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ORIGINAL PAPER

Varieties of Misdiagnosis in ASD: An Illustrative Case Series

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Abstract The relationship between autism spectrum disorders (ASD) and psychotic disorders (PD) is a focus of continued interest. There are substantial conceptual and clinical difficulties associated with diagnosing comorbid PD in individuals who have ASD. In this case series, we report on five cases where adolescents with previously diagnosed ASD were also diagnosed as psychotic. In each case, we found that these patients' 'psychotic' symptoms could be better understood as a part of their underlying ASD diagnosis, with significant implications for treatment, prognosis, and access to services. This misdiagnosis likely represents a combination of adult psychiatrists being relatively inexperienced with this population, and the system of care requiring providers to apply diagnostic labels to justify inpatient hospitalization.

Keywords Comorbidity · Autism and psychosis · Misdiagnosis in autism

Introduction

The relationship between autism spectrum disorder and psychotic disorders (ASD and PD) continues to be an area of considerable debate and interest, but relatively limited study. There is data to suggest that autism and childhood onset schizophrenia (COS) are conditions that are both phenomenologically (Russell 1994) and biologically distinct (Crespi and Badcock 2008), a conceptualization supported by studies showing rates of schizophrenia are roughly equal in ASD and general populations (Volkmar and Cohen 1991). Understanding the distinction between these conditions is an important conceptual issue. Prior to 1980, autism was often considered to be COS (Rutter 1972). Recognition of its distinctiveness in terms of an early age of onset and specific clinical features led to its official acknowledgement as a separate disorder in the DSM-III (American Psychiatric Association 2013). However, there is also significant evidence suggesting a more complex relationship between these two disorders. Many adults with psychotic illness have some history of ASD like symptoms in childhood, a finding that some have described as indicating "a non-specific marker of severe early abnormal neurodevelopment" (Sporn et al. 2004). A review by Rapaport et al. (2009) highlights evidence pointing towards both shared genetic and neurodevelopmental processes underlying both conditions. In support of this perspective, a study by Sullivan et al. (2013) reports on a large cohort where a diagnosis of ASD was found to predict future psychotic experiences. Understanding the relationship between these conditions is further complicated by the hypothesis that there may be 'an artificial overlap' between COS and ASD due to the 'similarities in descriptive phenomenology' (Sullivan et al. 2013). Specifically, the social deficits in ASD may appear similar to negative symptoms of schizophrenia, and furthermore, recent work has found that psychotic experiences can co-occur with ASD, though this may also reflect concrete responses to probes regarding psychiatric symptomatology (Sullivan et al. 2013). Additional areas of overlap that have been described include theory of mind problems, behavioral problems and language difficulties (Fitzgerald 2012).

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Less studied is the issue of comorbidity. Although some smaller studies suggest a high level of comorbidity between ASD and PD (Konstantareas and Hewitt 2001), this has not necessarily been found in larger samples (Volkmar and Cohen 1991). Of note, diagnosing a psychotic illness in a patient with an ASD diagnosis is complicated by multiple factors, including deficits in language and a tendency towards concrete responses (For a more detailed discussion see Howlin 2000). An illustrative case series (Dossetor 2007) described four individuals with ASD's who were initially thought to have comorbid psychosis. However, in each instance the psychotic symptoms could be better conceptualized as symptoms of the underlying ASD, with implications for prognosis and treatment planning. The author goes on to describe some general principles for determining whether psychotic features are best conceptualized as being part of an ASD, drawing attention to how these symptoms are less likely to be associated with a concomitant academic deterioration, are responsive to management of anxiety and stress, and are relatively resistant to antipsychotic treatment (Dossetor 2007). Although useful, these guidelines may not be distinguishing in all cases, particularly in patients with significant aggressive behaviors for whom atypical antipsychotics may have some efficacy (Barnard et al. 2002). Perlman reports on a similar phenomenon in a series of individuals with Asperger's syndrome (Perlman 2000).

