Section: DVL

Case Series

A CASE SERIES DELINEATING THE CLINICAL, DERMOSCOPIC AND HISTOPATHOLOGICAL FEATURES OF PIGMENTED BASAL CELL CARCINOMA IN SOUTH INDIAN POPULATION

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Pigmented basal cell carcinoma, basal cell carcinoma, dermoscopy, histopathology, skin cancer, melanin pigmentation, basaloid cells, peripheral palisading, peritumoral clefting, melanophages, arborizing vessels, maple leaf-like structures, blue-grey globules, differential diagnosis, melanoma mimic, multimodal diagnosis, clinical correlation, early detection, case series, cutaneous oncology.

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ABSTRACT

Basal cell carcinoma (BCC) is the most prevalent skin cancer, with the pigmented variant (PBCC) being relatively uncommon. PBCC is characterized by melanin deposition within tumor cells and/or stroma, often clinically resembling melanoma, seborrheic keratosis, or melanocytic nevi. This case series presents six patients with PBCC, describing their clinical, dermoscopic, and histopathological profiles to emphasize the importance of multimodal diagnostic correlation. Clinically, lesions presented as well-defined pigmented plaques or ulcers with features such as central necrosis, crusting, and hyperpigmented raised margins. Dermoscopy revealed characteristic findings including maple leaf-like structures, multiple blue-grey globules, arborizing vessels, short fine telangiectasia, concentric structures, white-red structureless areas, and hemorrhagic spots. Histopathological examination demonstrated tumor nests and cords of basaloid cells in the dermis, peripheral palisading, peritumoral clefting, and hyperchromatic pleomorphic nuclei, along with stromal melanophages and congested vessels. The integration of dermoscopic and histopathological findings is crucial in differentiating PBCC from melanoma and other pigmented lesions, thus preventing misdiagnosis. This case series reinforces the diagnostic value of recognizing specific dermoscopic patterns and histopathological hallmarks for timely, accurate diagnosis and management of PBCC. Early detection and treatment can improve outcomes and minimize morbidity associated with advanced lesions.

INTRODUCTION

Basal cell carcinoma (BCC) is the most common form of skin cancer, comprising 70–80% of non-melanoma skin cancers.[1,2]
Pigmented BCC accounts for only a small fraction of cases (roughly 6–7% of all BCCs).[3,4]
It is also seen in patients with skin of color and in sun-exposed sites (notably the head and neck).[5,6]
Pigmented BCC (PBCC) is also characterized by melanin deposition, often mimicking melanoma, seborrheic keratosis, or melanocytic nevi.[7]

MATERIALS AND METHODS

Objectives of study:

- To explain the clinical, histopathological, and dermoscopic features of pigmented basal cell carcinoma and to differentiate from other pigmented premalignant and malignant conditions
- To enable us to diagnose a case of pigmented bcc using dermoscopic features.
- To correlate dermoscopic and clinical findings.
- To use histopathology as confirmatory tool for pigmented BCC.
- IEC – Institutional ethical approval was obtained-IECHS/IRCHS/NO.722

CASE SERIES

Case presentation

Case 1: A 60-year-old male presented with a well-defined, oval ulcer (0.5 × 0.7 cm) with central necrosis and crusting on the left malar region. [Figure 1 a-b]
Case 2: A 47-year-old female had a well-defined plaque (3 x 2 cm) with thickened pigmented papular islands and irregular raised thread-like borders over the right cheek. [Figure 2 a-b]
Case 3: A 62-year-old female presented with a round ulcer (1 × 1.5 cm) with central necrosis and hyperpigmented raised margins over the tip of nose. [Figure 3 a-b]
Case 4: A 46-year-old female exhibited a well-defined plaque of size 4 x1.5 cm with thickened

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pigmented papular islands and irregular raised thread-like border [Figure 4 a-b]

Case 5: A 59 year old male presented with well defined plaque of size 4x 3 cm over the right cheek with central necrosis and raised rolled out margins [Figure 5 a-b]

Case 6: A 62 year old female presented with well defined plaque of size 4 x 1 cm and ulcer of size 5 x 2 cm with crusting over the left forehead involving the eyebrow with central necrosis and raised rolled out margins [Figure 6 a-b]

