Finding the Needle in a Haystack: Chromosomal assay screening for 22q11.2DS in first episode psychosis in the CAMHS Inpatient Unit

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Introduction

The prevalence of a 22q11.2 deletion among patients with schizophrenia is unclear, with some studies favouring prevalence of around 1% in this population[1]. The array of associated findings are typically identified in early childhood and are associated with conotruncal cardiac anomalies, thymic hypoplasia, hypocalcaemia and structural facial and velopharyngeal abnormalities[2]. Neuropsychiatric and behavioural disorders are usually diagnosed at a later stage. 22q11DS is formally diagnosed following genetic testing.

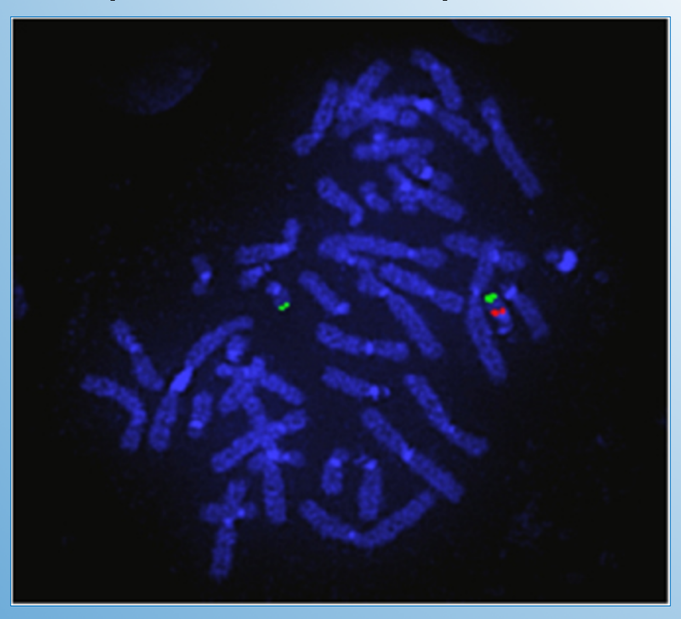
We present a case of a 16 year old male whose first engagement with CAMHS was that of paranoid psychotic symptoms and catatonia.

Case Description

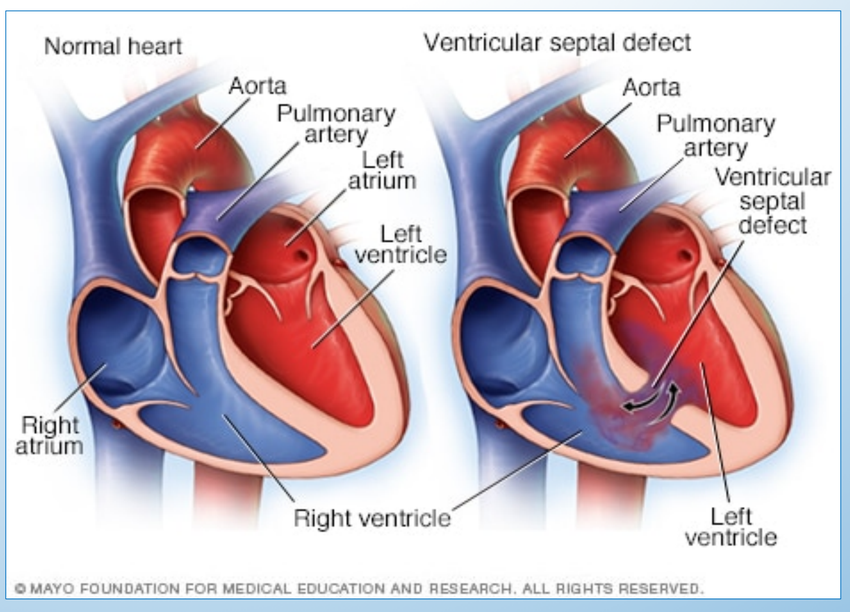
The young person had no initial physical concerns on examination besides very subtle facial dysmorphism, however no cleft palate was noted in his history. His complex course of treatment involved unsuccessful trials of olanzapine and aripiprazole, after which a diagnosis of treatment resistant schizophrenia was made. Adverse events secondary to medication up to this point included syncope, hypotension, oversedation and incontinence. He additionally suffered idiopathic ventricular fibrillation requiring an emergent Implantable Cardiac Device placement. No root cause for this was found following investigation. Echocardiogram and cardiac MRI were normal and while waitlisted for genetic screening through cardiology, velocardiofacial syndrome was believed unlikely. Clozapine was initiated as per guidelines, however the patient experienced seizures soon after commencement. Clozapine was curtailed to allow for investigation, which at the time proved inconclusive. Clozapine was reinitiated at low dose and titrated up cautiously, with the anti-epileptic support of Lamotrigine. Extensive liaison took place with adult psychiatry, medical and paediatric colleagues and a diagnosis of 22q11DS was made 6 months after admission following genetic screening.

Conclusion

This complex case would support the need to consider routine chromosomal assay screening for 22q11.2DS in those presenting with first episode psychosis to CAMHS IPU. Recent studies highlight prognostic indicators for the development of psychosis in the syndrome using neuroimaging and genetic analysis[3]. There are more than 15 studies that have shown the antipsychotic efficacy of clozapine in childhood and adolescent schizophrenia. However, research has found that while those with 22q11DS schizophrenia respond as well to Clozapine treatment, they may represent a disproportionate number of those with serious adverse events compared to those patients with other forms of schizophrenia[4]. Such side effects primarily include seizures.



← FISH analysis of the 22q11.2 microdeletion. The green dots mark the 22nd chromosome while the red dots highlight the microdeleted 22q11.2 region[5].



← The majority of presentations of 22q11.2DS are in childhood with paediatricians diagnosing congenital heart defects, palate or endocrine concerns. Mild dysmorphic facial features may be present such as short forehead, upslanting palpebral fissures, malar flatness and a prominent upper jaw[6]. While some of these subtle facial features were present in this case the absence of other more significant medical signs contributed to diagnostic delay.

Discussion

Although this may statistically represent a small population group, routine genetic screening for 22q11 in the CAMHS Inpatient Unit in patients with first episode psychosis would promote the formation of a personalised treatment plan, and emphasise the need to monitor for and minimise adverse events in potentially complex and unresolving cases.

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**Written consent for case report obtained prior to submission*