There are unique challenges when attempting to diagnose comorbid psychiatric illnesses in adolescents and young adults with ASD. Most obviously, this is the period when many psychiatric illnesses are likely to have their initial presentation, increasing the pertinence of this consideration. Concurrently, this is a period of substantial change for individuals with autism, as they may lose the support of entitlements and treatment networks that were available to them at younger ages (Volkmar et al. 2014). The effects of these changes may be that these individuals are seen by adult psychiatrists with comparatively less understanding of their condition, and perhaps more importantly, must interact with a treatment system that is not well oriented to their needs (Volkmar et al. 2014). Individuals with behavioral problems are at increased risk of being admitted to inpatient units (Tsakanikos et al. 2007). The need for practitioners unfamiliar with the diagnosis of autism to justify both the provision of antipsychotic medications and inpatient admission in a period of increased behavioral challenges may predispose to the liberal application of comorbid diagnoses. On an even more pragmatic level, anecdotal evidence suggests that this is often necessary for the purposes of satisfying health insurance companies, particularly when inpatient admission is the goal.

In this paper, we report on five cases illustrating how several of these factors led to the provision of what was likely an inappropriate psychiatric diagnosis in patients with ASD. The cases were all seen within a 6 month period at the Yale New Haven Psychiatric Hospital Adolescent Inpatient Unit. All cases were evaluated by at least the co-author and board certified Child and Adolescent Psychiatrist, ZQ. These cases are representative examples of how these patients tend to come into contact with inpatient adolescent services at an urban inpatient treatment facility and provide a good sense of the ecology of our local practice environment.

Case 1: A 16 Year Old Male

The Initial Diagnosis

The patient AI was diagnosed with autism at the age of ten on the basis of a clinical evaluation and neuropsychological testing. The patient had a long-standing history of difficulty with transitions and social interactions, as well as problems with speech fluency. His mother reported normal milestones, but hand flapping and stereotypic movements of his arms. Psycho-educational testing revealed a lack of understanding of language pragmatics and social situations that was reflected in his poor social boundaries with peers, as well as school staff's perception that he was not listening to them. At the age of 12 was found to have a full scale IQ of 130, with significant scatter indicating relative vulnerabilities in processing speed and working memory. He received special education services along with speech and language therapy throughout his school career under the designation of Autism.

The Comorbid Diagnosis

During middle school the patient began seeing a psychiatrist due to worsening anxiety. He also started having depressive symptoms and subsequently severe mood swings. Atypical antipsychotic trials were undertaken and the diagnosis of bipolar disorder was added, given "mania like overexcitement and pressured speech". The patient during this time started developing obsessive preoccupation with mathematics and programming. It was reported that he was becoming more psychotic due to having grandiose delusions that he was going to develop an equation that would control the world. Ideas of reference were reported as he felt the TV was sending him signals, and when he watched movies he felt "a part of something bigger", thinking it had a special meaning for him. It was also reported that he had 'paranoid delusions' that he was

being bullied, since his reported bullying could not be confirmed by the school. His outpatient psychiatrist subsequently diagnosed him with COS. Over the course of treatment for next 3 years the patient was tried on three SSRIs, bupropion, four atypical antipsychotics, one typical antipsychotic and lithium.

Current Presentation

The co-author ZQ met the patient at the age of 16 during his fourth hospitalization due to decline in functioning and suicidal ideation secondary to depressed mood. He demonstrated a decrease in sleep, appetite, self-care, and an increase in anxiety. He had stopped attending school, was stayed home, did not tend to his ADLs and was not able to interact with a home tutor. He was admitted on lithium 750 mg BID, benztropine 1 BID, duloxetine 90 mg and quetiapine 500 mg BID. It was recommended by his outpatient psychiatrist that Clozapine be started due to his psychotic symptoms.

At this time, the patient did not endorse any overt auditory hallucinations, rather preoccupation with his own thoughts. He also demonstrated increased interest in programming his calculator rather than participating in group activities on the unit. Often he would be seen toe walking or walking on certain colored squares on the floor. Psychological testing was again undertaken for the purposes of further diagnostic clarity. He demonstrated difficulty with the ambiguity of the images on the thematic apperception test (TAT), especially with regards to understanding interpersonal relationships and perceptions. Although narrating stories was difficult for him, they were clearly structured and he displayed no evidence of a thought disorder. Additionally, his responses to the Rorschach were indicative of rigidity and intellectualization reflecting his idiosyncratic and rigid interests, particularly in mathematics and technology. Testing did not reveal any psychotic process or thought disorder. However, his difficulties with interpersonal stimuli and idiosyncratic responses were more consistent with an ASD.

