# Stress-Induced Haematohidrosis: a Case Report

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CME

## Abstract

We describe a case of stress-induced haematohidrosis in a 14-year-old boy who responded well to stress management together with sertraline medication.

***Key words:*** *Sertraline; Stress, psychological; Sweating*

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## Introduction

Haematohidrosis is a rare entity in which the patient sweats blood.[1] It can be associated with religious experiences and can be caused by bleeding disorders, vicarious menstruations, physical exertions, and psychogenic stress.[2] The underlying mechanism of haematohidrosis has been proposed to be an acute stress-induced activation of the sympathetic nervous system that controls the capillary network around the sweat glands. With escalation, the vessels dilate and rupture and lead to localised haemorrhage into the lumen of the gland.[1,3] Simultaneous activation of the fight-or-flight reaction and increased sweating leads to the blood being pushed out onto the skin surface, which appears as frank bleeding.[1] Biopsy studies have revealed non-vascular blood-filled spaces opening directly into the follicular canals associated with instances of bleeding. As these spaces only open temporarily and collapse afterwards, haemorrhages are of an intermittent nature[3,4]; biopsy results may be negative if performed after these spaces collapsed. In addition, an underlying weakness in the dermal stroma may provide the empty spaces that are filled in by the extravasated blood during vasodilatation and lead to surface bleeding with increased positive pressure.[3] This reservoir effect may mask a correlation with acute stress. It is not uncommon for haematohidrosis to be diagnosed as factitious or psychosomatic in origin. There are no well-recognised diagnostic criteria for haematohidrosis; the literature mainly consists of case reports.[5] We herein report a case of stress-induced haematohidrosis in a 14-year-old boy who was referred for psychiatry treatment after multiple medical investigations failed to identify the cause.

## Case presentation

In January 2019, a 14-year-old boy from urban Kolkata, India was referred to our psychiatry outpatient clinic with a 1-year history of spontaneous bleeding from various sites. The onset of non-traumatic nose bleeding coincided with an allergic reaction (generalised itching) and school examinations. He was treated by a general practitioner with anti-histaminic medicines, and the itching improved. However, the nose bleeding recurred two to three times over a week before recession, and the bleeding recurred over 3 months coinciding with term examinations.

A consultation of an ear, nose, and throat specialist revealed enlarged adenoid, which prompted an adenoidectomy. This led to missed schooldays, and the patient became increasingly irritable, with more temper tantrums and social isolation, and refused to go back to school. In the next few months, the patient had episodes of bleeding from intact skin over forehead, scalp, eyes (non-conjunctival), ear (skin around ear canal and cheek), cheeks, limbs, and trunk (Figure). The bleeding gradually increased to a daily occurrence, which was spontaneous, painless, lasting for seconds to minutes, non-spurting, and self-resolving (with light pressure or simple wiping). No scars or breaks in skin surface were identified. The patient had no loss of consciousness, fall in blood pressure, or syncope during occurrence. There was no concurring physical illness, trauma, or use of illicit drugs.

The patient has no family history of haematohidrosis. Test results were all normal including complete blood count, bleeding time, clotting time, activated partial thromboplastin time, factor-13 assay, liver function, kidney function, and routine urine tests. Benzidine test confirmed blood in the fluid. Skin biopsy from the bleeding site showed no non-vascular blood-filled spaces.

Psychiatric evaluation revealed that the patient had depressed mood and severe anxiety. He revealed his perceived difficulty in studying and avoiding attending school. Discussions about returning to school provoked

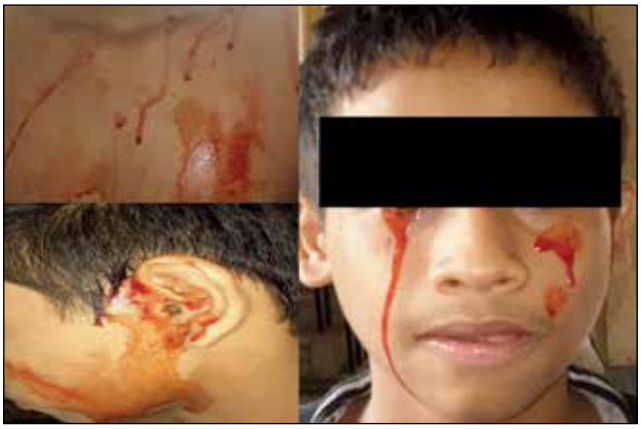

***Figure. Bleeding from skin over upper chest, cheek, ear lobes, and eyes.***

anxiety for him. When talking about studies, he had symptoms of autonomic arousal such as palpitation, sweating, and tremulousness but not panic attacks. He had general lethargy and lacked motivation for the preceding weeks, but he did not fulfil the ICD-10 threshold of a depressive episode, specific phobia, or generalised anxiety disorder. The patient was provisionally diagnosed with mixed anxiety and depressive disorder and was treated with sertraline 25 mg. He had a full-scale IQ score of 92 in the standardised IQ-test for Indian school children.[6]

Both the patient and his parents were educated about the psychiatric diagnosis and the association of haematohidrosis with stress. The patient received a weekly face-to-face behavioural therapy for relaxation along with sertraline. A gradual return-to-school proposal was discussed with the parents. Positive reinforcement such as a token-economy with star-charts was suggested to the parents. At 1-month follow-up, the patient had acquired reasonable skills with relaxation techniques, and no bleeding occurred over the previous 20 days. The patient did not attend any further follow-up.

## Discussion

Differential diagnoses of haematohidrosis include dermatitis artefacta, malingering, and factitious disorder. In our patient, a battery of tests had excluded major systemic causes. We believe that the perceived stress associated with school and the within-normal-range-lower IQ probably led to sympathetic activation. Symptoms began during annual examination; failing examination means that the patient must repeat the year. His bleeding episodes were exacerbated with anxiety, which led to school avoidance. Stress management together with use of a selective serotonin reuptake inhibitor antidepressant led to improvement of haematohidrosis. Sertraline (rather than beta-blockers[4]) was used to treat the mood-anxiety symptoms.

We acknowledge that microscopic and biochemical examination of the fluid was not performed, and we may not have excluded all possible organic causes. Nonetheless, our comprehensive bio-psycho-social assessment enabled successful management for our patient.

## Contributors

SSC, SR, and MK clinically examined the patient. SSC and SM drafted and critically revised the manuscript for important intellectual content. All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

## Conflicts of interest

All authors have disclosed no conflicts of interest.

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## Ethics approval

The patient was treated in accordance with the tenets of the Declaration of Helsinki. The patient's guardian provided written informed consent for all treatments and procedures and for publication.

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