



## EPIDEMIOLOGICAL, CLINICAL, DERMOSCPIC AND HISTOPATHOLOGICAL EVALUATION OF STRIAE

### Dermatology

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### ABSTRACT

**INTRODUCTION:** Striae or stretch marks were described as a clinical entity since long which are undesirable and etiopatho genitically ill understood clinical entity. Here is the study describing "Epidemiological, Clinical, Dermoscopic and Histopathological features" in patients presenting with striae.

**AIMS AND OBJECTIVES:** 1. To know the epidemiology and clinical patterns of different types striae. 2. To evaluate the dermoscopic features of striae. 3. To evaluate the histopathological features striae.

**MATERIALS AND METHODS:** 1. Source of data: A hospital based, cross sectional, descriptive and analytical study in epidemiological, clinical, dermoscopic and histopathological features of striae was conducted in Department of Dermatology, Venereology and Leprosy, ASRAM, Eluru, AP. 80 Patients were recruited from OPD and study was conducted from December 2017 to August 2019. Dermoscopy, 3 punch biopsies, H&E Staining and special staining were done in selected cases.

**RESULTS:** Of the 80 cases studied, 50% were males and 50% were females with sex ratio being 1:1. The age group in which striae occurred more frequently was 11-20yrs with 52.7%. The mean duration of striae is (13.46months ±20.16)months. Exercise, sudden weight gain, positive family history and topical steroid misuse were most common risk factors. Types are according to the risk factors and subtypes are by their color, morphology, dermoscopy and histopathology. Length, breadth, shape and degree of atrophy differentiates them morphologically. Color, vascularity and melanisation patterns differentiates them dermoscopically. Degree of melanisation, perivascular infiltration, dermal oedema, degree of damage of collagen and elastin differentiates them histopathologically.

**CONCLUSION:** Most common age group involved in development of striae is 11-20yrs with equal sex ratio with various differences in clinical, dermoscopic and histopathological features.

### KEYWORDS

Striae Distensae, Striae Gravidarum, Striae Atrophicans, Dermoscope

#### INTRODUCTION:

Striae distensae or stretch marks were described as a clinical entity for long, and the first histologic descriptions appeared in the medical literature long ago<sup>1</sup>. They are a common disfiguring cutaneous condition characterized by linear, smooth bands of atrophic scars that occur in areas of dermal damage produced by stretching<sup>2</sup>.

The exact etiology still remains controversial, and this is partly due to the variability in the clinical situations in which striae arise<sup>1</sup>. They are the end result of various genetic factors, physiologic states like pregnancy, changes in body habitus, adrenocortical excess, etc. There are no known laboratory abnormalities unless a patient has Cushing's in which there can be an increase in serum and urinary steroid levels<sup>3</sup>.

The pathogenesis of striae is unknown but probably relates to changes in the components of the extracellular matrix, including fibrillin, elastin, and collagen<sup>4</sup>. Also, the data available on epidemiology, clinical pattern, dermoscopic, and histopathological features of striae are very limited in the present literature.

So here is the study describing "Epidemiological, Clinical, Dermoscopic and Histopathological features in patients complaining of striae."

#### MATERIALS AND METHODS:

The present study entitled "Epidemiological, Clinical, Dermoscopic and Histopathological features in patients complaining of striae" was carried out in patients who attended the OP department of Derma

tology, Venereology, and Leprosy, Alluri Sitaramaraju Academy of Medical sciences, Eluru, West Godavari district, Andhra Pradesh.

The study was a descriptive, cross-sectional, open, randomized hospital-based involving 80 cases of striae attending OP department. The study was approved by the Institutional Ethics Committee and carried out over a period from December 2017 to August 2019.

#### INCLUSION CRITERIA:

1. Clinically diagnosed cases of Striae
2. All age groups and both genders included.

#### EXCLUSION CRITERIA:

1. Patients treated for striae prior to the study

#### DATA COLLECTION:

After obtaining informed consent, information was taken as per the proforma, enclosed, recorded on the clinical forms. Complete history regarding the onset, progression, associated conditions is included in the proforma. Following the history, clinical examination, dermo scopic examination, and histopathological examination were done.

#### CLINICAL EXAMINATION:

Inspection of all sites of body including face, upper limbs, lower limbs, trunk, and genitals was done. The morphology of lesions, their distribution, sites of involvement were recorded.

**DERMOSCPIC EXAMINATION:**

Following the cutaneous examination, lesions were examined with dermoscope. Color, Melanisation Pattern, Vascular Pattern were noted.

**HISTOPATHOLOGICAL EXAMINATION:**

After dermoscopic examination, a biopsy was done. In our study, a 3 mm punch biopsy was done in about 30patients.

**PROCEDURE:**

One of the classical lesion was selected and cleaned with spirit. A 3mm punch biopsy was done after inducing Local Anaesthesia. The sample is collected in formalin, labeled properly and staining was done. The slide is viewed in a microscope in both low power and high power.

Epidermis, melanization, vascularity, dermal oedema, adenexa, collagen and elastin were noted.