Outcome

During the course of his hospitalization lithium, quetiapine and benztropine were tapered off. Duloxetine was maintained. The patient did not demonstrate any emergence of psychotic symptoms such as paranoid ideation, hallucinations or grandiose delusions. He showed significant improvement in his ability to utilize staff support and benefitted from the structure and predictability of an inpatient routine. His mood improved with resultant resolution of suicidal ideation. The patient was discharged to an intensive outpatient program with additional behavioral in-home services as well as recommendations for a therapeutic school placement. There appeared to be no clinical indication for clozapine at this time.

Case 2: A 17 Year Old Male

The Initial Diagnosis

The patient CB was diagnosed with PDD-NOS by a child and adolescent psychiatrist in early childhood. The patient had sustained an anoxic brain injury following a prolonged delivery and had delayed achievement of several milestones. However, the patient was found to have disproportionate deficits in language and reciprocal communication. The patient had profound difficulties in establishing relationships, maintained poor eye contact, and showed a lack of facial expression. In addition he was noted to have fixated interests and stereotyped movements.

The Comorbid Diagnosis

At the time of puberty the patient started exhibiting disinhibited and aggressive behaviors, for which he was treated with antipsychotics. In addition, he became obsessed with reading books that contained prominent themes of magic and the paranormal, to the great alarm of his parents. The patient also started to describe his somatic complaints in unusual ways—such as saying "my head is bleeding" when it was thought he might be suffering from a headache.

A mental state examination documented around this time notes the patient to have been experiencing "auditory hallucinations", although these were never well characterized. The patient could not clearly state whether he was hearing his own voice or that of another person, and on no occasion could he report on specific words or sentences the voices might be saying. Nevertheless, it was in the light of these symptoms and progressive behavioral difficulties that the patient was placed on increasing doses of various antipsychotics and, after a number of years, started on clozapine for the presumptive diagnosis of "schizophrenia".

Currrent Presentation

The patient was first seen by GVS and ZQ at the age of 17, when he was admitted to the Adolescent Inpatient Unit. CB had been on clozapine for over a year, and displayed no behavioral problems. He continued to respond, "yes" when asked if he was hearing voices but, despite numerous attempts to explore this further, could not describe the content or character of the voices in any way. He continued to have profound symptoms of PDD with very poor

language development, stereotypical behaviors, mild mental retardation and impaired reciprocal communication.

Outcome

The patient was admitted essentially for the purposes of long-term placement, as the family felt over-burdened by the task of caring for the patient at home. At this time, the legacy of the "schizophrenia" label became a true barrier to the patient's further care. A number of facilities that were generally well suited for patients with PDD rejected his application simply on this basis. When an attempt was made to engage with them directly, making the argument against the diagnosis of schizophrenia, case managers at these facilities commented that it was unusual for a patient to be prescribed clozapine for PDD alone. At the same time, it was noted that a label of "Psychosis NOS" in his medical record might be required to preserve insurance reimbursement for his admission (which eventually lasted for several months).

Case 3: A 19 Year Old Female

The Initial Diagnosis

TC had been diagnosed with ASD in at age 11. Records from the initial evaluation could not be obtained, but the patient was noted to have significant impairment in social interaction, was described by various clinicians as having 'no empathy', and was highly sensitive to changes in routine. The patient had attended a special school for children with developmental disorders and was noted to have significant behavioral problems.

The Comorbid Diagnosis

Information obtained from TC's family and outpatient psychiatrist revealed that the diagnosis of schizoaffective disorder was made following a period when TC displayed an acute worsening in her behavior control—around the time that she graduated from the special school she was attending for children with ADS/PDD. Her graduation meant that she was spending essentially all of her time in the care of her mother, who was suffering various physical health difficulties. The patient required multiple psychiatric admissions during this time. It was remarked that the patient was experiencing 'auditory hallucinations', most often after acting aggressively towards people or objects, when she would blame the behavior on her 'voices'. She was started on antipsychotics, for which her dose was gradually increased in response to various behavioral outbursts. After her discharge the patient entered a pattern where she would be stable for weeks at a time, but whenever her mother became sick or for another reason was less available, she would displaying increasing agitation and aggression, often requiring admission to a psychiatric hospital for a 'psychosis exacerbation'.

Current Presentation

TC was first seen by GVS and ZQ at the age of 19, when she was admitted to the Adolescent Inpatient Unit. The patients admitting diagnosis was schizoaffective disorder, and at the time of admission she was being prescribed 600 mg of clozapine, 1 mg of risperidone and 1,250 mg of divalproex sodium daily. The patient had initially been brought to the emergency room because of an altercation with her mother, during which the patient had pushed her mother to the ground. Although no serious injury resulted, her mother was anxious about this behavior. At the time the patient reported that 'Johnathan told her to do it'. She could not describe Johnathan's voice as having a specific quality, and in fact it was never clear whether his instructions ever took the form of hallucinations. No other psychotic symptoms were present.

