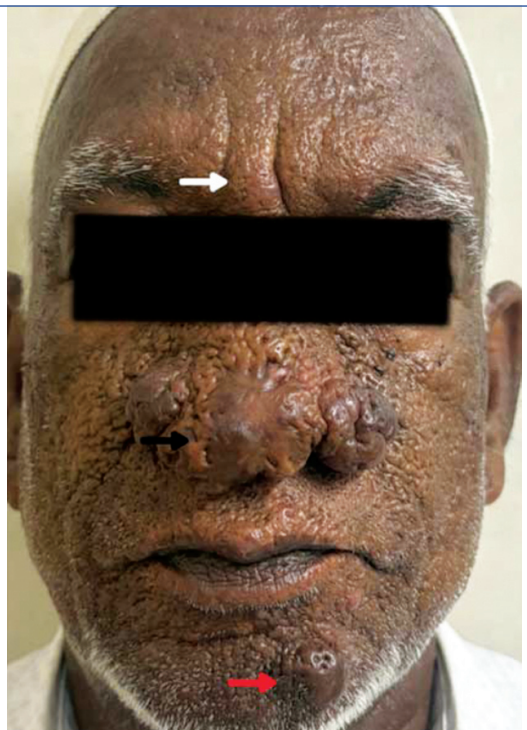
DOI: 10.7860/JCDR/2026/80775.22231

Unveiling the Histopathological Characteristics of Rhinophyma

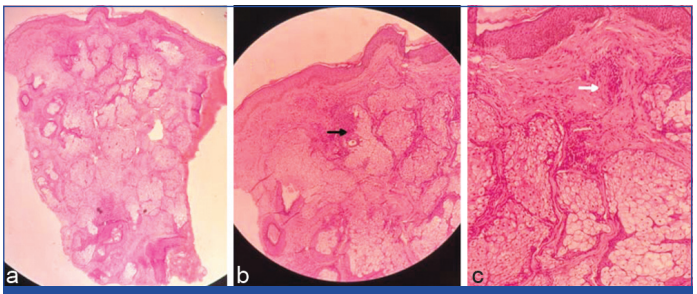
C GEO DANNY[1], D MANOHARAN[2], G SUKANYA[3], NOURIN BASHEER[4]

Keywords: Lymphohistiocytic infiltrate, Phyma, Rosacea

A 60-year-old male patient came to the Dermatology outpatient department with multiple asymptomatic raised lesions over both sides of the nose for the past 10 years, which started as skin-coloured raised lesions over the nose, initially small in size and gradually progressed to the current size. There was no history of pain, itching or bleeding from the lesion. There was no history of other constitutional symptoms, weight loss, loss of appetite, lesions elsewhere in the body, significant family history or history of alcohol intake. The patient did not give any proper history of previous treatment for the same. On examination, there was a bulbous outgrowth of size 2×2 cm with prominent pores and erythematous nodules over the ala of the nose, forehead and chin [Table/Fig-1]. A differential diagnosis of rhinophyma, lupus pernio and lymphocytoma cutis was considered based on the history and examination findings. A 4 mm punch biopsy was taken from the nose and it revealed orthokeratosis, flattened rete ridges, dermal perivascular and perifollicular lymphohistiocytic infiltrate with prominent sebaceous gland hyperplasia, along with lymphatic dilatation [Table/Fig-2a-c]. A final diagnosis of phyma was made with involvement of the nose, chin and forehead based on histopathological findings. The patient was started on a daily low dose of oral isotretinoin 10 mg OD for four weeks and was suggested other treatment modalities like excision followed by fractional CO_2 laser, following which the patient was lost to follow-up.



[Table/Fig-1]: Clinical image illustrating bulbous outgrowth of size 2x2 cm with prominent pores and erythematous nodules over the nose (rhinophyma - black arrow), single nodule measuring 1x1 cm noted over chin (gnathophyma - red arrow) and single nodule of size 0.5x0.5 cm present over the glabella (metophyma - white arrow).



[Table/Fig-2a-c]: Histopathologic section in 4x, 10x and 40x (H&E stain) power view showing normal epidermis, dermis with marked sebaceous hyperplasia (black arrow), perivascular and periadnexal lymphohistocytic infiltrate (white arrow), giving a final diagnosis of glandular type of rhinophyma.

Phyma, an advanced stage of rosacea, is most likely due to the complications of persistent oedema and associated connective tissue and sebaceous gland enlargement. It typically manifests as rhinophyma (nose), gnathophyma (chin), metophyma (forehead), otophyma (ear), and blepharophyma (eyelid). Rhinophyma, commonly known as potato nose, is the most prevalent. It is a chronic cutaneous condition that affects the nose and causes nasal soft tissue hypertrophy, erythema, telangiectasia, nodules, and lobules, giving it a bulbous appearance [1].

It can appear de novo without pre-existing inflammatory changes or can appear as a consequence of rosacea, actinic damage or acne vulgaris. It can also be seen in elderly men associated with alcohol intake, giving it the name 'Brandy nose.' Higher androgen activity in men is one of the reasons behind rhinophyma. An estimated male-to-female ratio varies between 5:1 and 30:1 [1].

