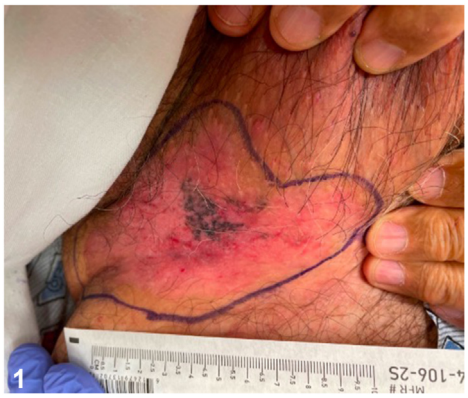
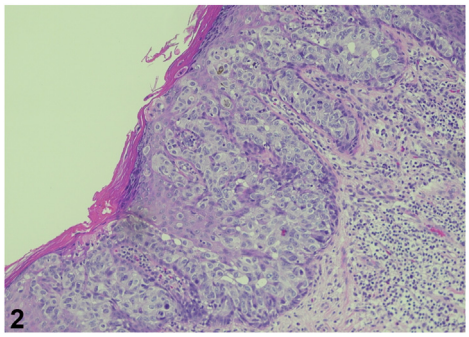
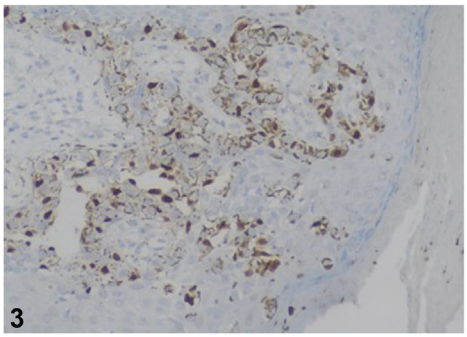
Focal pigmentation of an eroded erythematous inguinal plaque in an older man

Paras Mehta, BS, Mitchell Herold, MD, and Jeffrey Krase, MD, PharmD

Key words: inguinal plaque; melanoma; Paget's disease; pigmented lesion.







A 73-year-old male presented with several years of a painful rash in the left inguinal fold which slowly progressed to a focally eroded pink plaque with central hyperpigmentation (Fig 1), refractory to outside treatment with topical econazole, hydrocortisone 1% cream, and oral cephalexin. He denied gastrointestinal and genitourinary symptoms. Examination was negative for palpable inguinal lymphadenopathy. Histology of the excised lesion with hematoxylin and eosin (H&E) as well as immunostaining was performed (Fig 2 and 3). CK7 was diffusely positive except in areas of SOX10 positivity.

From the Division of Dermatology, Department of Medicine, University of Arizona College of Medicine, Tucson, Arizona.

Funding sources: Supported by the University of Arizona College of Medicine, Department of Medicine.

IRB approval status: Not applicable.

Consent: Consent for the publication of all patient photographs and medical information was provided by the authors at the time of article submission to the journal stating that all patients gave consent for their photographs and medical information to be published in print and online and with the understanding that this information may be publicly available.

Correspondence to: Mitchell Herold, MD, 1501 N Campbell Ave, Tucson, AZ 85724. E-mail: herold.mitch@gmail.com.

JAAD Case Reports 2022;27:20-2.

2352-5126

https://doi.org/10.1016/j.jdcr.2022.05.043

Question 1: What is the most likely diagnosis?

A. Amelanotic melanoma

B. Pigmented Bowen's disease

C. Intertrigo with retention hyperkeratosis

D. Extramammary Paget's disease (EMPD) with possible focal melanoma in situ (MIS)

E. Contact dermatitis

Answer:

A. Amelanotic melanoma — Incorrect. While morphologically similar, it would not stain diffusely positive for CK7.[1] Additionally, only a focal portion of the pagetoid-appearing cells seen on H&E stained positive for SOX10 (Fig 3).

B. Pigmented Bowen's disease — Incorrect. The pathologic specimen does not show the epidermal hyperplasia or full-thickness architectural and keratinocyte atypia characteristic of Bowen's disease. Furthermore, we would not expect this entity to stain strongly positive for CK7 or SOX10, as was seen in this case (Fig 3).

C. Intertrigo with retention hyperkeratosis — Incorrect. Intertrigo frequently appears bilaterally and would respond to drying and topical antifungal or steroids. The hyperpigmentation seen grossly was unable to be cleaned off as seen in retention hyperkeratosis.

D. EMPD with possible focal MIS — Correct. The macerated thin eroded pink plaque seen in this case is clinically consistent with EMPD and exhibits epidermal infiltration of large, atypical, pale pagetoid cells (Fig 2). Immunohistochemical staining positive for CK7 and carcinoembryonic antigen (CEA) confirmed the diagnosis of EMPD in the majority of the lesion.[2] The focally pigmented area expressed SOX10 positivity (Fig 3), which has up to a 100% sensitivity and 93% specificity for melanoma.[3] This area also exhibited loss of CK7 supporting focal MIS in a background of EMPD.