Findings:

Dermoscopic features:

Case 1: Multiple blue-grey globules with brown peppering, short fine telangiectasias, white structureless areas [Figure 7 a-b]

Case 2: Blue gray maple-leaf-like areas, white-red structureless areas and white streaks,multiple small erosions with crusting, Arborizing vessels [Figure 8 a-b]

Case 3: Multiple blue globules, multiple erosions with crusting,white structurelss areas,multiple hemorrhagic crusts [Figure 9 a-b]

Case 4: Blue gray maple-leaf-like areas, multiple blue - grey globules, Central erosions with crusting, white structureless areas [Figure 10 a-b]

Case 5: Blue grey maple leaf like structures, multiple erosions with crusting, grey ovoid bodies with brown peppering, short fine telangiectasias [Figure 11 a-b]

Case 6: Blue grey maple leaf like structures, multiple erosions with crusting, grey ovoid bodies with brown peppering, short fine telangiectasias [Figure 12 a-b]

Figure 1: a-b– Case 1 Clinical pictures

Figure 2: a-b – Case 2 Clinical pictures

Histopathological features:

Case 1: Basaloid tumor with peripheral palisading, Tumor cells with hyperchromatic nuclei and scant cytoplasm (high N:C ratio), Peritumoral clefting, perivascular infiltrates, Melanophages in dermis.

Case 2: Basaloid tumor with peripheral palisading, Tumor cells with hyperchromatic nuclei and scant cytoplasm (high N:C ratio), Melanophages in dermis, myxoid stroma.

Case 3: Basaloid tumor with peripheral palisading, Tumor cells with hyperchromatic nuclei and scant cytoplasm (high N:C ratio), Peritumoral clefting, Melanophages in dermis.

Case 4: Basaloid tumor with peripheral palisading, Tumor cells with hyperchromatic nuclei and scant cytoplasm (high N:C ratio), Melanophages in dermis, myxoid stroma.

Case 5: Basaloid tumor with peripheral palisading, Tumor cells with hyperchromatic nuclei and scant cytoplasm (high N:C ratio), Melanophages in dermis, Peritumoral clefting.

Case 6: Basaloid tumor with peripheral palisading, Tumor cells with hyperchromatic nuclei and scant cytoplasm (high N:C ratio), Peritumoral clefting, perivascular infiltrates Melanophages in dermis, myxoid stroma

Figure 3: a-b – Case 3 Clinical pictures

Figure 4: a-b – Case 4 Clinical pictures

Figure 5: a-b – Case 5 Clinical pictures

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Figure 6: a-b – Case 6 Clinical pictures

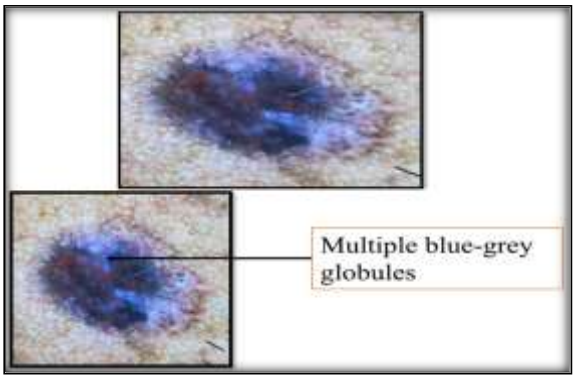

Figure 7: a-b – Case 1 Dermoscopy pictures (Dermlite Dl4 Polarised light)

