Eur Child Adolesc Psychiatry (2005)
14:292–296 DOI 10.1007/s00787-005-0469-4

CASE REPORT

Bernd Kraemer
Aba Delsignore
Ronnie Gundelfinger
Ulrich Schnyder
Urs Hepp

Comorbidity of Asperger syndrome and gender identity disorder

Accepted: 24 February 2005

B. Kraemer, M.D. (✉) ·
A. Delsignore, M.A., M.Sc. ·
U. Schnyder, M.D. · U. Hepp, M.D.
Psychiatric Department
University Hospital
Culmannstrasse 8
8091 Zurich, Switzerland
Tel.: +41-1/255-5280
Fax: +41-1/255-4408
E-Mail: bernd.kraemer@usz.ch

R. Gundelfinger, M.D.
Zentrum fuer
Kinder und Jugendpsychiatrie
Neumuensterallee 3
8032 Zurich, Switzerland

Abstract The case of a 35-year-old biological woman with Asperger syndrome (AS) and gender identity disorder (GID) fulfilling DSM-IV criteria is reported. Against the background of recently emerging theories of cognitive male pattern underlying autism we present additional psychological assessments in order to discuss any possible interaction or discrimination between AS and GID. Whilst we explain GID as a secondary feature of AS, we examine the assumption of the necessity of treating GID in AS as a primary GID in accordance with international standards. We consider the treatment of GID as compelling, particularly because curative therapy for AS is lacking and with GID treatment in this vein, the patient gains psychosocial improvement.

Key words Asperger syndrome – autistic disorder – gender identity – transsexualism – comorbidity

Introduction

Asperger syndrome (AS) is a rare pervasive neurodevelopmental disorder. Data regarding prevalence are extremely inconsistent, ranging from 3 to nearly 500 per 100.000 [5]. AS is characterized by a qualitative impairment in social interactions. Furthermore, there are abnormalities of behaviour, islets of interests and special activities. No clinically significant general delay in language, cognitive development or environmental abilities are found. Considering the cognitive pattern of autism, Hans Asperger wrote in 1944: "the autistic personality is an extreme variant of male intelligence … in the autistic individual, the male pattern is exaggerated to the extreme" (translation U. Frith) [2]. Two currently discussed theories "the Empathising-Systemising" (E-S) theory of sex differences and the extreme male brain (EMB) theory of autism are in line with Hans Asperger's assumptions [2, 3].

Gender identity disorder is presumably less frequent than AS with an estimated prevalence depending on gender of 0.25 to 2.5 per 100,000 [13]. GID is characterized by a strong and persistent cross-gender identification, and a persistent discomfort with the assigned natal sex and its associated gender role, which causes clinically significant distress and the wish of a cross-gender life. Impairment of social or occupational functioning is seen in both AS and GID [1].

We found two case reports noting the coexistence of autism and GID in infancy. One author regarded GID as a disorder distinct from autism [12]. The other author mentions gender identity problems in conjunction with AS and obsessive compulsive disorder in a girl [16]. Two other cases of cross-gender behaviour (not meeting the criteria for GID) in autism in infancy have been published [15, 21]. For all these cases, there is no information available as to whether the gender atypical behaviour persisted. To the best of our knowledge, this is the first report of an adult biological woman with concurrent AS and GID.

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Case report

Family history

The patient is the first born of healthy parents. However, her father is described as somewhat reclusive and aloof, and some additional inappropriate stereotypical behaviour is reported. Neither autism, GID, nor any other psychiatric disorder had been diagnosed in the family.

Pregnancy and perinatal period

The patient's mother reported a normal pregnancy; she took no medication during pregnancy. Moreover, there is no history of prenatal medication with sex hormones. The patient was born in an uncomplicated 3-week preterm pelvic presentation birth. She was healthy, her birth weight was 3020 g and the birth length was 50 cm.

Course of Asperger syndrome from infancy to adulthood

The mother reported a normal early childhood development of her daughter. No language delay was observed and the cognitive and motor abilities met expectations. In social relationships, some inconsistencies were noticeable and she appeared unapproachable. From childhood on, she took a special interest in details and a persistent fascination in structured and geometric entities. All in all, the parents and teachers were not alarmed and no medical or psychological examination was requested. When she was 33 years old the patient herself instigated an examination of AS as she had been aware of her symptoms for a long time.