E. Contact dermatitis — Incorrect. The chronic progression with erosion and pain refractory to treatment should raise suspicion for malignancy. Histologically, we would expect variable epidermal spongiosis, acanthosis, and/or hyperkeratosis rather than diffuse pagetoid spread and pleomorphism (Fig 2).

Question 2: What additional workup should be considered for this patient?

A. No further workup is needed

B. Sentinel lymph node biopsy

C. Full-body positron emission tomography - computed tomography scan

D. Age-appropriate cancer screening

E. Age-appropriate cancer screening + colonoscopy + prostate-specific antigen + urine cytology

Answer:

A. No further workup is needed — Incorrect. Invasive EMPD has been linked to additional underlying malignancy, and further workup is recommended.

B. Sentinel lymph node biopsy — Incorrect. While select patients with palpable lymphadenopathy or lymphovascular invasion could be considered for additional imaging or sentinel node biopsy, our patient did not meet those criteria and only a subset of patients will require this procedure. All patients should be screened for associated malignancy as discussed below.

C. Full-body positron emission tomography - computed tomography scan — Incorrect. While a full-body positron emission tomography - computed tomography scan can often provide important information on cancer staging, it may not conclusively identify what additional malignancy may exist and it is unlikely to be a cost-effective screening method.

D. Age-appropriate cancer screening — Incorrect. Additional comprehensive screening should also be considered.

E. Age-appropriate cancer screening + colonoscopy + prostate-specific antigen + urine cytology — Correct. Invasive EMPD has been linked to additional underlying malignancy in 11% to 20% of cases.[4] In men, the above work up should be considered in addition to symptom targeted screening. Female patients should also be referred to gynecology for full breast and pelvic examinations with mammography and Pap test, respectively, as indicated. Common locations for additional malignancy are the female genital system, male genital system, breasts, skin, colorectum/anus.

Question 3: Which of the following immunohistochemical stains is least likely to be positive in EMPD?

A. S100

B. HMB45

C. SOX10

D. Melan-A

E. CK7

Answer:

A. S100 — Incorrect. While rare, cases of EMPD have been reported to stain positive with S100, HMB45, and Melan-A.[5] Although SOX10 has not, to our knowledge, been reported in cases of EMPD, this possibility cannot be completely excluded. Clinicians and pathologists should be aware of rare overlap of these markers to avoid misdiagnosis of melanoma in cases of EMPD.

B. HMB45 — Incorrect. While rare, cases of EMPD have been reported to stain positive with S100, HMB45, and Melan-A.[5] Although SOX10 has not, to our knowledge, been reported in cases of EMPD, this possibility cannot be completely excluded. Clinicians and pathologists should be aware of rare overlap of these markers to avoid misdiagnosis of melanoma in cases of EMPD.

C. SOX10 — Correct. SOX10 is a nuclear marker associated with a high sensitivity for melanoma.[3] Recently, stains including S100, HMB45, and Melan-A which are typically indicative of melanoma have been reported positive in cases of EMPD.[5] Given overlapping features on H&E, immunohistochemical stains are often utilized for discriminating these tumors. To our knowledge, there are no reports of SOX10 positivity in EMPD specimens which supports the utility of this stain in distinguishing the focal MIS found in our case from the surrounding EMPD. Although unlikely, the possibility that this case could represent the first ever reported pigmented EMPD staining focally with SOX10 cannot be completely excluded.

D. Melan-A — Incorrect. While rare, cases of EMPD have been reported to stain positive with S100, HMB45, and Melan-A.[5] Although SOX10 has not, to our knowledge, been reported in cases of EMPD, this possibility cannot be completely excluded. Clinicians and pathologists should be aware of rare overlap of these markers to avoid misdiagnosis of melanoma in cases of EMPD.

E. CK7 — Incorrect. CK7 and CEA are frequently reported positive in EMPD. In this case, CK7 and CEA positivity strongly supports diagnosis (Fig 3), with the majority of the specimen being negative for SOX10 and helpful in distinguishing from a melanocytic neoplasm.[3]

Abbreviations used:

CEA: carcinoembryonic antigen
EMPD: extramammary Paget's disease
H&E: hematoxylin and eosin
MIS: melanoma in situ

Conflicts of interest

None disclosed.

REFERENCES

1. Saliba E, Bhawan J. Aberrant expression of immunohistochemical markers in malignant melanoma: a review. *Dermatopathology (Basel)*. 2021;8(3):359-370.
2. Ishizuki S, Nakamura Y. Extramammary paget's disease: diagnosis, pathogenesis, and treatment with focus on recent developments. *Curr Oncol*. 2021;28(4):2969-2986.
3. Mohamed A, Gonzalez RS, Lawson D, Wang J, Cohen C. SOX10 expression in malignant melanoma, carcinoma, and normal tissues. *Appl Immunohistochem Mol Morphol*. 2013;21(6):506-510.
4. Kanitakis J. Mammary and extramammary paget's disease. *J Eur Acad Dermatol Venereol*. 2007;21(5):581-590.
5. Weston G, Murphy M. Aberrant Melan-A expression in extramammary paget disease. *Am J Dermatopathol*. 2021;43(11):845-846.