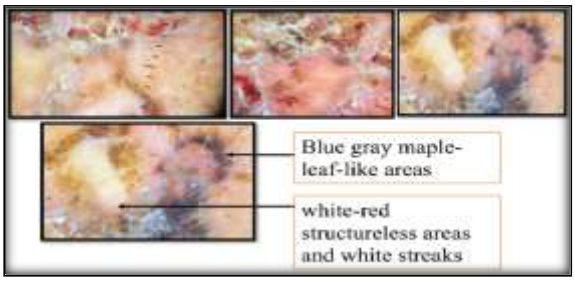

Figure 8: a-d] – Case 2 Dermoscopy pictures (Dermlite Dl4 Polarised light

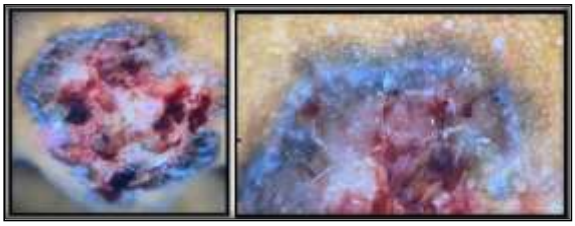

Figure 9: a-b – Case 3 Dermoscopy pictures (Dermlite Dl4 Polarised light

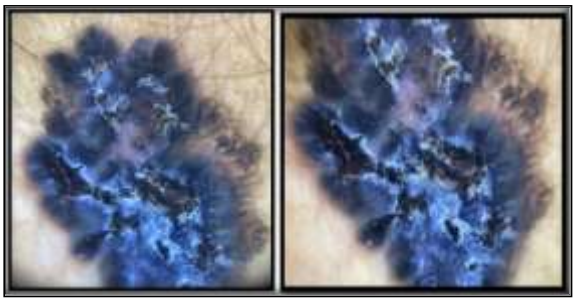

Figure 10: a-b – Case 4 Dermoscopy pictures (Dermlite Dl4 Polarised light

Figure 11: a-c – Case 5 Dermoscopy pictures (Dermlite Dl4 Polarised light

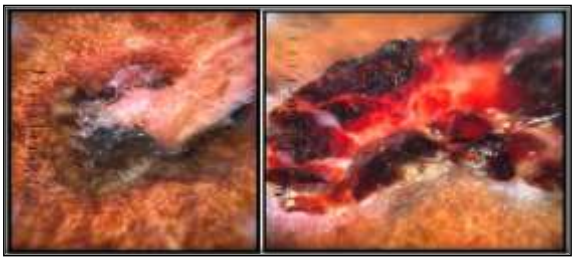

Figure 12: a-b – Case 6 Dermoscopy pictures (Dermlite Dl4 Polarised light

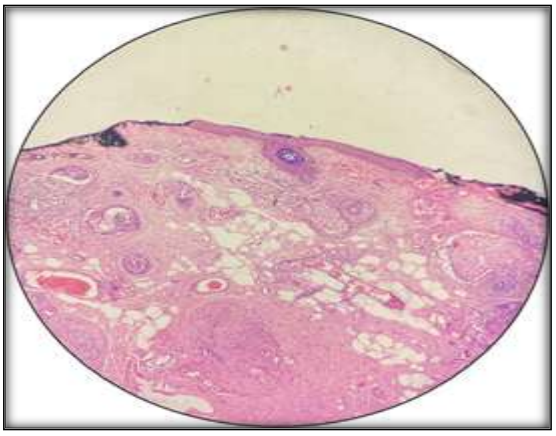

Figure 13: Histopathology H&E stain images 4x

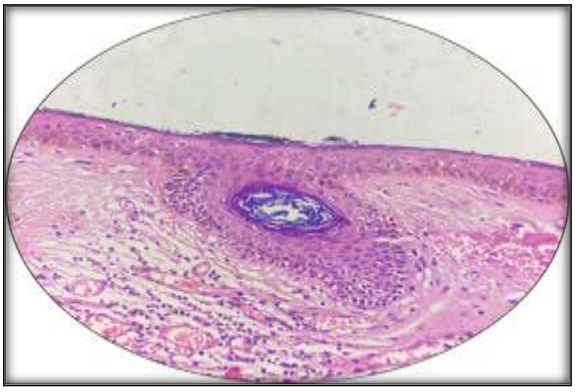

Figure 14: Histopathology H&E stain images 10x

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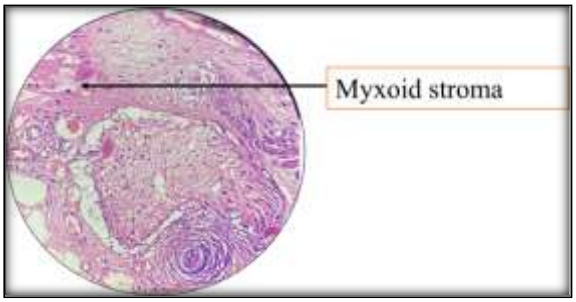

