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Journal homepage: [www.ijpo.co.in](http://www.ijpo.co.in)**Case Series****Hidden threats: Basal cell carcinoma in covered body sites: A case series****Thulasi Jagadish<sup>1\*</sup>, Atira Mirza<sup>1</sup>, Sudha H M<sup>1</sup>**<sup>1</sup>M.S. Ramaiah Medical College, Bengaluru, Karnataka, India**ARTICLE INFO***Article history:*

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**ABSTRACT**

Basal cell carcinoma (BCC) is the most common skin neoplasm, 85%-90% of which is localized in the head and neck region. BCCs of covered sites have been considered unusual because of their location. In this case series we present 4 cases in which BCC appeared in covered, non-sun exposed areas of the skin. Amongst the 4 cases, case 1 is classified under difficult-to-treat BCC, case 2 and 4 are that of pigmented variant, one of which, case 2, was clinically suspected to be a melanoma and case 3 is a giant BCC with an increased risk of recurrence. This case series stresses on the fact that a clinician should be aware of the possible diagnosis of BCC and include it as a differential despite its occurrence in unusual locations and such cases need to be reported so that their pathogenesis, diagnostic criteria, intervention methods and post care can be understood.

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For reprints contact: [reprint@ipinnovative.com](mailto:reprint@ipinnovative.com)**1. Introduction**

Basal cell carcinoma (BCC) is the most common malignancy which develops almost exclusively on hair-bearing skin, typically in areas with chronic sun exposure.<sup>1-3</sup> BCCs of covered areas of the body are sometimes considered as unusual because of their location.<sup>4</sup> The appearance on non-sun exposed areas is infrequent and would indicate the participation of other etiologic factors.<sup>5</sup> The rarity of BCC in sun-protected areas can lead to delayed diagnosis, largely due to its diverse macroscopic appearance. Contributing factors include delayed patient presentation, as lesions in these regions may be mistaken for minor irritations, and misdiagnosis, with BCCs often being incorrectly identified as inflammatory, allergic, or infectious skin conditions.<sup>1</sup>

Reporting cases of BCC in non-sun-exposed body regions is crucial due to the rarity and atypical presentation of such cases. There is a clear need for heightened clinical awareness and recognition of BCCs in these unusual

locations. The present study helps address this gap by documenting unique cases, underscoring the importance of including BCC as a differential diagnosis, even in areas not typically associated with sun exposure. This case series presents four instances of BCC developing in covered, non-sun exposed areas of the body, including one case characterized as a giant BCC (greater than 5cm).

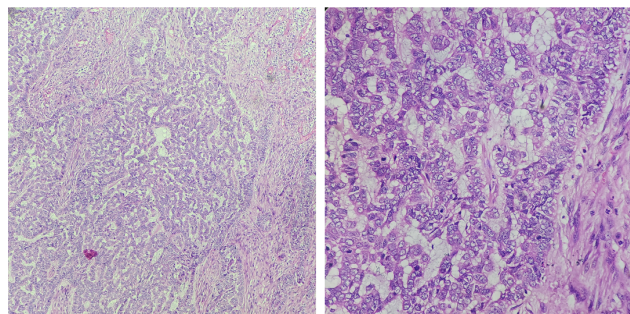
**2. Case Series****2.1. Case 1**

75year old male presented with chief complaints of a slow growing ulcer over the chest wall since 15years. The patient also complained of scar on the chest which was associated with pain since 20years, for which the patient was treated with Inj. Methotrexate for 2 years. There was no history of bony tenderness, loss of appetite, cancer in the family and surgery. The patient had no comorbidities, but gave history of taking Inj. Leucovorin, for which the details were unavailable. On examination a 5X6cm ulcero-proliferative growth over the manubrium sterni was noted which was

\* Corresponding author.

E-mail address: [thulasijagadish96@gmail.com](mailto:thulasijagadish96@gmail.com) (T. Jagadish).

