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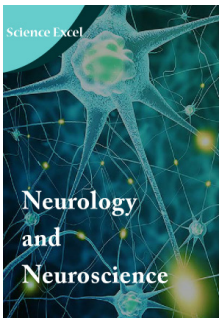
Mini Review



Conundrum of Cavum Septum Pellucidum in Expert Witness Testimony, Police Evidence And Neurobehavioural Consequence: Affecting Legal Practice And Criminal Justice?

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Abstract

Cavum septum pellucidum (CSP) is a rare condition when the septum pellucidum remains open to the inner ventricles within the brain. In many cases, CSP and the associated anatomical structure cavum vergae is thought to lead to anti-social and psychotic behaviour which poses a problem to those working in legal services. Controversy surrounds the possibility of congenital versus acquired conditions when CSP is found in those with repeated traumatic brain injuries such as professional athletes, American pro-footballers and professional and amateur boxers. Collecting police evidence and presenting expert testimony in the Courts is problematical when there is confusion over the acquisition of CSP. Treatment is compounded by differing presentations often involving psychosis which makes it a challenge to correctly place individuals within health service provision and penal institutions as well as offering appropriate treatment and criminal justice.

Introduction

Patients with the rare condition known as cavum septum pellucidum (CSP) frequently present with severe anxiety and depression, poor short-term memory and perhaps more importantly, delusions. Such an example from one of my legally detained patients included seeing images and hearing voices of a small boy and the Devil.

Septum pellucidum is a component of the septo-hippocampal and limbic system and so it is perhaps unsurprising that it may affect memory; it is thought to also affect instinct, mood and behaviour [1].

Whilst it is not uncommon to have psychotic episodes with CSP, some researchers have found no increase in prevalence of CSP with schizophrenia spectrum disorders [2]. Yet some patients' psychopathy continues into adulthood despite intervention with anti-psychotic treatment.

Less known is the effect of the presence of expanding cysts to the septum [3,4], and whether or not a patient's presentation of emesis (vomiting), headaches and occasional loss of consciousness is also attributable to interventricular foramina obstruction with papilledema - increase in pressure around the brain usually caused by cerebrospinal fluid.

CSP is found frequently among boxers and athletes with a history of repeated traumatic brain injury (TBI) such as American pro-footballers [5]. Acceleration-deceleration forces may shear the septum pellucidum yet CSP has also been associated with opiate dependence [6] together with loss of volume in adjacent limbic structures.

Discussion

Anti-social sequalae potentially pose problems for police collecting evidence, for experts reporting on and attributing behaviour to CSP, and to those in legal and medical services who aim to sentence or treat neuro-behavioural consequence of the condition.

It is a particular conundrum for those patients with no history of TBI or other neurodegenerative sequalae as it is a decision whether or not to attribute particularly criminal behaviour to a congenital versus acquired condition. It is interesting to consider the extent to which possible congenital contribution of lesions in athletes affect or give rise to subsequent CSP post-career.

Consequences of repetitive TBI is known also to lead to extensive neurotrauma and has been reported in professional boxers as early as 1928 when it was termed 'punch drunk syndrome' [7]. In 1937, the term 'dementia pugilistica' was appropriately adopted [8]. There may also be a connection

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between dementia pugilistica and CSP as cited in early work by Ferguson and Mawdsley in 1965 who described old boxers with such conditions [9]. In particular, the posterior extension of the cavum septum pellucidum is an anatomical site known as cavum vergae which sometimes exists independently and has also been associated with cognition and mood disorder in ex-fighters [10].

Although CSP patients often present with to anti-social and psychotic behaviour, CSP is not a unique feature of those with psychoses and a history of offending [11]. Within the Court circuit, offenders with CSP frequently become entangled in debate and controversy not only because of the possibility of congenital versus acquired conditions but also because there is no unified consensus of the association of CSP with offenders.

Collecting police evidence and presenting expert testimony in the Courts is problematical when there is confusion over the acquisition of CSP. Treatment of CSP is also compounded by differing presentations often involving psychosis which makes it a challenge to correctly place individuals within health service provision or penal institutions.

Appropriate treatment must be considered whether it is surgical [12] or chemical treatment for associated psychosis [13]; and whether or not a penal institution can cope with the challenges usually involved in caring for such patient-offenders.

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