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Case Report

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Cutaneous Carcinosarcoma Arising in Basal Cell Carcinoma: A Rare Diagnostic Entity

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ABSTRACT

Background: Cutaneous carcinosarcoma is an exceptionally rare biphasic malignancy characterised by both epithelial and mesenchymal malignant components. Because of its aggressive biological behaviour, accurate diagnosis is crucial.

Case Presentation: We report the case of an 87-year-old man with a three-month history of a posterior scalp lesion that began as a keratotic area and evolved to ulceration with intermittent pain. Clinical examination revealed a 3.0 × 1.2 cm ulcerated lesion without regional lymphadenopathy. A clinical impression of squamous cell carcinoma prompted wide local excision. Histopathological assessment identified a tumour measuring 8.2 mm in thickness with deep invasion into the reticular dermis and focal extension into subcutaneous fat (pT3). Microscopy demonstrated two intimately admixed components: an infiltrative basal cell carcinoma and a high-grade pleomorphic spindle-cell sarcomatous component. Immunohistochemistry showed dual expression of epithelial markers together with S100, p63, CD68, and vimentin, supporting the diagnosis of cutaneous carcinosarcoma. The sarcomatous component accounted for the deepest invasion.

Conclusion: This case underscores the need for heightened awareness of cutaneous carcinosarcoma, particularly when encountering sarcomatoid features in lesions arising from common skin cancers. Immunohistochemistry plays an essential role in delineating its biphasic nature and excluding mimics.

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Background: Carcinosarcomas are malignant neoplasms composed of both carcinomatous and sarcomatous elements. Although more commonly encountered in visceral organs such as the uterus, lung, and salivary glands, cutaneous carcinosarcoma is exceedingly rare, with fewer than 150 reported cases. These tumours carry a worse prognosis than conventional non-melanoma skin cancers, with higher rates of recurrence, metastasis, and disease-related mortality [1-4]. Most reported cutaneous carcinosarcomas arise from pre-existing Basal Cell Carcinoma (BCC) or Squamous Cell Carcinoma (SCC). The prevailing hypothesis favours a monoclonal origin with subsequent divergent differentiation, rather than two separate neoplasms colliding [3-5]. We describe a rare case of BCC-associated cutaneous carcinosarcoma, highlighting diagnostic considerations and clinical implications.

Case Presentation: An 87-year-old man presented with a three-month history of a lesion on the left posterior scalp. It originated as a keratotic area that bled when manipulated and later ulcerated. The patient reported intermittent pain but was unable to monitor lesion growth due to its location. On examination, the lesion measured 3.0 × 1.2 cm and appeared ulcerated. No cervical lymphadenopathy was present. A clinical diagnosis of SCC was suspected, and a wide local excision was performed.

Histopathological Findings
Gross assessment revealed an ovoid skin excision (46 × 40 × 2–7 mm) containing a nodular, slightly ulcerated lesion (36 × 24 mm). Microscopic Examination Demonstrated:

- **Tumour Thickness:** 8.2 mm
- **Depth of Invasion:** reticular dermis with focal extension into subcutaneous fat
- **Pathologic Stage**: pT3

Two Intimately Admixed Malignant Components Were Present:
- **Epithelial Component:** infiltrative basal cell carcinoma
- **Mesenchymal Component:** pleomorphic spindle-cell proliferation resembling a high-grade sarcoma

The transition zones between the two components supported a single neoplastic process with divergent differentiation rather than a collision tumour. The sarcomatous component accounted for the deepest invasion.

Immunohistochemistry
Both Components Expressed:
- Epithelial Markers (Including Cytokeratins)
- S100
- p63
- CD68
- Vimentin

This dual immunophenotype supported the diagnosis of cutaneous carcinosarcoma (metaplastic carcinoma).

Outcome and Follow Up

The tumour was completely excised with clear margins exceeding 6 mm. Given the increased risk of recurrence and metastasis associated with cutaneous carcinosarcoma, the patient remains under close clinical surveillance.

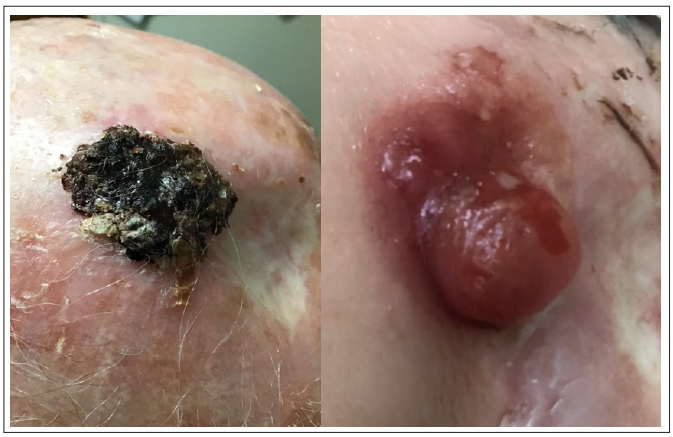

Figure 1. Clinical Photographs of Carcinosarcoma. The left image Demonstrates a Crusted Surface Covering the Scalp lesion. The Right image Shows the Underlying Exophytic Tumour following Removal of the Crust and Surface Debris.

Discussion

Cutaneous carcinosarcoma is rare but clinically important due to its aggressive biological behaviour. Most cases arise from pre-existing BCC, as in this patient. The tumour's biphasic morphology shows malignant epithelial and mesenchymal components with transitional zones, that is considered the key diagnostic hallmark. Immunohistochemistry is essential, as both components usually show at least focal epithelial marker expression despite mesenchymal differentiation [1-6].

The sarcomatous component often demonstrates deeper invasion and appears to drive overall aggressiveness and metastatic potential [4-7]. In contrast to conventional BCC, which has extremely low metastatic risk, transformation into carcinosarcoma significantly alters prognosis and mandates long-term monitoring following complete excision.

This case illustrates the importance of considering carcinosarcoma when sarcomatoid morphology arises within a common skin cancer, particularly in elderly patients or rapidly evolving lesions.

Conclusion

Cutaneous carcinosarcoma is an uncommon but aggressive malignancy that requires careful histopathological and immunohistochemical evaluation for accurate diagnosis. Recognition of its biphasic nature is essential to avoid misclassification as either BCC, SCC, or a soft-tissue sarcoma. Given its potential for recurrence and metastasis, vigilant clinical follow-up is warranted.

Learning Points

- Cutaneous carcinosarcoma is rare but clinically significant due to its aggressive behaviour.
- Immunohistochemistry is crucial for demonstrating dual epithelial and mesenchymal differentiation.
- The sarcomatous component typically determines tumour depth and is associated with worse prognosis.

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