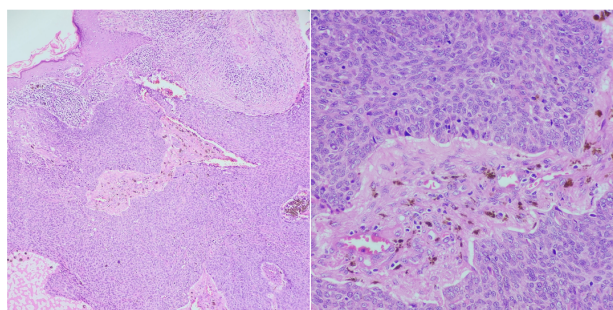
mobile, non-tender with rolled out edges, erythematous base and the floor being bare bone. The ulcer bled on touch. An edge wedge biopsy was done and the patient was diagnosed with BCC. The wide local excision specimen sent was diagnosed with nodulo-infiltrating BCC with all the margins being free of tumour and the closest margin being deep resected margin (8mm), mitotic activity in the lesion was 17/mm<sup>2</sup>.



**Figure 1:** BCC – Nodulo-infiltrating type, 10x and 40x view respectively (H&E)

## 2.2. Case 2

A 54year old male presented with complaints of growth over the right upper back since 1year, insidious in onset, gradually progressed in size and associated with occasional dull aching pain. The patient had no comorbidities. On examination a pedunculated non-tender growth of size 3X3cm present 1-2cm lateral to the midline to the right side of upper back was noted. The growth was black in colour with yellow flakes over the growth, had a nodular surface and was firm in consistency. The lesion had no active discharge, was not fixed to the underlying muscle and the surrounding skin appeared normal. Clinically the patient was suspected to have melanoma and underwent wide local excision. A diagnosis of BCC – keratotic, nodular and pigmented type, with nodular being the predominant type was made and was staged according to the AJCC 8<sup>th</sup> edition as pT2NxMx.



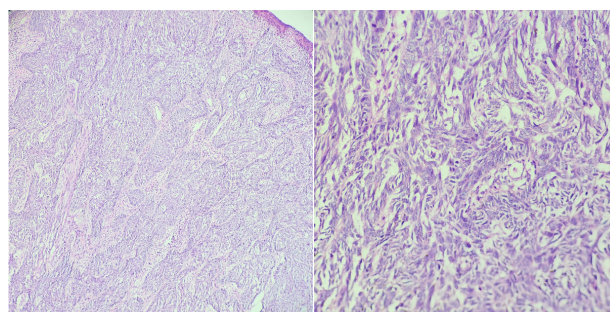
**Figure 2:** BCC – keratotic, nodular and pigmented type, 10x and 40x view respectively (H&E)

## 2.3. Case 3

54year old post-menopausal female presented with chief complaints of non-healing ulcer over the right lower back since 2years, insidious in onset, slow growing and associated with itching. History of bleeding from the ulcer was present. It was not associated with pain and pus discharge. The patient had no comorbidities. On examination a 10X5cm nodular swelling in the right lower back of midline in the lumbar region was noted. The skin over the lesion showed black discoloration with central ulceration with rolled out edges. The ulcer bled on touch. Also, a single, firm, mobile, non-matted lymph node in the right axilla measuring 1X1cm was palpable. Wide local excision and low axillary clearance was done and the lymph-nodes were sent as frozen section which turned out to be negative for malignancy. On histopathological examination it was diagnosed to be a nodular BCC with maximum tumour thickness being 4mm. The deep resected margin was 1.1cm away from the tumour and was uninvolved. There was no lymphovascular or perineural invasion. The lymphnodes, submitted for frozen section, on paraffin sections were not involved by the tumour and correlated with the frozen section report. The tumour was staged according to AJCC 8<sup>th</sup> edition, as pT3N0Mx and came under the stage III.