**RESULTS:****EPIDEMIOLOGY:**

- In our study, the mean age of the patients was (22.36 7.67) years. Males had the mean age of (23.038.62) years, while females had a mean age of (21.7 6.63) years. Difference between males and females with regards to age distribution was not significant, with a P-value 0.768.
- Out of 80cases of striae, 40(50%) cases are males, and 40(50%) cases are females, with equal sex ratio 1:1.
- The mean duration of striae among all the patients is (13.46±20.16)months.
- The most common risk factor among males is exercise with a significant P-Value of 0.00, and most common among females is pregnancy and obesity, with a significant P-value of 0.034. There is no difference in the association of other risk factors in the development of striae among males and females with insignificant P-Value.
- The mean BMI for the development of striae among all the patients is (25.16±4.54). The difference between males and females was not significant, with a P-value of 0.098.
- The most common type of striae among all the patients is SD seen in 58patients. SG is referred only in females with a significant P-Value of 0.001.
- The most common subtype of striae among all the patients is SA1 seen in 49patients. There is no difference in the occurrence of particular subtype among males and females with a P-value of 0.054.
- The most common sites of involvement of striae are hips, abdomen, thighs, underarms, and shoulders. Most common site of involvement in males are buttocks(p=0.018), abdomen (p=0.014), shoulders(P=0.00), arms(P=0.003) and underarms(P=0.00). Breast or chest is specifically involved in females with a significant P-value of 0.014.

**MORPHOLOGICAL FEATURES:**

Among the patients of Striae Distensae(SD),

- Striae Rubra(SR) presented as multiple/few, B/L, discrete, shorter (1-5cm), narrower(<0.5cm), linear, wavy, raised plaques.
- Striae Nigra(SN) presented as multiple/few, B/L, discrete, shorter(-15cm), narrower(<0.5cm), linear, wavy, raised plaques.
- Striae Alba(SA1) presented as multiple/few, B/L, discrete/grouped, shorter(3-5cm), Narrower/ broader (0.5-2cm), linear, straight/wavy, atrophic plaques with wrinkling surface.
- Among the patients of Striae Gravidarum(SG),
- SR presented as multiple, B/L, grouped, shorter/longer(1-8cm), narrower/broader(up to 3cm), linear, wavy, raised plaques.
- SN presented as multiple, B/L, grouped, shorter/longer(2-8cm), narrower(<0.5cm), linear, wavy, raised plaques.
- SA1 presented as multiple, B/L, discrete/grouped, shorter(3-5cm), Narrower/broader (0.5-2cm), linear, straight/wavy, atrophic plaques with wrinkling surface.
- Among the patients of Striae Atrophicans(SA),
- SR presented as multiple/few, B/L or asymmetrical, discrete, shorter/longer(3-8cm), broader(up to 3cm), linear, straight, deep atrophic plaques with wrinkling surface.
- SN presented as few, asymmetrical, discrete, shorter(2-4cm), narrower(<1cm), linear, straight, deep atrophic plaques with wrinkling surface.
- SA1 presented as multiple/few, B/L or asymmetrical, discrete, shorter/longer(2-10cm), broader(up to cm), linear, straight, deep

atrophic plaques with wrinkling surface.

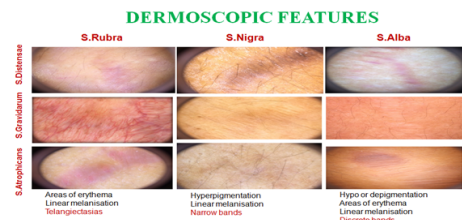
There is no significant difference in length among the types of striae with a mean value of 4.71cm. But there is a difference in breadth among the types of striae with a mean value of 1.66cm and a significant P-Value of 0.00.

There is no significant difference in breadth among different subtypes of striae with a mean value of 1.05cm. But there is a difference in length among different subtypes of striae with a mean value of 3.83cm and a significant P-value of 0.019.

**DERMOSCPIC FEATURES:**

In the present study, various dermoscopic features were noted and evaluated, like color, melanization pattern, and vascular pattern. These patterns are different in each type of different striae Among the patients of SD type, dermoscopic evaluation of

- SR Showed areas of erythema, fine network pattern of melanization changed to linear streaky pattern, telangiectasias.
- SN showed areas of hyperpigmentation, linear streaky pattern of melanization with narrow bands.
- SA1 showed areas of depigmentation or hypopigmentation, erythema, linear streaky pattern of melanization with discrete bands, and telangiectasias.
- Among the patients of SG type, dermoscopic evaluation of
- SR Showed areas of erythema, linear streaky pattern perpendicular to striaeaxis., linear vessels arranged perpendicular/ both parallel and perpendicular to striae axis.
- SN showed areas of hyperpigmentation, linear streaky pattern of melanization with narrow bands perpendicular to the striae axis.
- SA1 showed areas of depigmentation or hypopigmentation, the linear streaky pattern of melanization with discrete bands perpendicular to the striae axis.
- Among the patients of SA type, dermoscopic evaluation of
- SR showed areas of erythema or linear wavy vessels perpendicular to striae axis, linear streaky pattern perpendicular to the striae axis, and telangiectasias.
- SN showed areas of hyperpigmentation, more atrophy, linear streaky pattern of melanization with narrow bands parallel to the striae axis.
- SA1 showed areas of depigmentation or hypopigmentation, more atrophy, linear streaky pattern of melanization with discrete bands perpendicular to the striae axis.

