

## HEMATOHIDROSIS – CASE SERIES OF A RARE CLINICAL CONDITION

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### ABSTRACT

**Background:** Blood flowing through the sweat of humans is a rare clinical condition called hematohidrosis. Bleeding may occur spontaneously from the ears, nose, throat, and other parts of the body during periods of intense physical or emotional stress. The condition presents as spontaneous painless bleeding through intact skin. Majority of Otolaryngologists and other clinicians are unaware of this rare clinical entity. Diagnosis is made by the presence of bloody discharge through an intact skin in ear, nose and facial areas and the presence of blood components on biochemical analysis. **Materials and Methods:** Retrospective analysis of a series of four cases. **Results:** All 4 cases are under extreme emotional stress and had normal hematological parameters. 3 cases manifested with ear bleed and 1 case with nose and facial bleed. 2 are children below 15 years and 2 are adults between 20-30 years. **Conclusion:** Cases may get unnoticed as this is a relatively rare and unknown condition to otolaryngologists and other clinicians. The condition occurs in extreme physical and emotional stress. The condition can be managed effectively provided the diagnosis is made accurately.

## INTRODUCTION

Hematohidrosis is a rare clinical condition characterized by the excretion of blood through sweat.<sup>[1]</sup> Painless spontaneous bleeding through intact skin can occur in any part of the body while the bleeding cases from ear, nose, throat and facial areas are presented to Otolaryngologists.<sup>[2]</sup> The condition is also referred to as Hematidrosis or Hemidrosis. The term originates from Ancient Greek haíma/haímatos meaning ‘blood,’ combined with hidros meaning ‘sweat.’ Blood sweating is called hematohidrosis, while true bleeding occurs in bleeding disorders.<sup>3</sup> Many believe that Jesus experienced hematidrosis that is, sweating blood prior to His crucifixion. According to The Defenders Bible, the physician Luke described the event as follows: ‘And being in anguish, he prayed more earnestly, and His sweat was like drops of blood falling to the ground,’ referring to Jesus’ prayer in the Garden of Gethsemane. Similarly, Leonardo da Vinci documented an instance of a soldier who reportedly sweated blood before going into battle. Exact etiology remains unknown till date. Acute fear and intense mental focus have been identified as the most common triggers. Vicarious menstruation, component of

systemic disease, excessive exertion, psychogenic and unknown are among the causes described of the disease.<sup>[4]</sup>

Hematohidrosis has been observed in association with primary thrombocytopenic purpura.<sup>[5]</sup> Several theories have been put forward to explain its etiopathogenesis. One such theory states that, there are multiple blood vessels arranged in a net like form around the sweat glands. When in stress these vessels contract, as the anxiety passes, the vessels dilate to a point of rupture. Under extreme stress, capillaries surrounding the sweat glands rupture, blood seeps into the sweat ducts and is expelled onto the skin surface mixed with sweat.<sup>[6]</sup> The term “hematofolliculohidrosis” was proposed because it appeared along with sweat like fluid and the blood exuded via the follicular canals.<sup>[7]</sup> The diagnosis of hemeatohidrosis is made by the presence of bloody discharge through an intact skin, without any obvious cause, witnessed by a health professional and the presence of blood components in the discharge on biochemical analysis. Hematohidrosis is a well-recognized diagnosis; (ICD-9-CM:705-89).<sup>[8]</sup>

## MATERIALS AND METHODS

**Study design:** Retrospective analysis of a series of four cases

**Study Period:** January 2020 to June 2025 (5 and half years)

**Study Setting:** Out patients at in the department of ENT at Govt medical college, Srikakulam and Andhra medical college, Visakhapatnam.

**Study population:** Patients of all age groups who presented to the ENT OP

**Sample Size:** Four patients who met the inclusion and exclusion criteria

**Inclusion Criteria:** Patients with spontaneous bleed from ear, nose, throat and facial skin or a combination of these. Patients of all age groups are included.

**Exclusion Criteria:** Patients with skin or mucosal discontinuity, underlying local ENT disease, bleeding disorders, physical abuse and hypertension.

### Methodology

All the suspected patients were subjected to a detailed ENT clinical examination, diagnostic nasal endoscopy, video laryngoscopy and required hematological and other investigations. Blood investigations include: complete blood counts, bleeding time, clotting time, platelet count, peripheral smear, PT, APTT, INR, liver and renal function tests. Other investigations include; Benzadine test of the fluid, urine & stool examination, immediate skin biopsy in required cases, microscopic examination of the fluid for blood cells, UGI endoscopy and ultrasound abdomen. Adequate referrals to physicians, pediatricians, psychiatrists and hematologists were done. The study received approval from the scientific committee and the Institutional Ethics committee, Government medical college, Srikakulam.

### CASES



**Picture 1: bleed from Lt EAM & concha**



**Picture 2: Blood sweat on the floor**



**Picture 3: Bleed from Rt Ear, nose & Upper lip**



**Picture 4: Blood sweat on the floor**



**Picture 5: Bleed from Rt Ear/concha**



**Picture 6: Blood sweat in the EAC/concha**

## RESULTS

All the four cases were under extreme emotional and mental stress. Three patients were female and one patient was a male. The male patient was aged 15-20 years, two female patients were aged 10-15 years and one female patient was aged 20-25 years. In three cases the bleeding was from the ear and in one case the bleeding was from nose and face. All the patients were subjected to a detailed ENT clinical examination including diagnostic nasal endoscopy and video laryngoscopy and necessary hematological investigations. Adequate referrals were made to physicians, pediatricians, psychiatrists and hematologists. The patients were counselled and treated medically. No recurrence was observed in a follow up of three months.

