CASE REPORT

Stereotypical linear purpura of the upper limbs: A report of three cases of a rare psychocutaneous disorder and review of the literature

Sharmila Sarkar, Sudip Kumar Ghosh, Abheek Sil
Department of Psychiatry, Calcutta National Medical College, Kolkata, Department of Dermatology, Venereology, and Leprosy, R.G. Kar Medical College, Kolkata, West Bengal, India

ABSTRACT

Mechanically induced purpura with its varied clinical presentations may often pose a great diagnostic challenge to the treating physician. In this report, we seek to familiarize clinicians with a relatively new and rarely diagnosed psychocutaneous disorder, stereotypical linear mechanically induced purpura of the upper limbs, which we had the chance to detect in three teenage girls from Eastern India. A review of the PubMed and Medline database reveals a paucity of information on this subject, especially in the English language literature. Only a handful of reports have been described worldwide till date. However, it is probably hitherto unreported from India.

Key words: Linear purpura, mechanically induced, psychocutaneous, upper limb

INTRODUCTION

Purpura results from the extravasation of blood from the vasculature into the skin or mucous membranes. Purpura is not a diagnosis but rather, can be the presenting feature of life-threatening meningococcal sepsis and hemorrhagic disorders, which require urgent diagnosis and management. In contrast, purpura of rare psychocutaneous origin can present with distinctive, localized cutaneous reaction pattern mostly affecting psychologically disturbed adult women. It causes patients alarm but requires little more than a single assessment and reassurance. Mechanically induced purpura with its varied clinical presentations may lead to diagnostic wandering. In this report, we seek to familiarize clinicians with a relatively new and rarely diagnosed entity, stereotypical linear mechanically induced purpura of the upper limbs, which we had the opportunity to observe in three teenage girls [Table 1] from India. Review of the PubMed and Medline database highlighted a dearth of data on this subject, especially in English language literature with only a handful of reports being described worldwide. However, it is probably yet to be reported from India.

CASE REPORTS

Case 1
A 14-year-old girl presented to our facility, accompanied by anxious parents, complaining of mildly painful skin lesions over her arms and forearms for the past 4 days. Her annual class examination was scheduled a week later. Similar...
lesions had appeared for two successive years just before midterm tests, over the designated sites and had resolved spontaneously. On examination, bilaterally symmetrical, discontinuous, curvilinear, nonblanchable, nonpalpable, purpuric streaks were present over the anterolateral aspect of her arms and forearms [Figure 1]. Systemic evaluation and routine laboratory tests including complete hemogram, bleeding time, clotting time, prothrombin time, coagulation profile, and platelet function test and routine biochemical panels were noncontributory.

On psychiatric evaluation, she was found to have social anxiety disorder. The girl was having an average intelligence, high state and trait anxiety with poor coping strategies. The lesions were self-inflicted mechanically (by metallic object), precipitated by fear of facing examinations. However, the parents were supportive of their daughter. She was given escitalopram 10 mg/day and clonazepam 0.5 mg/day along with counseling. After about 6 weeks, clonazepam had been stopped but the counseling and escitalopram were continued for 1 year. There was no reported recurrence during 1 year of follow-up.

**Case 2**
A 19-year-old girl presented to us with asymptomatic rashes over her arms and forearms for the preceding 6 days. She had a recent broken affair. There was no previous history of such similar episode. On examination, bilaterally symmetrical, discontinuous rectangular, nonblanchable, nonpalpable, purpuric streaks were present over the inner aspect of her arms and forearms [Figure 2]. Systemic evaluation and laboratory evaluation were noncontributory. She had heightened emotionality, high rejection sensitivity in every kind of relationship, and history of suicidal attempts by drug overdose. She already had been diagnosed

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**Table 1: Profile of patients with linear upper limb purpura**

