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RESEARCH ARTICLE

The Psychiatric Aetiologies of Epistaxis

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Abstract

Introduction: Both epistaxis and mental health disorders are common conditions encountered in medical practice and whilst there have been investigations into individual psychiatric conditions and epistaxis, to date no overview has been published of these conditions. This review aims to summarise the various aetiologies and their managements in the setting of epistaxis.

Methods: A literature review was conducted using PubMed, Medline Ovid, and the Cochrane library using the terms epistaxis, mental health, psychiatric, and self-inflicted. The resulting literature was assessed, and their references reviewed to find additional cases not located by the initial search.

Results: A number of case reports as well as a small number of case series and an observational cohort studies were found. These were categorised as traumatic, foreign body, factitious, psychogenic purpura, hematohidrosis, attention deficit hyperactivity disorder (ADHD), and iatrogenic.

Conclusion: The reported aetiologies ranged from the very rare to common with management often requiring a multidisciplinary approach to achieve an appropriate outcome for the patient. More is needed to be done to further investigate how to manage patients who present with epistaxis and these aforementioned aetiologies.

Introduction

Epistaxis is a common presenting problem among paediatric populations, affecting 30% of children aged 0-5 years, and more than 50% of children greater than 5 years [1]. It also affects 60% of all people on at least one occasion during their lifetime [2,3]. Similarly prevalent are mental health disorders with 29.2% of individuals experiencing a common mental health disorder in their lifetime [4]. Although both conditions are commonly seen in clinical practice, there is a paucity of literature exploring epistaxis with a psychiatric aetiology. This paper aims to summarise the existing literature documenting the various causes and management of psychiatric epistaxis-an uncommon cause for a common condition.

Trauma

Psychiatric conditions presenting as traumatically induced epistaxis appear in two distinct groups; chronic trauma due to compulsive behaviours, and acute injuries.

Epistaxis secondary to trauma, especially digital trauma, is well established as a common presenting complaint [5]. Compulsive nose picking, termed rhinotillexomania, is a common habit with reported rates of up to 97.5% [6] in adolescents and 91% of adults [7]. Rates of epistaxis secondary to rhinotillexomania in these studies were 25% for adolescents [7] and 18% for adults [6]. Jefferson, et al. also reported a coexistence of nail biting, cuticle picking, hair pulling, and scratching of a specific spot in individuals with frequent rhinotillexomania.

Chronic rhinotillexomania is associated with self-mutilation, typically resulting in erosion and/or perforation of the nasal spectrum, turbinates, ethmoidal sinus, medial orbital wall [8-11]. The self-reported rate of injuries more serious than a simple bleed ranges from 0.8% to 2% of those with rhinotillexomania [6,7].

Self-mutilation is defined as a deliberate act of destruction and/or body alteration without suicidal intent and is noted to occur in a wide variety of psychiatric conditions [12,13]. Major self-mutilation that results in permanent organ loss or dysfunction is

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rare and typically presents as ocular, genital, and limb [12]. Self-mutilation of the nose is a rare occurrence.

A search of the literature reveals two clear examples. The first was of a 30-year-old male who presented with epistaxis after repeatedly slicing off the end of his nose. He reported auditory command hallucinations instructing him to cut his nose in the setting of known schizophrenia. He was commenced on olanzapine and received 3 sessions of electroconvulsive therapy to good effect and was deemed fit for discharge [13].

The second case occurred in Iran when a woman suffering from schizophrenia with a fixed delusion of being dead cut the end of her nose off. The patient reported doing so for cosmetic reasons. The patient was treated by the plastic surgery service who re-attached the tip of her nose. She was subsequently transferred to a psychiatric ward where she was treated with electroconvulsive therapy and risperidone to moderate effect [14].

The management would initially be surgical management of the traumatic facial injury but with the addition of psychiatric referral and/or transfer of care to manage the underlying psychiatric condition. Most presentations of self-mutilation have a psychotic illness with up to 54% of self-mutilation occurring in first presentations of schizophrenia [12]. Of note, both patients reported no pain during or after the acts of self-inflicted mutilation which is not an uncommon occurrence [12] and thus should prompt the treating physician to consider a psychiatric component to the injury.

Foreign Bodies

A patient that presents with an inanimate nasal foreign body typically reports painless, unilateral mucopurulent discharge [15]. Epistaxis is rare but has been reported in the literature [15]. Insertion of foreign bodies is most common amongst children [15] and those with decreased mental capacity [16]. There are two clear cases of intentional foreign body insertion presenting as epistaxis.

The first case involved a 44-year-old male with depression who was transferred from a psychiatric hospital with epistaxis, CSF rhinorrhoea, and confusion. A 15 cm wooden pencil was removed from his left nostril with CT revealing a tract with another foreign body located in the interhemispheric fissure. The second foreign body was removed via a right para-sagittal craniotomy and found to be a 14 cm Biro pen. The patient received a 4-week course of broad-spectrum antibiotics and post-operative review at 6 months revealed no complications, and the patient had already returned to work [17]. In this case, the speculative mechanism of injury was attempted suicide via self-insertion of objects into his nose and then ramming them against a hard surface [17]. To date, the number of reported cases of intracranial injury with a pen as a suicide attempt is limited to single digits [18].

