSRI, multidisciplinary approach
- Challenges for “Brandon”:
  - Did not believe anything was abnormal about his behavior therefore very resistant to treatment
  - Differentiating PANDAS from OCD exacerbation
  - Parental anxiety

Case #3: The very paranoid preschooler

Case #3

- “Jacob” is a 4-year old brought in by his parents because of his paranoid behavior
- HPI
  Jacob attended a birthday party over the past weekend and on his way home, kept telling his parents “you’re not my mommy, you are someone else’s mommym”. At school the following day, kept telling his teacher that he was seeing “little people with big heads” and “big people with little heads”. He has been unable to identify his parents or classmates for the past few days. He has stopped making eye contact with people he knows.

Case #3

Admission H&P pertinent positives:
- Skin: macular rash to right thigh
- Neuro: alert, anxious, suspicious of parents, not able to answer all questions appropriately
- MSK: mild lagging of right foot during ambulation

Case #3

- Initial Work up
  * RVP + coronavirus
  All neg or wnl:
  - Rapid strep
  - UA
  - TSH
  - ESR
  - CRP
  - CMP
  - CBC
Case #3

Differential Diagnoses:
1- Alice in Wonderland syndrome
2- autoimmune encephalitis
3- migraines
4- intracranial mass
5- primary psychiatric disorder

Case #3

Additional workup
• MRI: “No intracranial structural abnormality, abnormal signal or enhancement”
• vEEG: wnI
• Quantitative IG panel: wnI
• EBV/CMV: neg
• Parvo IgM: neg IgG: pos
• ANA: neg
• T3 mildly elevated at 200
• Free T4: 1.43
• Pending during admission: NMDA, Lyme, paraneoplastic panel, ceruloplasmin

Case #3

CSF results
• Glucose: 64
• RBCs: 0
• Protein: 20
• Nucleated WBCs: 0
• Fungitell: < 60

Flow cytometry: Increased number of mononucleated cells, including many mature-looking lymphocytes, and rare monocytes.

Case #3: Autoimmune Encephalitis

- Definition: severe inflammatory neurological disorder that occurs when the immune system mistakenly attacks healthy cells in the brain

Case #3: Autoimmune Encephalitis

- Etiology:
  - Infection
  - Neoplasm
  - Genetic/environmental factors
- Occurrence
  - Largely not known
Case #3: Autoimmune Encephalitis

- Clinical Manifestations:
  - Neuropsychiatric symptoms are common
  - Seizures
  - Movement disorders
  - Altered LOC
  - Hypoventilation

Other Differentials:
- Viral: EBV, HHV, VZV, HSV, HIV
- Bacterial: Bartonella, Mycoplasma, Rickettsia
- Toxic: Neuroleptic malignant syndrome, toxic ingestion
- Epileptic disorders
- Vascular disorders: SLE, migraines
- Genetic and metabolic disorders
- Psych disorders

Diagnostic Management:
- Any child presenting with encephalopathy, AE should be ruled out
- Neuroimaging
- EEG
- LP
- Serologic testing

Plan:
- To date, no clinical trials have examined optimal treatment (Barbagallo et al., 2017)
- Treatment often consists of high dose steroids (Methylprednisolone 30 mg/kg/day for 3-5 days)
- IVIG (2 g/kg divided over 2-4 days)
- Followed by steroid taper for approximately 12 weeks

Final outcome: Jacob was readmitted for subsequent IVIG administration. He continues to follow up with neurology and psychiatry. To date, no autoantibodies, viral, or bacterial etiology have been identified.

References