Figure 15: Histopathology H&E stain images 10 x

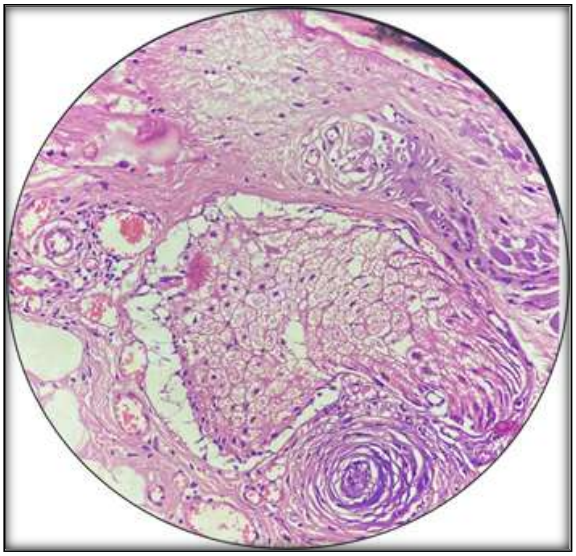

Figure 16: Histopathology H&E stain images 10 x

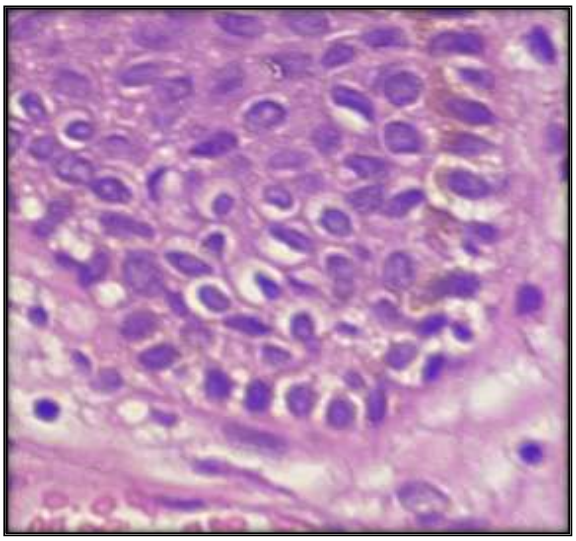

Figure 17: Histopathology H&E stain images 40 x

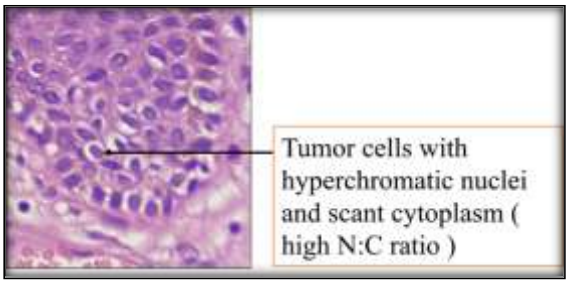

Figure 18: Histopathology H&E stain images 40 x

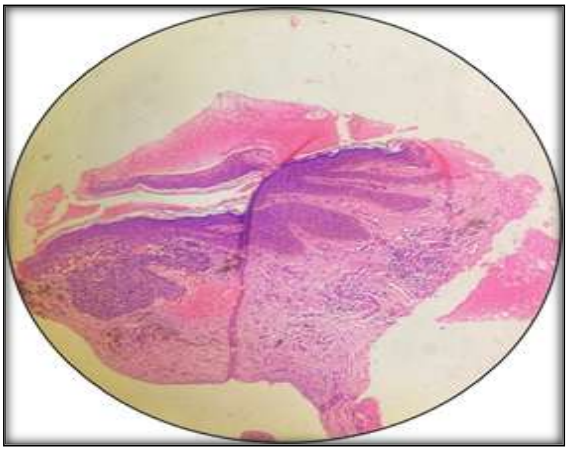

Figure 19: Histopathology H&E stain images 4x