A similar case occurred when a patient with schizophrenia presented with epistaxis and confusion. A metallic foreign body was located in his right nasal passage, and a right-sided perforated tympanic membrane was also observed. A CT of his brain revealed an 11 cm construction nail passing from the nasal cavity through the ethmoid air cells and into his frontal lobe. This was removed via a bi-frontal craniotomy [19] and the patient received 10 days of ceftriaxone, metronidazole, and flucloxacillin, as well as a tetanus booster. The patient was recommenced on his regular olanzapine which was associated with a significant reduction of his psychotic symptoms. The patient reported intentionally hammering the nail into his nose in an attempt to silence his auditory hallucinations [19].

As evidenced by the paucity of reported cases, penetrating brain injuries presenting as epistaxis are rare. Trans-nasal penetration can often go un-noticed due to minor wounds, normal physical examination findings, and normal radiological findings (Sharif). If there is any suspicion of trans-nasal penetration then the recommended management is rapid radiological investigation/s and early operative intervention [17,20,21]. Metal foreign bodies like nails produce artefacts on imaging, so direct visualisation is often required prior to removal to prevent further injury to neurological structures [22].

Factitious Causes

A factitious disorder is a psychiatric condition in which the patient intentionally fabricates physical and/or psychological symptoms solely to assume the role of a patient. There must not be any other gain from the fabrication of the symptoms; if such a gain is identified then a diagnosis of malingering can be made [23].

Such cases are rare due to the difficulty in distinguishing factitious causes from authentic causes of illness [24,25]. Cases have been reported of haemoptysis [26], haematuria [26], and haemolacria [27]. It is estimated to account for 0.02-0.9% of call cases reviewed in specialty clinics [25] with a female:male ratio of 3:1. Patients tend to come to medical attention as young adults, and were most likely to present to emergency departments [24].

An exhaustive search of the literature yielded a case series and a single case report. The case report was of an 18-year-old female who presented with sudden onset epistaxis. Physical examination revealed self-inflicted lacerations over unexposed sections of her body. The patient was later observed by her mother to be cutting herself and mixing the blood with her nasal secretions [28]. The patient later revealed significant stress secondary to familial conflict. She was referred to a psychiatric service and commenced on fluoxetine and

cognitive behavioural therapy. Follow-up at 9 months showed no further episodes of epistaxis and the patient reported herself to be doing well [28].

In a case series which focused on self-inflicted nasal injuries, two of the four cases reported were presentations with epistaxis. The first was of a 31-year-old female who presented 27 days post endonasal sinus surgery for chronic sinusitis with secondary haemorrhage [29]. Her haemoglobin was 50 g/L and she was treated with 2 units of packed red cells. During a psychiatric consultation, the patient revealed that she deliberately provoked the bleeding and had a significant history of self-harm. The patient refused further psychiatric input and as a consequence of her on-going self-induced bleeding, she received an infusion port for further transfusions [29].

The second case was a female who reported episodes of epistaxis following nasal curette with skin grafts and laser therapy to treat hereditary haemorrhagic telangiectasia. Follow-up questioning uncovered the patient's deep fear of dying from epistaxis as well as social isolation due to her episodes of epistaxis. After admission to a psychiatric unit the patient admitted to self-inducing epistaxis as a means of alleviating stress, and she was referred for psychotherapy [29].

To date there is no strong evidence for a single modality of management for factitious disorders. Current recommendations include psychotherapy and pharmacotherapy to treat additional underlying psychiatric conditions [30].

Psychogenic Purpura

Psychogenic purpura, also known as Gardner-Diamond Syndrome, is a rare condition that presents as spontaneous painful ecchymosis following severe stress and/or emotional trauma [31]. The pathophysiology is based on the development of IgE antibodies to the patient's own phosphatidylserine, a component of the stromal wall of erythrocytes [32]. It is traditionally seen in women, especially those with psychiatric conditions, but has also been reported in males and adolescents [31].

A comprehensive literature search failed to identify a single report in which epistaxis was the presenting complaint for patients diagnosed with psychogenic purpura. There was only once case where epistaxis was observed in conjunction with spontaneous bleeding from the ear canal, lower eyelids, and tongue [33]. A diagnosis of conversion anxiety and somatoform disorder was made and effectively treated with 12 sessions of psychotherapy [33].

Treatment of psychogenic purpura involves symptomatic management with glucocorticosteriods, antihistamines, and antibiotics but yields variable results [33,34]. Antidepressant medications and psychotherapy are recommended, particularly in cases with clear psychiatric pathology [34].

Hematohidrosis

Hematohidrosis is another rare disorder, where spontaneous and painless bleeding occurs through unbroken skin and [35]. It is preceded by extreme physical and/or mental stress [35,36]. The bleeding originates from sweat glands with an unknown aetiology and is differentiated from psychogenic purpura by the lack of ecchymosis.

