Achenbach Syndrome In A Male Infant With Brown Discoloration Of Skin: A Case Report

Abstract

Achenbach syndrome or paroxysmal hand hematoma is a rare and scantily found medical condition. It is a condition with benign, spontaneous, self-limiting focal hemorrhage under the skin, mostly located in the extremities of upper limb or lower limb, mostly displaying bluish discoloration of skin.Here, a brief communication in the form of case report of 1 year old child from Russian Federation is being presented, which was compatibly diagnosed to be Achenbach syndrome by analyzing the history and other medical reports. The typical nature of the case being presented is that the patient had brown discoloration of skin rather than blue and experienced no pain as reported by guardians of the patient.

Keywords

Achenbach syndrome, Paroxysmal hand hematoma, blue finger, skin lesion, brown finger

Introduction

Achenbach syndrome or paroxysmal hand hematoma is a rare and scantily found medical condition. It is a condition with benign, spontaneous, self-limiting focal hemorrhage under the skin, mostly located in the extremities of upper limb or lower limb. It is characterized by ecchymoses of digits and sometimes palm, showing bluish discoloration[1]. Generally this is accompanied by pain from mild to moderate but sometimes absent. This is a condition of unknown etiology and is not associated with any trauma or infection, affecting primarily women.

Here, a case report of 1 year old child from Russian Federation is being presented, which was compatibly diagnosed to be Achenbach syndrome by analyzing the history and other medical reports. The typical nature of the case being presented is that the patient had brown discoloration of skin rather than blue and experienced no pain as reported by guardians of the patient.

Case presentation

The observation and monitoring of the patient condition was done with consent of the child's guardians. This is being reported to the medical community as very less, as per some reports less than 100 cases have been reported till date[2]. Hence, it is important to understand the pathology and it's variants with discourse and discussion, as of the patient being presented had few peculiar variants in the manifestation of the pathology.

Patient Information

This is taken in two parts – anamnesis vitae and anamnesis morbid.

Anamnesis vitae

This is includes general information, past medical history and family history of the patient.

General information and past medical history

The patient that is the subject is a 1 year of male child from the city of Novomoscovsk of Russian Federation and ethnically Russian. The subject was born around July 2022 to healthy mother without any post-partum or pre-partum complications. Mother had non-complicated pregnancy and delivery was normal, this was the first pregnancy and no unsuccessful pregnancy or abortion has been reported by the mother. The patient on birth had 9 points on APGAR scale at 1 minute of post-partum life and 9 points on APGAR scale again at repeated examination at 5 minutes of post-partum life. The subject was given Kangaroo mother care (KMC) immediately after birth[9]. The weight of the subject on birth was 3.4kg at birth and 37.4 C body temperature and the height was 48cm which normal as per pediatric observation[3].

Family history

Both the parents are working individuals with no reported chronic medical history as such.

Anamnesis morbi

It includes present local status, complaints, general observation, systemic observation and clinical observation of the patient.

Primary complaint

The primary complaint as reported by the subject or patient's mother is sudden appearance of reddish-brown hue on the distal end of left upper phalange II. No complaint of itching or pain was reported. No history of trauma or intoxication syndrome was reported by the mother of the subject as well.

General observation

The patient was overall healthy. No signs of systemic or local infection were noted. Overall skin tone was normal, sweating was normal, no signs of hypersensitive reaction or typical infections in pediatric age groups were noted. Hyperemic reddish brown hue was noticed on the skin of left distal phalange II. On pressing over the skin lesion no pain was reported, no crying reflex by the subject was noted.

Cardiac system

Heart borders were normal on position on percussion. Apex impulse was felt on left 4^{th} intercostals space along the mid-clavicular line. All heart sounds were normal on auscultation. Pulse rate was 78 beats per minute, SpO2 was 99% and blood pressure was 102/70 mm Hg. All cardiac parameters were normal and no necessity was felt for additional instrumental diagnosis.

Respiratory system

Breathing was vesicular. Lung sound was clear on auscultation, No signs of cyanosis were noticed. SpO2 was observed at 99%.