| Parameters                      | Patient 1                          | Patient 2                        | Patient 3                          |
|---------------------------------|------------------------------------|----------------------------------|------------------------------------|
| **Age (years)**                 | 14                                 | 19                               | 15                                 |
| **Gender**                      | Female                             | Female                           | Female                             |
| **Precipitating factor**        | Fear of facing examination          | Broken affair                     | None                               |
| **Associated local symptoms**   | Mild pain                          | Asymptomatic                      | Pruritus                           |
| **Systemic symptoms**           | None                               | None                             | Generalized weakness               |
| **History of recurrence**       | Present; multiple episodes          | First episode                     | Present; multiple episodes          |
| **Duration at presentation (days)** | 4                                  | 6                                | 10                                 |
| **Mechanism of production**     | Self-inflicted mechanical purpura; | Self-inflicted mechanical purpura; | Self-inflicted mechanical purpura; |
|                                 | by metallic object                  | by tweezers                       | by metallic object                  |
| **Morphology**                  | Discontinuous, curvilinear         | Discontinuous, rectangular        | Continuous, linear                 |
| **Site**                        | Arms and forearms                  | Arms and forearms                 | Arms                               |
| **Symmetry/laterality**         | Bilaterally symmetrical             | Bilaterally symmetrical           | Bilaterally symmetrical             |
| **Laboratory investigations**    | Noncontributory                     | Noncontributory                   | Noncontributory                     |
| **Underlying psychiatric disorder** | Social anxiety disorder           | Borderline personality disorder   | Factitious disorder                |
| **Parental attitude**           | Supportive                         | Over punitive parenting            | Over concerned                      |
| **Treatment**                   | Behavior therapy, escitalopram 10 mg/day for 1 year | Psychotherapy, fluoxetine 20 mg/day, olanzapine 5 mg/day for 1 year | Psychotherapy                        |
| **Clonazepam 0.5 mg/day for 6 weeks** |                                    |                                   | Counseling of parents               |
| **Follow-up period (year)**     | 1                                  | 1                                | 1                                  |
| **Outcome**                     | Favorable with no recurrence        | Favorable with no recurrence      | Favorable with no recurrence        |
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...a case of borderline personality disorder and was under treatment of a psychiatrist. However, she was very irregular in follow-up and had drug compliance issues. The lesions were self-inflicted mechanically (by tweezers). She was given fluoxetine 20 mg/day and olanzapine 5 mg/day. The psychotropic drugs along with counseling were continued for a year. She responded favorably to treatment without similar episodes during 1 year of follow-up.

Case 3
A 15-year-old girl, accompanied by her parents, presented with slightly itchy skin eruptions over her arms for 10 days. She gave a history of multiple similar recurring and self-resolving episodes in the past. She also had nonspecific complaints of generalized weakness. On examination, bilaterally symmetrical, continuous, linear, nonblanchable, nonpalpable, purpuric streaks were present over the inner aspect of both arms [Figure 3].

Systemic evaluation and relevant laboratory investigations were noncontributory. A psychiatric evaluation revealed that she had poor adjustment with peers at school and poor interest in academics. She did her skin lesions mechanically to get emotional support from her parents. Her parents brought her to us for treatment and also to get a medical certificate of her long absence in school. They did not know that the lesions were produced mechanically (by metallic object). She was diagnosed as a case of factitious disorder. Parents seemed overtly concerned about their child. She responded favorably to psychotherapy and her parents were counseled. There were no similar episodes during the 1 year follow-up.

DISCUSSION

Induced mechanical purpura has been described more often as dummy purpura. However, the context of such occurrence remains poorly understood. In some cases, the mechanical lesions are carried out by a third party, which should suggest abuse, Munchhausen syndrome by proxy, or traditional therapeutic practices such as coining (rubbing a metal part against the skin). In other cases, the patient himself causes the lesions, in the context of a game, a search for secondary benefit or a real pathomimy.[8,9]

Psychogenic purpura, also known as Gardner-Diamond syndrome, is the primary differential diagnosis of dummy purpura.

Young women with a pathological psychological profile are commonly affected, characterized by painful bruising of the limbs, without any coagulation abnormalities. It is also termed red blood cell autosensitization syndrome because of the positive intradermal reaction to the patient’s own red blood cells. This can be explained adequately by the psychosomatic hypothesis.[3-5]

The skin is an organ frequently affected in factitious disorders probably because of its easy accessibility. Clinical presentations are variable, not resembling any known dermatoses, with strange linear or geometric shapes, of unusual distribution, restricted to one or two body segments, most often located in accessible and visible areas such as the upper limbs and face. The most frequently observed clinical aspects of such skin lesions in children are surface erosion, followed by purpura.[10-12]

Stereotypical linear upper limb purpura has previously been reported only four times in PubMed and MEDLINE databases [Table 2].[4,7] To describe this morphological pattern, Yamada et al. used the term “row purpura.”[4] The four published reports show, as in our experience, characteristic linear arrangement of continuous or discontinuous purpura of acute onset (4–10 days) and a female predominance of school-going age (14–18 years; mean age of 15.67 years). The lesions were essentially bilateral, often symmetrical. Unlike our patients, where the purpuric streaks were restricted to the upper limbs, other sites such as face, trunk, and thighs have also been reported to be involved additionally.[4,7] The clinical presentations of induced mechanical purpura differ according to the method and object used.