A literature search returned one case of hematohidrosis, presenting as pure epistaxis, as reported in a case series. It outlined a young male who presented with a single episode of epistaxis originating from the superior border of the philthrum. Nasal endoscopy, laryngoscopy, and gastroscopy revealed no other structural abnormalities. All haematological investigations were also normal. The patient was treated with tranexamic acid and alprazolam. He also received counselling on stress management techniques and reassurance. Follow-up at 3 months revealed no further episodes of hematohidrosis [35].

Attention Deficit Hyperactivity Disorder (ADHD)

Attention deficit/hyperactivity disorder (ADHD) is the most common neurodevelopmental disorder, and is increasing in prevalence [37]. It is characterised by persistent impairment of attention and/or age inappropriate hyperactivity-impulsivity [23]. The estimated global incidence is 5% among school-age children [38]. ADHD is typically associated with younger people, but it can persist into adulthood. The rate in adults is estimated to be 4.4% [39] though the prevalence for ADHD in those > 50-years-old currently under contention [40].

Children and adolescents with ADHD have been found to be at an increased risk of unintentional injury. Stimulant medications, used to treat ADHD, have been shown to decrease this risk, at least in the short term [41].

A prospective case-controlled study from Turkey in 2011 followed 34 children (mean age 8.35 ± 1.63 years) admitted with recurrent epistaxis, and compared them with a community cohort (mean age 8.55 ± 1.03 years) [42]. The study reported statistically significant higher rates of ADHD and oppositional defiant disorder (ODD) in the recurrent epistaxis cohort [42]. These results are consistent with a recent meta-analysis which found individuals with ADHD were more likely to suffer unintentional injuries OR of 1.53 (95% CI 1.40, 1.67) [41]. However, it should be noted that this is an OR for all injuries; some specific types of injuries, such as traumatic brain injury, have been found to have a higher OR of 2.1 [41]. Whilst this cohort study is limited by its relatively small sample size, it highlights that ADHD as a possible risk factor for recurrent epistaxis

in school aged children and should be considered as a differential diagnosis especially as documented cases of undiagnosed ADHD presenting as recurrent epistaxis exist in the literature [43]. Further investigation into this correlation would be illuminating, including the effects of ADHD medications in reducing the rate of recurrent epistaxis.

The management of ADHD involves a combination of both pharmacological and non-pharmacological treatments [44,45]. Stimulant medications, such as methylphenidate and amphetamines, provide the most effective symptom reduction [45]. These medications are available in both immediate and controlled release formulations, and have been associated with a 10% decrease in rates of unintentional injury [41]. Non-pharmacological therapies aim to provide parents with techniques that can improve their child's behaviour, and help the child to regulate their own behaviour [44,45].

Iatrogenic Sources

Selective serotonin reuptake inhibitors (SSRIs) are prescribed for the management of depression, anxiety, obsessive compulsive disorders, anxiety, bulimia, and phobia disorders [46,47]. Patients who are prescribed SSRIs are at an increased risk of upper gastrointestinal bleeding, intracranial haemorrhage, and post-operative bleeding [48]. This risk is additionally increased if non-steroidal anti-inflammatory medications and/or anticoagulation medications are concurrently used [49].

Serotonin plays a role in nitric oxide production, platelet aggregation, and fibrin formation [48]. SSRIs decrease serotonin uptake by platelets; this results in platelet dysfunction which can manifest as increased bleeding time. However, the increase in bleeding time can be modest and still fall within normal physiological ranges making it difficult to detect [46].

To date, the literature addressing SSRIs and epistaxis is limited to case reports and case series, with the largest series reporting four cases of presumed SSRI induced epistaxis within one to five weeks of commencing SSRI medications in children and adolescents aged 10 to 15 [50]. In three of the cases, the cessation of the SSRI coincided with cessation of the epistaxis. In one case, dose reduction was followed by cessation of epistaxis [50], which is consistent with a case report which also reported that SSRI induced bleeding may be dose dependent [51]. Overall, the risk of bleeding is considered to be small, despite the possibility of under-reporting [50].

Due to limited research into iatrogenic causes of epistaxis, there are currently no guidelines for management of SSRI induced epistaxis. A multidisciplinary approach is often suggested, with clinician discretion advised for cessation for SSRI medications. With reference to psychiatric epistaxis, SSRI use is likely only a relative risk factor, often outweighed by other patient factors.

Conclusion

Epistaxis with a psychiatric aetiology represent a complex problem for medical practitioners, and often require multidisciplinary input to ensure effective management. The causes can range from relatively common psychiatric conditions, such as ADHD, to rare presentations like hematohidrosis. It is important for clinicians in primary care settings to be aware that epistaxis can arise in the context of psychiatric pathology, and should ensure a broad diagnostic net when treating patients presenting with epistaxis. This is important because it fosters better long-term management and prognosis, rather than a simple band-aid fix.

Conflicts of Interest

There is no conflict of interest.

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