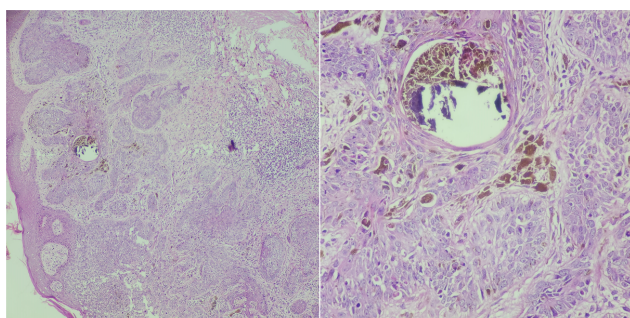
**Figure 3:** Gross picture of giant BCC on the lower back measuring 10X5cm



**Figure 4:** BCC – nodular type, 10x and 40x view respectively (H&E)

## 2.4. Case 4

48year old male presented with a slow growing blackish lesion on the lateral aspect of the right thigh since 1year. It was not associated with pain and discharge. He was a known case of diabetes mellitus, hypertension and hypothyroidism and was on regular medication. On examination a brownish black ulcer of size 2.6X2.5cm was noted on the lateral aspect of the right thigh. It was mobile, non-tender, had rolled out edges and an erythematous base. Wide local excision was done and it was diagnosed as pigmented BCC with maximum tumour thickness being 4mm. As the superior margin was involved a revision surgery was done after 2 days.



**Figure 5:** BCC – pigmented type, 10x and 40x view respectively (H&E)

## 3. Discussion

BCC is a skin carcinoma derived from epidermal cells and is one of the most highly mutated tumours. The highest incidence of BCC has been reported in Australia, followed by the US and Europe.<sup>6</sup> But its occurrence in dark skinned population has been reported to be around 1-2%, and thus, it is a rare cutaneous malignancy in India.<sup>1</sup> BCC most frequently occurs in adults, especially in the elderly population with a peak incidence at around 80 years. A relatively higher incidence increase of BCC has been observed in young individuals compared to old individuals over time.<sup>6</sup>

The major risk factor for BCC is UV radiation which explains its occurrence in sun exposed sites, but it can appear in covered non-sun exposed areas which are sometimes considered unusual, hindering early diagnosis and treatment. Other risk factors include light pigmentary characteristics, ionizing radiation, arsenic exposure, increasing age, immunodeficiency including iatrogenic immunosuppression.<sup>6-8</sup>

BCC of unusual and covered sites is not the same.<sup>4</sup> The definition of unusual locations for BCC is controversial and an agreement considering certain locations of BCC as unusual includes breasts, periungual region, palms, soles, glutei and intertriginous areas like axilla, groin and genitals.

These tumours are rare in the forearms, hands and lower limbs.<sup>8</sup>

Study done by Abeldano A et al. stated that important differences in the histopathologic type were observed between the lobular and superficial variant, indicating different forms of neoplasia, induced by different causal factors. The lobular form, which was more frequent in the head and neck, could be a result of chronic exposure and the superficial form, with a preferential localization to trunk (men) and legs (women), due to intermittent exposure to UV radiation.<sup>5</sup> The sclerodermiform pattern is not significantly associated with any body site, indicating that its appearance may be unrelated to external factors.<sup>8</sup>

BCC most commonly presents as a slow growing, skin-coloured nodule with a pearly shiny appearance and arborizing vessels visible on the tumour surface, with larger tumours showing central ulceration.<sup>6</sup> Giant BCC is a term used to describe a BCC greater than 5cm, they are most common in elderly males and show a predilection for the head, neck and upper back. Relative to smaller tumours, giant BCCs are more likely to be of a histologically aggressive subtype and are more likely to recur following simple excision.<sup>9</sup>