Gastrointestinal system

The subject had no complaints of bloating, vomiting or lactose intolerance, No history of lack of breastfeeding was reported. Normal position of stomach in the left hypochondrium and liver in the right hypochondrium were noted, no increment in size was felt during palpation and percussion. There was no complaint of constipation or diarrhea of osmotic or non-osmotic type was reported. There was no history of post-partum jaundice either. No pain was felt by the subject on palpation along the intestine. Bowel sounds were normal on auscultation.

Urogenital system

No deformity was noted in the observation of urogenital system. There was no complaint of the subject crying during or after urination.

Observation of skin

Overall no significant changes were found on the skin of the subject. Skin moisture and tone were normal. No signs of hypersensitivity were noted. On observation of the palms and extremities of the upper limb, reddish-brown discoloration of left distal phalange II was noted, no pain was felt by the subject on palpation. Observation by general surgeon and dermatologist concluded it to be some inconclusive pathology of infectious origin and the subject was treated with topical iodine and topical steroid but without any effect. From the words of subject's mother, such change in the skin was noted at 9 months of age, the subject did not suffer any trauma or did not get catch any infection during the past months from after birth.

fig: subject with Achenbach syndrome on left distal phalange II

Diagnosis and Assessment

The subject did not undergo any trauma or did not have any infection; there was no clinical record of complication post-partum. No signs of any genetic disorder were noted. Topical iodine and topical steroid failed to respond. Blood analysis showed normal hemogram parameters and ESR was 8 mm/hr. No additional pathology was found on laboratory results. Hence, diagnosis was made Achenbach syndrome and all topical drugs prescribed earlier were withdrawn. The subject was kept under observation for 3 months from the time of consultation at clinic in August, 2023. Although two typical variations were noted in this case from the classical Achenbach syndrome or paroxysmal hand hematoma, there was absence of pain and the discoloration was reddish-brown rather than blue. No medical management was prescribed[4].

Follow-up and Outcome

After 3 months on follow-up in November, 2023 it was found that the reddish-brown discoloration has receded by itself. No complaint of systemic change was made by the parents of the patient. Hence, the diagnosis was confirmed to be Achenbach syndrome or paroxysmal hand hematoma.

Discussion

Achenbach syndrome is benign, self-limiting finger hematoma which necessarily doesn't need any medical management s such. It is a rare clinical condition and pathology is not well-understood by current pathological knowledge. The patient presented here had some typical variations from the classical Achenbach syndrome where there was no pain and discoloration was reddish-brown rather than bluish. But it has to be mentioned here that the lack of pain might be due to lower age of the subject as nociception increases with age[5]. From the histological point of view, it is to be noted that few observations suggest that brown coloration of bruises show predominant activity of hematoidin on the site by erythrocyte extravasation[6].Hematoidin being a residue product of hemoglobin might indicate towards research in the direction concerned with hepatology to understand the pathogenesis of this pathology. A hypothetical possibility of it might be such, excess hematoidin in blood leads to occlusion of capillaries in the distal part of phalanges and leads to rupture and formation of hematoma, as hematoma and hematoidin has been linked with each other in few studies[7].It might be simply that in the case presented the concentration of hematoidin is more than that in the classical scenarios. Further research in the direction of gene involving expression of cytP450 as hematoidin is nothing but biliverdin stored in crystalline form after the metabolism of hemoglobin[8]. Hence, overexpression of cytP450 and over-production of biliverdin might be a hypothetical cause of Achenbach syndrome.

Conclusion

Achenbach syndrome is a widely less understood pathological condition. The case presented gives a different insight to its variety and investigates its probable genetic involvement, taking hematoidin into consideration. More intensive and further research in this field is necessary. It might be a scene that in most of the cases, Achenbach syndrome goes unreported because of lack of symptoms and clinical implications. The case provides an intriguing insight into the possible pathophysiology of the syndrome. Additional research based on animal models to investigate into possible changes in the biochemical pathway of hemoglobin catabolism and hematoidin deposition in the peripheral vasculature in

hematoma and gradual development of cyanosis might be done for better understanding of the pathology[10].

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