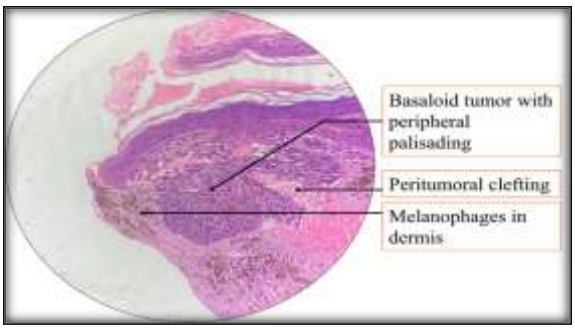

Figure 20: Histopathology H&E stain images 10x

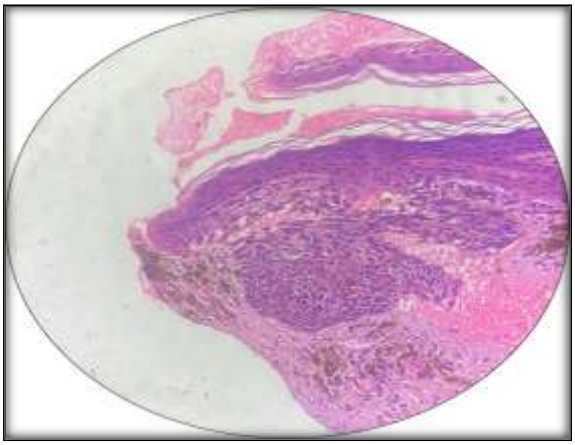

Figure 21: Histopathology H&E stain images 10x

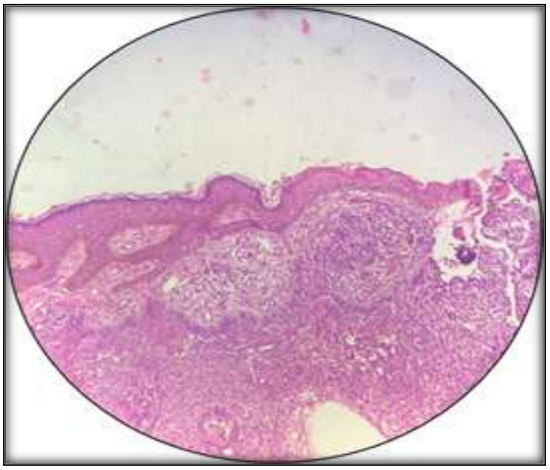

Figure 22: Histopathology H&E stain images 10x

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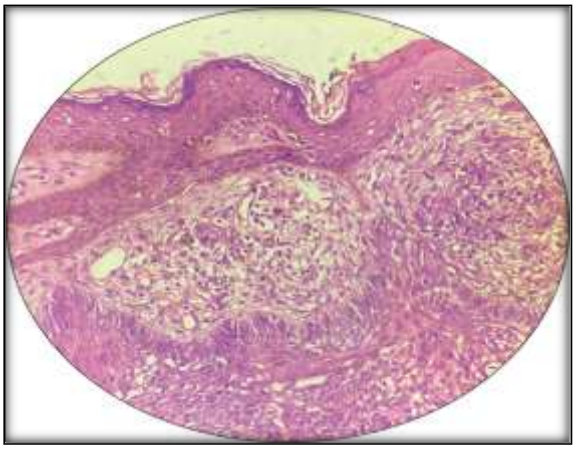