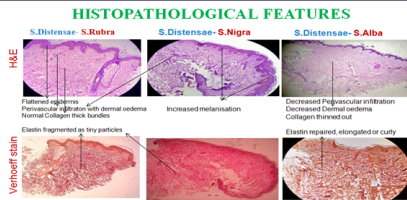


There is no much difference in the presentation of different dermoscopic features among types of striae with insignificant P-value except erythema which is frequently seen in SD and SA, with a significant P-value of 0.036 There is a significant difference in the presentation of dermoscopic features among subtypes of striae. Linear melanization having discrete bands, hypopigmentation, and depigmentation are exclusively seen in SA1 with a P-value of 0.00. Linear melanization with narrow bands and hyperpigmentation is exclusively seen in SN with a P-value of 0.00.

**HISTOPATHOLOGICAL FEATURES:**

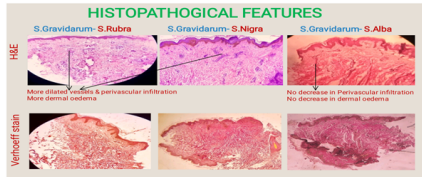
Among the patients of SD type, histopathological evaluation of

- SR showed flattened epidermis with normal melanization, dermis is oedematous with dilated vessels and dense perivascular infiltration, adnexa decreased, collagen is seen as thick bundles stretched parallel to epidermis, elastin is severely fragmented with split ends and seen as tiny particles.
- SN showed flattened epidermis with increased melanization, dermis is oedematous with perivascular infiltration, adnexa absent, collagen is seen as thick bundles stretched parallel to epidermis, elastin is fragmented and seen as tiny particles.
- SA1 showed flattened epidermis with normal melanization, dermis is mildly oedematous with mild perivascular infiltration, adnexa are decreased or absent, collagen bundles are thinned out, and elastin is elongated or curly, but reduced.



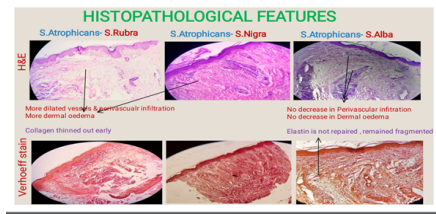
Among the patients of SG type, histopathological evaluation of

- SR showed similar features as that of SD, but more dilated vessels with more perivascular infiltration, dermis is more edematous, with mucin deposition.
- SN showed similar features as that of SD, but more dilated vessels with more perivascular infiltration and dermis are more edema tous.
- SAL showed similar features as that of SD, perivascular infiltration, and dermal edema is not decreased.



Among the patients of SG type, histopathological evaluation of

- SR showed similar features as that of SD, but more dilated vessels with more perivascular infiltration, dermis is more oedematous, and early collagen damage is seen, which is thinned out.
- SN showed similar features as that of SD, but more dilated vessels with more perivascular infiltration, dermis is more oedematous, and early collagen damage is seen, which is thinned out.
- SAL showed similar features as that of SD, but perivascular infiltration and dermal oedema are not decreased, and elastin is also not repaired.



**DISCUSSION:**

- Striae are common among adolescence and younger age with equal sex ratio.
- Family history, exercise, sudden weight gain and topical steroid misuse are the most common risk factors.
- S. Distensae-S. Alba is most common type with hips, shoulders, abdomen and thighs being the common sites of involvement.
- Morphologically- S. Distensae are shorter, narrower.
- S. Gravidarum are shorter/longer, narrower/broader.
- S. Atrophicans are broader and more atrophic.
- Dermoscopically erythema, telangiectasias, linear vessels, linear melanisation are noted, the latter of which is narrow banded in S. Nigra and discrete banded in S. Alba.
- Histologically- Retention of perivascular infiltration in S. Gravidarum Early collagen damage and unrepaired elastin is seen in S. Atrophicans.

	S. Distensae	S. Gravidarum	S. Atrophicans
S. Rubra & S. Nigra	Perivascular infiltration Dermal oedema Elastin fragmentation Normal thick collagen bundles	More perivascular infiltration More dermal oedema	More perivascular infiltration More dermal oedema Early collagen damage
S. Alba	↓ Perivascular infiltration ↓ Dermal oedema Elastin repaired, elongated/curly	No ↓ perivascular infiltration ↓ dermal oedema	No ↓ perivascular infiltration ↓ dermal oedema No Elastin repair, fragmented

**CONCLUSION:**

- Types are according to the risk factors involved and subtypes are by their color, morphology, dermoscopy and histopathology.
- Length, breadth, shape and degree of atrophy differentiates them morphologically.
- Color, vascular and melanisation patterns differentiates them dermoscopically.
- Degree of melanisation, perivascular infiltration, dermal oedema, degree of damage of collagen and elastin differentiates them histopathologically.

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