Purpura can be caused by the application of negative pressure on a skin area by suction. In the form of a “mouth” on the arm probably following a hickey,[5,6] neurotic suction over arms, on the chin after sucking a glass, on the lower half of the back with a “U” shape after creating a vacuum at the bathtub opening.[13,14] In all of our three cases, the lesions were mechanically provoked by themselves either by a metallic object or tweezers. Functional signs of pruritus and complaints of generalized weakness were present in one patient each. A history of similar self-limiting past episodes was found in two patients. On psychiatric evaluation, two patients were found to suffer from social anxiety and borderline personality disorder, whereas the third patient was diagnosed with an underlying factitious...
disorder. Psychiatric illnesses such as depression with self-injury and anxiety have been reported in the reports by Hosteing et al. and Ring et al. Fear of facing examination and broken affair were the precipitating factors in two of our patients. On the other hand, familial dysfunction was the most common triggering factor described in other reported cases. The prognosis was favorable, as in our series, with adequate psychiatric intervention.

The diagnosis of purpura is essentially clinical, and skin biopsy is generally not required. None of the patients in the present series consented to undergo biopsy. Histologically, there is no specific sign but extravasated erythrocytes, a scattered superficial inflammatory infiltrate, and the absence of vasculitis can be observed in mechanical purpura.

In our experience, the hypothesis of such self-inflicted injuries may be met with initial trepidation by their families.

Additional exploration to eliminate the differential diagnoses of purpura due to platelet disorders (thrombocytopenia, medications, malignancy, splenomegaly, and platelet dysfunction), vascular factors (vasculitis, infection, medications such as nonsteroidal anti-inflammatory drugs, propylthiouracil, anti-TNF factors, and Vitamin C deficiency), and coagulation deficiencies (hemophilia and von Willebrand disease) should be carried out to put their anxiety to rest. A psychiatric or psychological assessment is warranted to detect any discordance in family, school, elsewhere, and/or underlying psychiatric illness or psychological suffering.

**CONCLUSION**

Linear upper limb purpura is a stereotypical manifestation of induced mechanical purpura. In this article, we would like to emphasize that whenever clinicians encounter patients with linear purpura where there is no obvious clinical or laboratory indicator of blood dyscrasia, psychological evaluation is warranted. At the same time, psychiatrists must be aware about this relatively new condition, as they may face such referred patients from colleagues of other departments. Familiarity and better understanding of this entity would certainly help avoid unnecessary assessments and facilitate earlier detection of possible underlying psychological suffering or psychiatric illness.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.
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Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Leung AK, Chan KW. Evaluating the child with purpura. Am Fam Physician 2001;64:419-28.
2. Thomas AE, Baird SF, Anderson J. Purpuric and petechial rashes in adults and children: Initial assessment. BMJ 2016;352:i1285.
3. Sarkar S, Ghosh SK, Bandyopadhyay D, Nath S. Psychogenic purpura. Indian J Psychiatry 2013;55:192-4.
4. Yamada K, Sakurai Y, Shibata M, Miyagawa S, Yoshioka A. Factitious purpura in a 10-year-old girl. Pediatr Dermatol 2009;26:597-600.
5. Ring HC, Miller IM, Benfeldt E, Jemec GB. Artefactual skin lesions in children and adolescents: Review of the literature and two cases of factitious purpura. Int J Dermatol 2015;54:e27-32.
6. Gil-Bistes D, Kluger N, Guillot B, Bessis D. Dermatitis artefacta in a young girl. Arch Pediatr 2010;17:1543-5.
7. Hosteing S, Luthurriague C, Boralevi F, Mazereequ-Hautier J. A stereotypical clinical presentation of childhood linear purpura of the arms: Analysis of six cases. Arch Pediatr 2017;24:45-51.
8. Lovejoy FH Jr., Marcouse EK, Landrigan PJ. Two examples of purpura factitia. Clin Pediatr (Phila) 1971;10:183-4.
9. Brajon D, Cuny JF, Law Ping Man L, Studer M, Barbaud A, Schmutz JL. Factitious purpura Chin. Ann Dermatol Venereol 2012;139:599-600.
10. Lyell A. Cutaneous artefactual disease. A review, amplified by personal experience. J Am Acad Dermatol 1979;1:391-407.
11. Gieler U, Consoli SG, Tomás-Aragones L, Linder DM, Jemec GB, Poot F, et al. Self-inflicted lesions in dermatology: Terminology and classification – Aposition paper from the European Society for Dermatology and Psychiatry (ESDoP). Acta Derm Venereol 2013;93:4-12.
12. Libow JA. Child and adolescent illness falsification. Pediatrics 2000;105:336-42.
13. Metzker A, Merlob P. Suction purpura. Arch Dermatol 1992;128:822-4.
14. Landers MC, Schroeder TL. Bathtub suction-induced purpura. Pediatr Dermatol 2004;21:146-9.