Outcome

Over the course of the patient's admission, she was tapered off clozapine, and a behavioral plan was instituted. Clozapine was tapered both in response to discussions with the outpatient provider, who was unconvinced of any basis for the diagnosis of schizoaffective disorder, as well as the fact that the patient was experiencing persistent tachycardia with palpitations. The patient showed improvement in her behavior, and gradually stopped referring to Johnathan as her overall level of agitation improved. Ultimately the patient was discharged on 250 mg of clozaril, with improved behavioral control and no evidence of psychosis at the time.

Case 4: A 16 Year Old Male

The Initial Diagnosis

In this case, the patient JP was initially diagnosed with COS at the age of 14 by his outpatient psychiatrist after two inpatient hospitalizations. The patient had a history of depressive symptoms, poor sleep and poor appetite because he reported he was afraid of eating "since something bad might happen". He had functional decline and difficulty with attendance although he was enrolled in a therapeutic school at that time. He had been found to be perseverative and internally preoccupied. He had a lack of friends at

school and difficulty with peer relationships. He reportedly also felt paranoid that other children did not like him.

The patient was diagnosed and treated for Lyme disease at the age of 13. PANDAS was also entertained but ruled out since he reported he had gotten sick in middle school and become "paranoid about germs". He had been tried on five different antipsychotic medications with no significant improvement. In addition he also developed tardive dyskinesia from ziprasidone. However he continued to show decline in functioning, increasing agitation, and progression to aggressive behaviors. He demonstrated worsening obsessive thoughts and he reported frequent intrusive thoughts that life was not worth living.

Current Presentation

ZQ met the patient at the age of 16 when he was hospitalized for the third time after he was found to be non-communicative by his mother, with significant psychomotor agitation and refusal to attend school. His ADLs had declined along with increasing irritability, physical aggression towards family members and increase in hand washing behaviors. These seem to have worsened since his transition from a therapeutic school to a public school where he was placed in an alternative track. He reported depressed mood and a desire not to live upon admission. The patient's outpatient psychiatrist described worsening psychotic symptoms, that he would be looking up and around in thin air or at the floors as if responding to internal stimuli. However upon further clarification, the patient reported that his obsessions and intrusive thoughts had been worsening. He found himself counting tiles on the floors and false ceilings, which he felt was what was misinterpreted by his outpatient providers.

Clarification of Diagnosis

Psychological testing was undertaken in an effort to clarify the diagnosis. The patient demonstrated intact reality testing and insight, and there was no evidence of a formal thought disorder. The patient clearly had deficits in the areas of pragmatic language, understanding social cues and the use of prosody to communicate subtleties in meaning. The Millon Adolescent Clinical Inventory (MACI) demonstrated prominent schizoid and avoidant traits. Even with improved mood and lessening of anxiety he continued to demonstrate difficulties in relating to peers, seeking out contact and clearly had difficulty in social reciprocity. His parents confirmed that these behaviors were present very early and that he always lacked friends—he did not seek them out and tended to be isolative. They described a longstanding tendency towards cognitive rigidity and difficulty with transitions that they noticed from a young age. Given both the clinical as well as supportive evidence from psychological testing, a diagnosis of PDD-NOS was made.

Outcome

During the course of the hospitalization there was no evidence of any psychotic symptoms, such as overt hallucinations or delusions. The patient was able to discuss his intrusive thoughts more clearly which he had referred to as paranoid thoughts before. The diagnosis of schizophrenia was removed as it appeared that what were perceived to be 'negative symptoms of schizophrenia' were more consistent with PDD. The patient showed improvement in mood, impulsivity and behavioral control during the course of his hospitalization and was discharged with recommendations and programs in place to provide social skills training and more therapeutic academic support.

Case 5: A 21 Year Old Male

The Initial Diagnosis

The patient AW was diagnosed with autism at age five, demonstrating difficulty with understanding and using nonverbal cues and identifying social boundaries in school and at home. He has also had difficulty with sensory regulation and when over-stimulated, tended to become anxious, disorganized and impulsive. AW was also noted to become anxious and use less appropriate pragmatic skills of turn taking and eye contact when discussing topics he found challenging or distressing.