Development of GID from infancy on

As far as the patient can remember, she always wanted to be a boy. In her sparse peer-contacts, she chose male play-mates, was interested in football and developed tomboy behaviour. She insisted on being a boy and refused girl's clothing. Two heterosexual platonic partnerships are reported, both abandoned because of her lack of social and emotional reciprocity. At the age of 34, she had the coming-out of her GID, and sought treatment at our unit for GID at the Psychiatric Department of the University Hospital of Zurich, where the diagnosis of GID was confirmed and counselling was organized for her.

Current life-situation

Today she conducts her life as an independent adult. She is a graduate student, having successfully completed her apprenticeship.

Methods

Psychiatric diagnosis

Psychiatric diagnosis was confirmed according to DSM-IV criteria by well-trained psychiatrists.

Intelligence and executive functions

Intelligence and executive functioning are of particular interest in AS, so, in order to estimate verbal and non-verbal intelligence, we administered computerized versions of the Vocabulary Test (Wortschatztest WST) [18] and the Performance Assessment System [Leistungsprüfsytem (LPS)] [10]. Executive function was tested with the electronic version of the Tower of Hanoï involving three pegs and four/five discs [7].

Assessments focusing on gender traits and body image

Gender identity disorder led us to assess masculine (instrumental) and feminine (expressive) traits with the Personal Attitudes Questionnaire (PAQ) [17]. In order to measure body image disturbances, common among transsexual patients, we applied the Questionnaire for Assessment of the Own Body. [Fragebogen zur Beurteilung des eigenen Körpers (FbeK)] [19]. The FbeK consists of four scales: 1. attractivity/self-confidence; 2. emphasizing body image; 3. insecurity/apprehension; 4. body/sexual uneasiness.

Perception of emotional states

In addition to cognitive and gender identity centered testing, we were interested in the self-awareness and social cognition of our patient. We expected that the additional results from the Reading the Mind in the Eyes Test [4] would prove the mentalizing capacity and that the Toronto Alexithymia Scale (TAS) (a 26-item scale assessing deficits in the identification and expression of own emotions) [11, 20], plus the rating of external oriented, as opposite to analytical, thinking, would put us in a position to discuss the dynamic interrelation of AS and GID in our patient.

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Results

Test results are presented in Table 1.

Psychiatric diagnosis

GID was diagnosed in 2003 by two of the authors (B. K. and U. H.) using established DSM-IV criteria [1]. In 2001, the AS diagnosis was confirmed by M. Asperger Felder, M. D., Child and adolescent psychiatrist, the daughter of Hans Asperger. (Currently re-examined and additional assessment of the autism spectrum quotient (AQ) [14] and Asperger Syndrome Diagnostic Interview (ASDI) [9] administered by one of the authors, R. G.)

Cognitive testing

Intellectual assessments with the WST and the LPS revealed that the patient was functioning at the upper average range of intelligence with no significant discrepancy between verbal and performance abilities [8]. As expected, the performance achieved at the Hanoï Tower task is well below the norm. The low score was anticipated due to the well-known deficits in executive functions in AS [6, 8].

Assessments focusing on gender traits and body image

The PAQ showed lower femininity (emotionality) and higher masculinity (instrumentality) scores compared with male controls. This fits the profile of patients with

Table 1 Cognitive and "psychological" scores

Scale	Patient score	Norm M (SD)	
WST (verbal intelligence)[a]	125	100 (15)	
LPS (performance-oriented intelligence)[b]			
Discerning rules	60	50 (10)	
Logical reasoning	**70**	50 (10)	
Fluid intelligence	65	50 (10)	
Hanoï (first attempt)[c]			
4 discs: score (seconds)	**3** (384 s)	5 (1)	
score (number of moves)	**0** (73 m)		
5 discs: score (seconds)	4 (445 s)	5 (1)	
score (number of moves)	**0** (95 m)		
Hanoï (second attempt)[c]			
4 discs: score (seconds)	**7** (50 s)	5 (1)	
score (number of moves)	**7** (15 m)		
5 discs: score (seconds)	**7** (94 s)	5 (1)	
score (number of moves)	**8** (31 m)		
Reading the Mind in the Eyes Test (RMET)	**15**	26 (3)	
TAS[b]			
Difficulties in the identification of emotions	40	50 (10)	
Difficulties in the expression of emotions	**79**	50 (10)	
External oriented thinking	**27**	50 (10)	
Alexithymia score	46	50 (10)	
PAQ		females[d]	males[d]
Feminine traits (expressivity)	3.38	4.60	4.38
Masculine traits (instrumentality)	4.50	3.50	3.75
FBeK[b]	female[e]	male	
Attractivity/self-confidence	**32**	**24**	50 (10)
Emphasizing body image	46	51	50 (10)
Insecurity/apprehension	48	51	50 (10)
Body/sexual uneasiness	51	57	50 (10)

