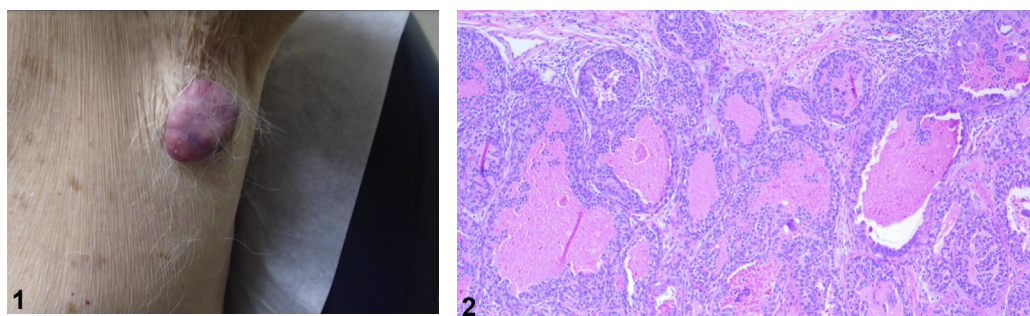


An elderly man with a vascular axillary mass



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A 94-year-old man presented with a painless, asymptomatic left axillary mass that grew over 25 years. The patient denied personal or family history of skin or breast cancer. The smooth pink pedunculated vascular mass measured 3.6 cm × 2.1 cm (Fig 1). Biopsy revealed glandular structures with luminal decapitation elements and micropapillary structures. The glandular components infiltrated the surrounding fibroadipose and breast tissue. Tumor cells had clear cytoplasm and high-grade features (including pleomorphic hyperchromatic nuclei, numerous mitoses, and atypical forms) (Fig 2) and stained positive for gross cystic disease fluid protein 15 (GCDFP-15). Adjacent axillary structures were normal. The mammogram was negative for breast masses. Computed tomography scan of the chest revealed multiple pulmonary nodules.

Question 1: What is the diagnosis?

- A. Breast cancer
- B. Seborrheic keratosis
- C. Primary apocrine adenocarcinoma
- D. Syringoma
- E. Merkel cell carcinoma

Answers:

- A. Breast cancer – Incorrect. Breast cancer would most likely be visible on a mammogram and is rare in men. In addition, the histopathology does not support breast cancer.
- B. Seborrheic keratosis – Incorrect. Seborrheic keratosis presents as a waxy, stuck-on appearing

lesion. This lesion's morphology is unlike that of seborrheic keratosis.

C. Primary apocrine adenocarcinoma – Correct. Primary apocrine adenocarcinoma presents as an axillary nodule and histologically as irregular glands and papillary structures admixed with trabecular and solid areas, large, polygonal cells with eosinophilic and/or finely granular cytoplasm, and decapitation secretion.¹ The pulmonary nodules were not sampled because the patient refused further evaluation and treatment. The diagnosis of primary apocrine adenocarcinoma was based on the clinical image, histologic findings, and negative mammogram findings. The remaining answer choices reflect conditions with similar presentations and should be ruled out prior to diagnosis.

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D. Syringoma — Incorrect. Syringomas classically are 1 mm to 3 mm benign entities that usually present on the face and neck.

E. Merkel cell carcinoma — Incorrect. Merkel cell carcinoma is histologically described as a trabecular organization of small blue tumor cells with anastomosing cords.²

Question 2: Immunohistochemical staining of primary cutaneous apocrine adenocarcinoma will most likely be positive for which of the following?

A. S100

B. GCDFP-15

C. CD34

D. CK20

E. Merkel cell polyoma virus

Answers:

A. S100 — Incorrect. S100-positive cells are derived from neural crest cells and more likely to be associated with melanocytes, Langerhans cells, Schwann cells, chondrocytes, adipocytes, and eccrine glands.

B. GCDFP-15 — Correct. Primary apocrine adenocarcinoma reliably stains positive for GCDFP-15.¹ GCDFP-15 is a marker of apocrine differentiation and narrows the diagnosis to primary apocrine adenocarcinoma and primary breast tumor; the clinical image and negative mammogram do not support the diagnosis of breast cancer.

C. CD34 — Incorrect. CD34 positivity can be associated with dermatofibrosarcoma protuberans and desmoplastic trichoepithelioma.

D. CK20 — Incorrect. CK20 positivity is usually associated with Merkel cell carcinoma.²

E. Merkel cell polyoma virus — Incorrect. Merkel cell polyoma virus positivity is usually associated with Merkel cell carcinoma.²

Question 3: Which receptors are not characteristically found on apocrine sweat glands?

A. Cholinergic muscarinic (M3) receptors

B. α 1-adrenergic receptors

C. β 2-adrenergic receptors

D. β 3-adrenergic receptors

E. Purinergic receptors

Answers:

A. Cholinergic muscarinic (M3) receptors — Incorrect. Cholinergic muscarinic (M3) receptors are associated with eccrine sweat glands but can also be found on apocrine sweat glands.

B. α 1-adrenergic receptors — Correct. α 1-adrenergic receptors are not found on apocrine sweat glands; however, they can be found on eccrine sweat glands. Apocrine gland tumors are rare, and understanding physiology is important in its distinction with other cutaneous appendages.

C. β 2-adrenergic receptors — Incorrect. β 2-adrenergic receptors can be found on both eccrine and apocrine sweat glands.

D. β 3-adrenergic receptors — Incorrect. β 3-adrenergic receptors can be found on eccrine and apocrine sweat glands.

E. Purinergic receptors — Incorrect. Purinergic receptors can be found on eccrine and apocrine sweat glands.³

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Abbreviation used:

GCDFP-15: gross cystic disease fluid protein 15

Conflicts of interest

Dr Reddy is a speaker for Ilumya (tildrakizumab) with Sun Pharmaceuticals. Author Bommareddy and Dr Kayastha have no conflicts of interest to declare.

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