The Comorbid Diagnosis

By age 14, the patient began displaying episodic behavioral dyscontrol, poor frustration tolerance and irritability for which his psychiatrist prescribed valproic acid and risperidone. After continued "outbursts" in his special education classes, further ineffective medication trials with atypical antipsychotics and ADHD medications, the patient was transferred to a boarding school where he had a "very hard time adjusting." After several months he had "broken down," was not sleeping and appeared "very hyper with very little focus."

At age 20, the parents report the start of what they refer to as "the light switch effect"—abrupt episodic agitation during which he would become verbally and physically aggressive. He was hospitalized for shoving his mother during one of these instances and was restarted on valproic acid and risperidone for a diagnosis of bipolar mood disorder. The patient's parents later discontinued these medications in favor of "more natural alternatives," including

neurofeedback and high-dose vitamin supplements. The consideration of psychosis emerged after the patient becoming agitated and behaviorally dysregulated upon learning that his favorite celebrity had been imprisoned; insisting he be brought to the police station for arrest so that the patient may "help him out." It was in response to this behavior that the patient was again admitted, with a mandate from his outpatient provider to restart antipsychotic medications in order to address these 'psychotic behaviors'.

Current Presentation

When FP and ZQ met AW, he presented with pressured speech, increased psychomotor agitation, and loosening of associations. He explained that he was thinking at "thirty miles an hour" when he normally "thinks at three miles an hour". The patient's outpatient provider had attempted to increase his dose of risperidone but this was limited by the parents' concern for "emotional blunting." Assessments by the outpatient provider and emergency room described the patient as having odd preoccupations, alarming behavior and 'referential delusions' regarding the aforementioned celebrity in the context of disorganized and pressured speech, decreased sleep and abnormally energetic behavior. On one occasion, the patient obtained a knife from the kitchen to scratch a crucifix into his arm because he shared the Christian faith with his preferred celebrity.

Once the patient was better able to discuss the circumstances leading to his recurrent hospitalizations, he described experiencing "weird feelings" towards the young male celebrity with whom he had been "obsessed." These feelings appeared to be related to questions about his sexual identity and he perceives these feelings as "bad." He expressed wanting to "kill" the individual for whom he has these feelings. The day prior to his latest admission, AW's father "banned" him from speaking of this celebrity in the household and the patient began endorsing referential delusions of others mistaking his identity for that of the celebrity.

Outcome

Although there was strong evidence to suggest a comorbid bipolar mood disorder, our assessment was that the psychotic symptoms could be better framed as an example of his stereotyped interests in the context of autism. When manic, these interests took on a delusional quality and the patient becomes increasingly distractible and impulsive.

A consideration that emerged was whether AW's "obsession" with the aforementioned celebrity was simply the exaggeration of AW's stereotyped interest in "pop icons" during a manic episode, or whether the anxiety of processing hitherto inexperienced feelings of same-sex attraction was contributing to the patient's disorganization and behavioral dysregulation secondary to his ASD diagnosis. Ultimately, the patient regained good behavioral control and these obsessions became markedly less prominent as his manic symptoms resolved on olanzapine and valproic acid.

Discussion

These five cases, although different in many ways, have in common the theme that at one time or another the patient displayed symptoms which were considered psychotic but which could also be reasonably accounted for by the diagnosis of ASD. Although it is certainly possible that some of these individuals had in fact experienced a genuine brief psychotic episode, the pattern of (a) resolution without further medication, (b) tendency for symptoms to worsen in periods of disrupted routine and (c) resolve with provision of structure, all suggest that it would perhaps be premature to make an additional diagnosis. In addition, although some of the symptoms described by these patients may appear 'psychotic', there were other ways they could be conceptualized that were more consistent with features of ASD. In case 2, the patients description of his 'head bleeding' could be considered a somatic delusion, but is perhaps better understood as an example of idiosyncratic language—the patient struggled to communicate internal sensations (like having a headache), and therefore relied on concrete descriptions that he thought others would be more likely to understand. In case 5, the patients preoccupation with a given movie star was described as both an obsession and a grandiose delusion—but is perhaps just as easily framed as being an example of a stereotyped interest, in this case exacerbated by a comorbid mood disorder (Baron-Cohen 1989). To the extent that this obsession reached delusional proportions, it could be reasonable to argue that the patient met criteria for bipolar mood disorder with psychotic features, but outside the context of an acute manic episode the patient showed no further evidence of primary psychotic illness. These cases stand in contrast to rare instances where patients with diagnosed ASD do appear to develop a sustained, primary psychotic illness in addition to their ASD diagnosis. In our own clinical practice, a case of true comorbidity was remarkable for a more abrupt onset of sustained auditory hallucinations and disorganized behavior that represented a marked worsening from baseline. In this case the auditory hallucinations appeared to not be metaphorical in nature, dissipated with the prescription of antipsychotic medications, and would worsen during periods of poor medication adherence. By contrast these symptoms were less affected by changes in structure or other environmental factors.