[a] IQ-score (estimation); [b] T-scores; [c] z-scores; [d] no SD available; [e] transformation of row-scores into T-scores is different for males and females
Bold numbers indicate scores at least 2 SD below the norm

Asperger syndrome [2] and is consistent with female-to-male GID. As clinical experience has repeatedly shown, low attractivity/self-confidence (FbeK) fits the body image distortions described by patients with gender identity syndrome.

Perception of emotional states

The number of correctly identified states of mind is clearly below the norm and corresponds to the performance achieved by patients with Asperger syndrome [4]. TAS scores indicate a correct identification of (own) emotions, but a significant deficit in their expression. The low score in external oriented thinking (TAS) confirms a high abstract-logical functioning.

Behaviour during the interview

During the Reading the Mind in the Eyes Test, the patient was particularly distressed by the impossibility of defining consistent criteria allowing a clear identification of states of mind. Instead of trying to base her decisions on emotional intuition like normal controls, she persevered with the same strategy based on logical criteria. She avoided any interaction with the examiner and talked to herself as if alone in the room.

Discussion

We report the case of a 35-year-old biological female patient diagnosed with AS as well as GID according to DSM-IV criteria. The coexistence of GID and AS is worth noting as the prevalences of both disorders are low.

Against the backdrop of currently discussed male cognitive characteristics in autism and well-known exaggerated masculinity in female-to-male GID patients, we were interested in the question of whether, using additional investigations, an underpinning of differentiation or unification of these entities can be made.

As expected for Asperger patients, verbal and nonverbal intelligence are situated in the upper norm, but executive functioning is disturbed. Reduced ability in expressing one's own emotions was found and the patient also showed difficulties in identifying emotions in other people. These findings are in accordance with the well-established cognitive profile of AS patients.

The development of GID comprises the patient's aversion to her body from early childhood on, dysphoric reaction on secondary sex characteristics, her refusal to wear girl's clothes and others. Our findings of low femininity and high masculinity PAQ scores are consistent with female-to-male GID. Low attractivity/self-confidence as found in the FbeK are consistent with body image distortions, observed in clinical work with female-to-male GID. Our results meet the criteria of primary GID but, in our opinion, are thrown into doubt, through coexistent AS. Nonetheless, in the following, we point out the considerable overlap in cognitive domain and dare to hypothesize that AS is the evolutionary and dynamic underlying disorder.

As expected for AS, we noticed over-developed logical thinking and accentuation of logical-abstract abilities, as well as an imbalance of low emotionality and a high level of instrumental, non-emotional attributes including activity, lack of emotionality and perseverance. These characteristics are generally associated with masculinity and may have led to a subjective consciousness in our patient of being male. In this regard, primary cognition and perception in AS may be interpreted as masculine attributed and pave the way to the development of female-to-male GID. The adaptation of the male gender identity, from early life on, possibly enabled the patient to better integrate the lack of emotionality and the accentuated logical-abstract abilities. The extremely high level of masculinity can be interpreted as an additional compensatory effort to accentuate the biologically absent male side.

Taking this into account, we believe that, over the years, our patient has developed GID as a consequence of adopting male emotional and cognitive traits due to AS. Following this argument, GID in this patient could be regarded as a sequel to AS.

Although we explained GID as the secondary feature, we realize there is no curative therapy for AS. Against this backdrop, we developed the assumption of the necessity of treating GID in AS as a primary GID. The male identification has proven stable over time and the real-life test led to a remarkable psycho-social stabilization. The patient improved in psychological well-being and satisfaction during cross-gender living. These issues led to our decision to treat GID in our patient in accordance with international standards.

As we have demonstrated, AS and GID overlap considerably in their male cognitive pattern. Cognitive profiles are expressions of how the brain mediates behaviour. The extreme male brain theory of autism is well-known and we conceptualized the hypothesis that our patient, based on a male cognitive pattern, developed collaterally GID. On the other hand, it would have been equally easy to argue the opposite, i. e. that a GID patient additionally develops AS. This would not alter our treatment recommendations, but it gives a perspective on the field of brain research which is both necessary and exciting.

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