Figure 23: Histopathology H&E stain images 20x

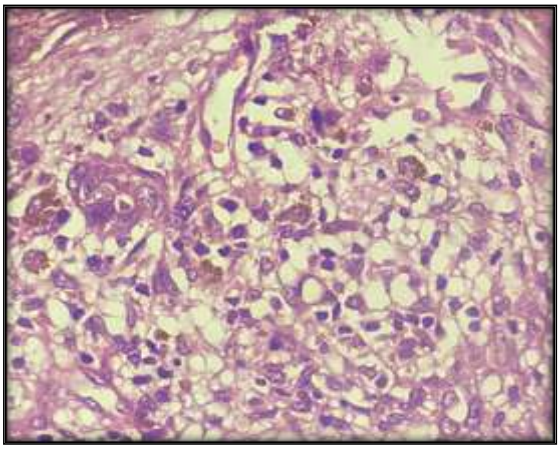

Figure 25: Histopathology H&E stain images 40x

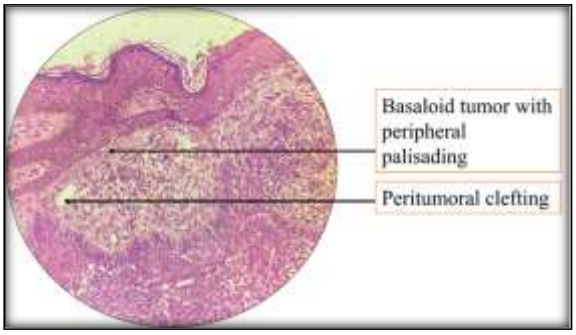

Figure 24: Histopathology H&E stain images 20x

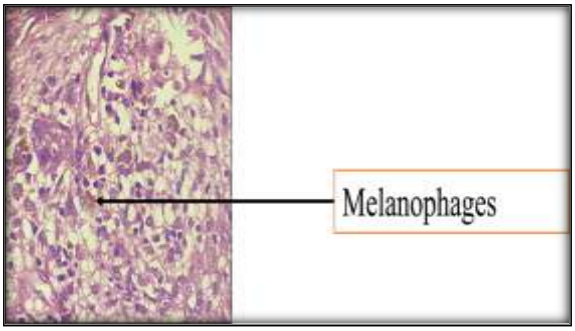

Figure 26: Histopathology H&E stain images 40x

Table 1: Dermoscopic Features

Key Dermoscopic Features	Count
Blue-grey maple-leaf-like areas	4
Blue-grey globules	3
Short fine telangiectasias	3
White structureless areas	4
Multiple erosions with crusting	5
Brown peppering	3
Grey ovoid bodies	2
Arborizing vessels	1

Table 2: Histopathological features

Histopathological features (Fig 13 – 26)
Basaloid tumor with peripheral palisading
Peritumoral clefting
Tumor cells with hyperchromatic nuclei and scant cytoplasm (high N:C ratio)
Myxoid stroma
Melanophages in dermis

Histopathological key findings (Combined): [Figure 13-26]

- Tumor nests and cords of basaloid cells in the dermis with peripheral palisading and peritumoral clefting.
- Tumor cells showed high N:C ratio with hyperchromatic pleomorphic nuclei.
- Mild to moderate lymphocytic infiltration in the dermis
- The stroma showed, melanophages, congested vessels

DISCUSSION

- Pigmented BCC (PBCC) is also characterized by melanin deposition, often mimicking melanoma, seborrheic keratosis, or melanocytic nevi.
- Key Dermoscopic findings are- Blue-grey maple-leaf-like areas , Blue – grey globules , Short fine telangiectasias, White structureless areas, Grey ovoid bodies, Brown peppering , Multiple erosions with crusting, Arborizing vessels
- Key Histopath findings are- Basaloid tumor with peripheral palisading, Peritumoral clefting, Myxoid stroma, Tumor cells with hyperchromatic nuclei and scant cytoplasm (high N:C ratio), Melanophages in dermis.
- Histopathology distinguishes pigmented BCC (basaloid nests with melanin) from melanoma (atypical melanocytes, pagetoid spread).
- Accurate identification of pigmented BCC is critical, as management differs markedly from melanoma. BCCs are generally treated with local

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therapies (excision, Mohs micrographic surgery, or nonsurgical ablative methods), with excellent cure rates, whereas melanomas require wider excision and possibly lymph node evaluation.

Follow up of patients:

1. All patients underwent wide local excision except one patient for whom flap graft surgery was done and all patients recovered well.
2. We asked the patients to come for checkup once monthly for the first 6 months, then asked them to visit every 6 months or earlier if there is recurrence of any lesions.

CONCLUSION

This case series emphasizes the importance of integrating key clinical, dermoscopic, and histopathological features for accurate diagnosis and differentiation of pigmented basal cell carcinoma from other pigmented skin lesions like melanoma, seborrheic keratosis, or melanocytic nevi. Early diagnosis and complete excision of pigmented BCCs results in no metastases or mortality

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