In all but one case the underlying diagnosis had in fact already been made, a factor that is perhaps particularly significant. This implies that the problem is not so much that the ASD diagnosis is being 'missed' (although that may have been true in case 4), but that for some reason a full understanding of the scope of how ASD may present is not being demonstrated.

Why are patients then receiving an additional diagnosis of a PD? One possible explanation is that the psychiatrists treating and evaluating these patients have less understanding of ASD. All of the individuals in these case series were most recently under the care of adult psychiatrists, who are likely to have significantly less experience in incorporating developmental perspectives into their assessments (for a detailed exploration of this issue see Eminson and Goodyer 2004). Although these patients may have achieved a chronological age where they are likely to transition to adult services (Volkmar et al. 2014), little about their underlying condition makes this a natural shift. Furthermore, although there is a growing focus on providing specialized young adult services, existing literature as to the value of these services is primarily focused on the treatment of early psychosis (McGorry and Yung 2003). As Kanner himself pointed out, adolescence is a common time during which some individuals with autism would experience deterioration (Kanner 1971). However, this it is also the typical age of onset of PD. Services that are specifically oriented to supporting individuals with the latter diagnosis may therefore be less well positioned to recognize and support those with worsening ASD.

Another explanation is that the provision of the comorbid psychosis diagnosis is being driven by more pragmatic consideration, as discussed in the introduction. This seems to have been a factor particularly in cases 2 and 3, where there was a need to justify the admission of these patients to the inpatient unit. These patients were exhibiting significant behavioral difficulties as a symptom of their ASD, and likely did require additional pharmacological management and inpatient stabilization. Unfortunately, the consequences of framing these symptoms under the label of a psychotic illness are considerable. In the case of CB in particular, it served to re-orient the patient's pharmacological treatment in an unhelpful way, and affected his options for long-term placement. The patient's mother had become convinced that his symptoms were because of his 'schizophrenia', and therefore had great faith in the capacity of medications to affect substantial improvement. In addition, she appeared almost relieved about this, and further interactions with her supported the idea that she no longer had the capacity to provide the stable environment and behavioral interventions required for her son. It may be the case that the psychosis label represented a misguided attempt to meet the needs of a patient and family who were not receiving adequate support.

The capacity for the psychosis label to influence treatment decisions highlights why this is not simply an issue of nosological clarity. In case 1, the patient had been started on a lithium, quetiapine, benztropine—all medications with significant side effect profiles. There is a significantly weaker evidence base as to the value of these medications in autism as opposed to PD, and it has further more been suggested that they be used for only brief periods (Matson and Dempsey 2007). Additionally, as highlighted in case 2, the psychosis label may not only motivate the use of further medications, but can also serve to shift emphasis from more evidenced based strategies (such as applied behavioral analysis, Vismara and Rogers 2010) and distract from actual underlying challenges. The latter point applies clearly in case 3, where owing to the comorbid PD the patient could be hospitalized every time her mother was ill under the guise of a 'psychosis exacerbation'.

In this case series we highlight a clinical challenge that has emerged on several occasions within a six-month period at our psychiatric hospital. Although the overall prevalence of comorbid psychosis in ASD appears low (Volkmar and Cohen 1991), it is less clear how often the label is being misapplied. The existence of a similar case series from the united kingdom suggests that this is not a localized phenomenon (Dossetor 2007). The underlying factors that appear to be motivating this misapplied comorbid diagnosis suggest that it may be a widespread phenomenon, and one with potential negative consequences, including over-prescription of medication at the expense of more evidence based strategies. Furthermore, this case series highlights the fact that individuals and families of individuals with autism may experience a variety of unmet needs as they enter late adolescence and early adulthood, for which being diagnosed with a PD is a poor solution. Further work understanding the extent and nature of this problem appears critical, and it is important that such efforts consider ways in which true and false comorbidity may be reliably differentiated.

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