Multidisciplinary experts from European Association of Dermato-Oncology (EADO), European Dermatology Forum, European Society for Radiotherapy and Oncology (ESTRO), Union Européenne des Médecins Spécialistes, and the European Academy of Dermatology and Venereology developed updated recommendations on diagnosis and treatment of BCC. BCCs were categorised into ‘easy-to-treat’ (common) and ‘difficult-to-treat’ according to the new EADO clinical classification. Easy-to-treat BCCs include the most common BCCs and difficult-to-treat (DTT) BCCs include all locally advanced BCCs and common BCCs, which for any reason, pose a specific management difficulty. Regarding staging, BCCs do not follow the three-step process, that is, tumour, nodal involvement, and distant metastasis, making the TNM classification irrelevant. A four-stage classification covering the whole spectrum of BCCs, from common easy-to-treat tumours up to the very rare metastatic cases was generated by the European Association of Dermato-Oncology (EADO) classification and staging.<sup>6</sup>

The five-group EADO classification describes five different practical patterns, namely:

1. Common BCCs which are difficult to treat for any reason linked to the tumour (e.g. location requiring technical skills, poorly defined borders, prior recurrence) and/or to the patient (poor general status, comorbidities, unwillingness to cooperate).
2. BCCs difficult to treat because of the number of lesions.
3. Large and/or destructive tumours out of critical areas.



4. Large and/or destructive tumours in critical or functionally significant areas (nose, periorificial).
5. Giant and/or deeply invasive tumours involving extracutaneous tissue.

**Table 1:** EADO classification and staging of BCC (2023)

Stage		Characteristics
Common BCC	I	Low risk common BCC
	IIA	Common BCC somewhat DTT
	IIB	DTT-BCC mainly due to multiplicity of common BCC
Advanced BCC	IIIA	Locally advanced DTT-BCC out of critical areas
	IIIB	Locally advanced DTT-BCC in critical areas
	IIIC	Extremely advanced DTT-BCC
Metastatic BCC	IV	

Case 1 was that of a nodular lesion over the chest, which developed over 15 years duration. It can be classified into difficult-to-treat BCC as the patient was unwilling for surgery. It is considered stage IIA under the EADO classification and staging - a common BCC considered difficult-to-treat for any reasons linked to the patient or tumour.

Case 2 was also a nodular BCC but pigmented type over the upper back, suggesting intermittent exposure to UV radiation. In pigmented tumours, bluish-grey clouds of variable size are commonly observed – the reason due to which this tumour was clinically suspected to be a melanoma.

Case 3 is that of a giant BCC, where the tumour size is more than 5cm (10X5cm) with central ulceration. As opposed to the case report by Elysha M Kolitz et al. which stated that giant BCCs are seen in elderly male, this lesion was seen in a 54year old female. The incidence of metastasis in BCC is as low as 0.03%, but the rate has been reported to be 45% in tumours greater than 10cm and 100% in tumours greater than 25cm, suggesting the possibility of recurrence in this case.<sup>9</sup>

In Case 4, there was a pigmented ulcerative lesion noted on the right thigh, which is a rare site for BCC. A study conducted by Aljendra Abeldano et al. reported 873 cases of Basal Cell Carcinomas (BCC), with only 1.1% of them localized to the thigh. Furthermore, various authors have reported frequencies of carcinomas on the lower limbs ranging from 1.5% to 13.5%.<sup>5</sup> In this case, one of the margins was positive, necessitating a revision surgery that was performed two days later.

In all the cases reported, a delay in the diagnosis can be observed due to various reasons, some of which include delayed presentation of the patient due to neglect of the lesion, misdiagnosis and rarity of BCC in sun protected areas.<sup>1</sup>

#### 4. Conclusion

This case series brings into light the various morphologic features of BCC occurring in covered, non-sun exposed areas of the body and that BCC should be considered a differential despite their occurrence in unusual locations. Reporting such cases is essential to deepen the understanding of the pathogenesis, diagnostic approaches, treatment strategies, and post-care for BCCs in non-sun-exposed areas, ultimately improving patient outcomes and guiding future research into its behaviour and management in atypical presentations.

#### 5. Source of Funding

None.

#### 6. Conflict of Interest

None.

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### Author's biography

**Thulasi Jagadish**, Post Graduate

**Atira Mirza**, Senior Resident

**Sudha H M**, Professor and HOD

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