The pathophysiology demonstrates the critical role of vascular and inflammatory processes, alongside endogenous elements such as intestinal dysfunction, vitamin deficiencies, and hormone disorders, as well as external influences including environment, Ultraviolet (UV) light exposure, skin flora, and the abuse of alcohol and caffeine. These variables, together with a primary vascular anomaly, contribute to the formation of superficial blood vessels with reduced patency, resulting in oedema that predisposes to parasite colonisation and growth by Demodex folliculorum. Vascular anomalies increase Transforming Growth Factor-β1 (TGF-β1) production, causing skin fibrosis and thickening. Fibrosis plays a significant part in the pathophysiology of rhinophyma, as evidenced by immunohistochemical labelling of Factor XIIIa-positive fibroblasts and over-expression of TGF-β2 and its receptors [2].

The two clinical differential diagnoses for this case were lupus pernio and lymphocytoma cutis. Histopathological changes were used to differentiate rhinophyma from lupus pernio, which is characterised by the presence of naked epithelial cell granulomas without inflammatory reaction, without fibrinoid necrosis and the presence of multiple Langhans and foreign body giant cells with unchanged or atrophic epidermis [3]. Whereas, lymphocytoma cutis will show foci of lymphocytes in the dermis, permeated by histiocytes, bringing

about a follicular arrangement that is translated by B-cells bordered by T-cells, the germinative centres [4].

The four histological variants as described by Jansen T et al., [5] are fibrous, fibroangiomatous, glandular and actinic. The glandular form, as seen in our case, is characterised by an enlarged nose, normal to erythematous skin, increased sebum expression, and Demodex mite infestation, with histopathology revealing marked sebaceous hyperplasia, dense distribution of Vasoactive Intestinal Peptide-Receptor (VIP-R) positive cells, intermediate filaments, and the presence of the neuroglandular antigen. Elastosis, altered extracellular matrix, oedematous stroma, decreased pilosebaceous glands, thickened dermis, scanty perifollicular infiltrates, absence of elastic tissue, and factor XIII staining positivity are all present in the fibrous variant of rhinophyma. The fibroangiomatous type is distinguished by erythema, pustules and oedema, as well as less apparent sebaceous hyperplasia and fibrosis on histopathologic examination. The actinic form is characterised by nodular masses of elastic tissue comparable to photo-damaged skin and histologically with dilated ducts laden with sebum, with the addition of Demodex folliculorum mites, Propionibacterium acnes, and yeast-like organisms [5].

Based on severity and the extent of the lesion, inflammatory stages can be treated with tetracyclines like minocycline or doxycycline, isotretinoin, Tamoxifen and advanced stages are treated with surgical and ablative therapies like dermabrasion, radiofrequency ablation, cryosurgery and cold knife excision, subunit method, Carbon dioxide laser, Erbium:YAG laser and Nd:YAG laser. Though several treatment options are available, surgical excision of the phymatous tissue while preserving nasal architecture and function has been demonstrated to produce the greatest results [6].

This case has been reported to highlight one of the histopathological variants of rhinophyma (glandular type) and emphasise the three other histopathological variants. The variants could indicate different stages of the disease, as evidenced by increased sebaceous hyperplasia in the glandular type and marked fibrosis in the fibroangiomatous variant of rhinophyma.

REFERENCES

[1] Chauhan R, Loewenstein SN, Hassanein AH. Rhinophyma: Prevalence, severity, impact and management. Clin Cosmet Investig Dermatol. 2020;13:537-51.
[2] Laun J, Gopman J, Elston JB, Harrington MA. Rhinophyma. Eplasty. 2015;15:ic25.
[3] Hubail A, Belkharoeva R, Tepluk N, Belerosova T. Lupus pernio (Besnier-Tenneson syndrome): A rare form of sarcoidosis. Dermatol Reports. 2018;10:7696.
[4] Parmar D, Tandel J, Polra R, Patel J, Nair PA. Disseminated lymphocytoma Cutis in a patient with B-cell Non-Hodgkin's lymphoma. Clin Dermatol Rev 2023;7:191-93.
[5] Jansen T, Plewig G. Clinical and histological variants of rhinophyma, including nonsurgical treatment modalities. Facial Plast Surg. 1998;14:241-53.
[6] Saad M, Matteucci P. A very severe case of rhinophyma requiring a three-stage reconstruction with a forehead flap. Ann R Coll Surg Engl. 2020;102:e219-22.

PARTICULARS OF CONTRIBUTORS:
1. Associate Professor, Department of Dermatology, Venereology and Leprosy, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.
2. Professor, Department of Dermatology, Venereology and Leprosy, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.
3. Professor, Department of Dermatology, Venereology and Leprosy, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.
4. Junior Resident, Department of Dermatology, Venereology and Leprosy, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. G Sukanya,
Sree Balaji Medical College and Hospital, Chromepet, Chennai-600044,
Tamil Nadu, India.
E-mail: drsukanyamathupal@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: May 22, 2025
- Manual Googling: Oct 09, 2025
- iThenticate Software: Oct 11, 2025 (8%)

ETYMOLOGY: Author Origin

EMENDATIONS: 6

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? No
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **May 21, 2025**
Date of Peer Review: **Sep 05, 2025**
Date of Acceptance: **Oct 14, 2025**
Date of Publishing: **Jan 01, 2026**