## DISCUSSION

Hematohidrosis also known as Hemidrosis, hematidrosis is a rare clinical condition that manifests

as self-limiting episodes of spontaneous discharge of bloody secretion through intact skin or sweat gland orifices, occurring under conditions of extreme physical or emotional stress.<sup>[9]</sup> Manonukul et al. introduced the term 'hematofolliculohidrosis' to describe instances where blood appeared alongside sweat-like fluid, exuding through the follicular canals.<sup>[7]</sup>

Proposed causes of hematohidrosis include systemic diseases, vicarious menstruation, excessive physical exertion, psychogenic factors, psychogenic purpura, and idiopathic origins. Acute fear and intense mental strain are the most frequently cited triggers—documented in six cases involving men awaiting execution, one during the London Blitz, another involving fear of sexual assault, and one precipitated by fear of a storm at sea.<sup>[7]</sup> In an additional case report, chronic stress was deemed the most likely cause of hematohidrosis after thorough investigations excluded all other potential factors.<sup>[10]</sup> Hysterical mechanisms and psychosomatic disorders are also believed to precipitate bleeding. Psychogenic purpura originally termed autoerythrocyte sensitization is thought to arise from hypersensitivity to one's own blood components. It manifests as recurrent, painful ecchymoses and may be accompanied by gastrointestinal bleeding and hematuria. Another form of cutaneous bleeding is known as psychogenic stigmata, in which blood oozes from old scars or even intact skin, typically observed in individuals with neurotic tendencies. Copeland described a case in which a patient's old scars would begin to bleed whenever she experienced intense anxiety.<sup>[7]</sup>

Dr. Frederick Zugibe proposed that under acute stress, a dense network of blood vessels encircling the sweat glands constricts and then dilates so forcefully that they rupture, allowing blood to enter the sweat ducts. Under great stress the vessels contract, subsequently as the anxiety passes, the blood vessels dilate to a point of rupture. Under extreme stress, the dense network of tiny blood vessels surrounding the sweat glands may first constrict and then dilate to the point of rupture. Once ruptured, blood enters the sweat gland ducts and is expelled onto the skin, emerging as droplets of blood mixed with sweat. Notably, this extravasated blood mirrors the cellular composition of peripheral blood. This intense mental anxiety also triggers the sympathetic fight-or-flight response, amplifying vascular fragility and precipitating hemorrhage into the sweat glands.

People with hematohidrosis present with blood sweat from their skin usually the forehead, nose, mouth, ears, nails, umbilicus and other body areas. In addition, bleeding can occur from mucocutaneous surfaces, bleeding tears called as Hemolacria, blood from the ears called as Otoerythrosis and vicarious menstruation.<sup>[4]</sup> The skin surrounding the area of bleeding may exhibit temporary swelling. In some conditions, the secreted fluid is more dilute and appears to be blood tinged, while others may have darker, bright red secretions resembling blood.<sup>[12]</sup>

The extent of bleeding is usually minimal, stops on its own and not serious. The condition often leads to weakness and mild to moderate dehydration, stemming from severe anxiety and combined loss of both blood and sweat.<sup>[11]</sup>

A suspected case of hematohidrosis is investigated with routine investigations like complete blood count, bleeding time, clotting time, platelets, PT, APTT, INR, urine examination, liver and renal function tests. Other investigations include Benzidine test which confirms the blood elements in the fluid, Hemochromogen test which confirms the blood is human in origin, microscopic examination of the fluid for blood components, upper GI endoscopy and ultrasound abdomen. Immediate skin biopsy will show intradermal bleed, blood filled vascular spaces and abnormality in sweat glands and hair follicles. These findings will be absent and the spaces collapse if biopsy is done at a later period.<sup>[7]</sup>

There is no specific treatment to this condition till date. The key to successful treatment includes adequate counselling of the patient and the parents and convincing them regarding the nature of the illness, its aggravating factors and possible treatment of this condition.<sup>[13]</sup> Zhaoyue et al used beta blockers (propranolol) with the hypothesis of sympathetic over activity and it was found to be effective.<sup>[11]</sup> Manonukul et al, used anxiolytic (lorazepam) in a case and got excellent result.<sup>[7]</sup> In another case of hematohidrosis diazepam did not work, but got excellent result with propranolol.<sup>[14]</sup> Vitamin C and drugs to help blood clot and stop bleeding (tranexamic acid) can be used in some cases. Anticholinergics such as glycopyrrolate, propantheline, atropine transdermal patches to decrease the sweating can be used in certain cases.<sup>[15]</sup>

## CONCLUSION

Hematohidrosis is a very rare and relatively unknown condition not only to otolaryngologists but to other physicians as well, and the cases are occurring sporadically which goes unnoticed. Only a limited number of cases have been documented in the

literature. Adequate knowledge of the condition is essential to have a clinical suspicion. If awareness is created about this relatively unknown clinical entity, it will lead to further insight on evaluation and management. It is not a difficult condition to treat once a correct diagnosis is made.

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